Module 05. Digital Techniques

01. Electronic Instrument Systems.

Question Number. 1. What are the basic elements for 'Classic T' format?.
Option A. Direction, altitude and height.
Option B. Airspeed, pitch and roll.
Option C. Airspeed, attitude, altitude and direction.
Correct Answer is. Airspeed, attitude, altitude and direction.
Explanation. NIL.

Question Number. 2. Typical displays on an EHSI are.
Option A. Engine indications.
Option B. VOR, Map, Plan and weather radar.
Option C. VOR, Plan, Map and Attitude.
Correct Answer is. VOR, Map, Plan and weather radar.
Explanation. Pallett - Aircraft Instruments.

Question Number. 3. An EADI display showing a moving runway moves down during the final stages of an approach. The aircraft must.
Option A. fly down.
Option B. fly up.
Option C. hold descent path.
Correct Answer is. fly down.
Explanation. At 200ft, during Approach, the Rising Runway starts to move up the EADI display until, at touch down, it touches the bottom of the aircraft symbol. If the Rising Runway start to move down again it means that the aircraft is climbing and should FLY DOWN.

Question Number. 4. During an instrument approach, the glideslope pointer eflects below the glideslope center mark. This means the aircraft is positioned.
Option A. above the glideslope.
Option B. below the glideslope.
Option C. to the left of the localiser.
Correct Answer is. above the glideslope.
Explanation. Consider the centre of the G/S scale as the aircraft position and the pointer as the centre of the G/S beam.

Question Number. 5. Engine parameters are displayed on.
Option A. ECAM.
Option B. EHSI.
Option C. FMSCDU.
Correct Answer is. ECAM.
Explanation. Engine parameters can be displayed on ECAM by selecting the Engine Page. See Pallett - Aircraft Instrumnets and Integrated Systems Page 391.

Question Number. 6. What is the fixed feature of an ADI?.
Option A. The glideslope pointer.
Option B. The aircraft symbol.
Option C. The lateral deviation bar.
Correct Answer is. The aircraft symbol.
Explanation. The little aeroplane pianted in the middle of the instrument.

Question Number. 7. On an EADI, the Flight Director command bars show.
Option A. the path with respect to the horizon.
Option B. the required path with respect to the actual path.
Option C. the actual path with respect to the required path.
Correct Answer is. the required path with respect to the actual path.
Explanation. NIL.

Question Number. 8. What instrument includes a display of a rising runway?.
Option A. ECAM.
Option B. EHSI.
Option C. EADI.
Correct Answer is. EADI.
Explanation. NIL.

Question Number. 9. What functions are available on the EHSI?.
Option A. Full arc and Wx only.
Option B. Full arc, Wx and Map Mode.
Option C. Full Arc only.
Correct Answer is. Full arc, Wx and Map Mode.
Explanation. NIL.

Question Number. 10. With radio coupled autopilot, what are the inputs?.
Option A. ADF and VOR.
Option B. ILS and VOR.

Option C. ADF and ILS.
Correct Answer is. ILS and VOR.
Explanation. NIL.

Question Number. 11. An EADI display of flight director commands are colored.
Option A. cyan.
Option B. magenta.
Option C. red.
Correct Answer is. magenta.
Explanation. Aircraft instruments and integrated systems,(pallet) page 302 fig 12.5 eadi flight director command bars are magenta.

Question Number. 12. EFIS systems have two control panels, their purpose is.
Option A. one to control the type of EFIS display and the other to select the source of the information being displayed.
Option B. one for the EADI display and one for the EHSI display.
Option C. to provide display control by one control panel whilst the other provides a standby.
Correct Answer is. one to control the type of EFIS display and the other to select the source of the information being displayed.
Explanation. NIL.

Question Number. 13. What would you expect to see displayed on an EADI display?.
Option A. Compass heading, selected heading and VOR.
Option B. Course information, weather radar, way point alert and bearing pointers.
Option C. Flight director command bars, slip indicator, rate to altitude & autoland.
Correct Answer is. Flight director command bars, slip indicator, rate to altitude & autoland.
Explanation. NIL.

Question Number. 14. An EFIS ADI display will show along with pitch and roll.
Option A. flight director bars, autoland, compass rose, altitude.
Option B. decision height, autoland, rad alt , altitude.
Option C. flight director bars, autoland, altitude, range to altitude, decision height.
Correct Answer is. decision height, autoland, rad alt , altitude.
Explanation. NIL.

Question Number. 15. If the glideslope pointer is below the centre mark the aircraft is.
Option A. below the glideslope.
Option B. on the glideslope.
Option C. above the glideslope.
Correct Answer is. above the glideslope.
Explanation. NIL.

Question Number. 16. On an EFIS system the weather radar is displayed on.
Option A. the FMC CDU.
Option B. the EADI.
Option C. the EHSI.
Correct Answer is. the EHSI.
Explanation. Aircraft Instruments and Integrated Systems EHJ Pallett Page 305.

Question Number. 17. EADI displays show.
Option A. pitch, roll and waypoints.
Option B. pitch and roll attitudes.
Option C. heading and weather radar.
Correct Answer is. pitch and roll attitudes.
Explanation. NIL.

Question Number. 18. On an EHSI in weather radar mode, a severe storm would be shown as.
Option A. orange areas with black or yellow surrounds.
Option B. red areas with black surrounds
Option C. blue areas with white background.
Correct Answer is. red areas with black surrounds.
Explanation. NIL.

Question Number. 19. During flight (non fault conditions) the EICAS system displays on the lower CRT.
Option A. flight phase page.
Option B. secondary engine parameters.
Option C. synoptic display.
Correct Answer is. secondary engine parameters.
Explanation. NIL.

Question Number. 20. Radio altitude is displayed on an EFIS system.
Option A. on the Electronic Horizontal Situation Indicator.
Option B. on the Electronic Attitude Direction Indicator.
Option C. on the RMI.
Correct Answer is. on the Electronic Attitude Direction Indicator.
Explanation. NIL.

Question Number. 21. An EFIS system ADI displays pitch, roll.
Option A. autoland, altitude, compass rose and flight director bars.
Option B. autoland, decision height, range to altitude and flight director bars and slip indicator.
Option C. autoland, rad alt, decision height and slip indicator.
Correct Answer is. autoland, decision height, range to altitude and flight director bars and slip indicator.
Explanation. NIL.

Question Number. 22. An electronic flight instrument display consists of.
Option A. Mode control panel, Raster and Stroke generator display, microprocessor and Data inputs.
Option B. ADC, Altimeter, VSI and ASI.
Option C. ADI, HSI and Symbol generator.
Correct Answer is. Mode control panel, Raster and Stroke generator display, microprocessor and Data inputs.
Explanation. Automatic Flight Control by EHJ Pallett and Shawn Coyle page 268.

Question Number. 23. The EFIS system consists of.
Option A. EHSI, Mode control panel, EADI.
Option B. EADI, EHSI, Symbol generators.
Option C. Mode control Panel, RDMI, EHSI.
Correct Answer is. EADI, EHSI, Symbol generators.
Explanation. NIL.

Question Number. 24. ILS indications on PFD/ND are shown in.
Option A. cyan.
Option B. magenta.
Option C. green.
Correct Answer is. magenta.
Explanation. NIL.

Question Number. 25. A weather radar image can be displayed on the ND on all modes except.
Option A. arc.
Option B. nav rose.
Option C. plan.
Correct Answer is. plan.
Explanation. NIL.

Question Number. 26. In a typical commercial aircraft Head Up Guidance System.
Option A. the type of information shown on the attitude director indicator is displayed on a transparent plate.
Option B. all instrument information is displayed on the windshield.
Option C. only emergency indications or warnings are displayed to the pilot.
Correct Answer is. the type of information shown on the attitude director indicator is displayed on a transparent plate.
Explanation. NIL.

Question Number. 27. A modern Electronic Horizontal Situation Indicator will display the following:.
Option A. Waypoints, ILS Steering Information, Distance to go and Magnetic Heading.
Option B. ILS Steering Information, Flight director information and Glide Slope Deviation.
Option C. Ground speed, Magnetic Heading, Way points and Localiser.
Correct Answer is. Waypoints, ILS Steering Information, Distance to go and Magnetic Heading.
Explanation. NIL.

Question Number. 28. Cockpit panels have a matt color finish. The purpose is.
Option A. so that pilots feel more comfortable during daytime.
Option B. so that the amount of glare is reduced to minimum.
Option C. so that dust and dirt are less evident on panels.
Correct Answer is. so that the amount of glare is reduced to minimum.
Explanation. NIL.

Question Number. 29. A complete EFIS installation in an aircraft is made up of.
Option A. either of the above.
Option B. right (captain) and left (co-pilot).
Option C. left (captain) and right (co-pilot).

Correct Answer is. either of the above.
Explanation. could be either, as helicopters are the other way round when compared to airplanes.

Question Number. 30. On a modern 'glass cockpit' aircraft, engine information will be displayed on.
Option A. FMS.
Option B. EFIS.
Option C. ECAM.
Correct Answer is. ECAM.
Explanation. NIL.

Question Number. 31. What does EFIS mean?.
Option A. Electronic Fire Indication Signal.
Option B. Electronic Flight Instrument System.
Option C. Electronic Flight Information System.
Correct Answer is. Electronic Flight Instrument System.
Explanation. NIL.

Question Number. 32. What does EICAS mean?.
Option A. Electronic indicator and control alerting system.
Option B. Engine indicating and Crew alerting system.
Option C. Electronic indicator and crew alerting system.
Correct Answer is. Engine indicating and Crew alerting system.
Explanation. NIL.

Question Number. 33. What does ECAM mean?.
Option A. Engine Centralized Aircraft Management System.
Option B. Engine Centralized Aircraft Monitoring System.
Option C. Electronic Centralized Aircraft Monitoring System.
Correct Answer is. Electronic Centralized Aircraft Monitoring System.
Explanation. NIL.

05.02. Numbering Systems.

Question Number. 1. Convert 011101 Base2 to octal.
Option A. 25.
Option B. 35.
Option C. 33.
Correct Answer is. 35.
Explanation. The OCTAL code has 8 digits, 0 - 7. To convert binary to octal divide the binary number into groups of three starting from the right. You've got to know your binary, octal, hex and bcd conversions!.

Question Number. 2. The binary number 11010111 expressed as a decimal is.
Option A. 215.
Option B. 223.
Option C. 207.
Correct Answer is. 215.
Explanation. NIL.

Question Number. 3. The octal number 1001 expressed as a decimal is.
Option A. 9.
Option B. 65.
Option C. 513.
Correct Answer is. 513.
Explanation. NIL.

Question Number. 4. What is 345 in binary?
Option A. 100111001.
Option B. 101011001.
Option C. 110011001.
Correct Answer is. 101011001.
Explanation. NIL

Question Number. 5. What is hex 110 in decimal?.
Option A. 282.
Option B. 272.
Option C. 32.
Correct Answer is. 272.
Explanation. NIL.

Question Number. 6. Convert the binary word 1100 to decimal.

Option A. 11.
Option B. 16.
Option C. 12.
Correct Answer is. 12.
Explanation. NIL.

Question Number. 7. If a data message is made up of 1s and 0s, it is.
Option A. analogue.
Option B. binary.
Option C. digital.
Correct Answer is. digital.
Explanation. Digital is 1s and 0s, either binary or grey code.

Question Number. 8. Convert the binary word 1110 to decimal.
Option A. 12.
Option B. 14.
Option C. 15.
Correct Answer is. 14.
Explanation. NIL.

Question Number. 9. Convert the binary number 110010 to decimal.
Option A. 80.
Option B. 50.
Option C. 34.
Correct Answer is. 50.
Explanation. NIL.

Question Number. 10. Convert the hexadecimal number D into decimal.
Option A. 13.
Option B. 15.
Option C. 14.
Correct Answer is. 13.
Explanation. NIL.

Question Number. 11. Convert decimal 15 into binary.
Option A. 1111.
Option B. 1101.
Option C. 1110.
Correct Answer is. 1111.

Explanation. NIL.

Question Number. 12. Convert 448 to hex.
Option A. 22 Base16.
Option B. 36 Base16.
Option C. 24 Base16.
Correct Answer is. 24 Base16.
Explanation. NIL.

Question Number. 13. Convert decimal 15 into hexadecimal.
Option A. G.
Option B. E.
Option C. F.
Correct Answer is. F.
Explanation. NIL.

Question Number. 14. What is 345 in binary?.
Option A. 100111001.
Option B. 110011001.
Option C. 101011001.
Correct Answer is. 101011001.
Explanation. NIL.

Question Number. 15. Convert 1D to binary.
Option A. 11101.
Option B. 29.
Option C. 101001.
Correct Answer is. 11101.
Explanation. NIL.

Question Number.16. Convert 2C hex to octal.
Option A. 35.
Option B. 44.
Option C. 54.
Correct Answer is. 54.
Explanation. NIL.

Question Number. 17. A hexadecimal is a number to base.
Option A. 2.

Option B. 16.
Option C. 8.
Correct Answer is. 16.
Explanation. NIL.

Question Number. 18. 101_2 converted to decimal is.
Option A. 5_2.
Option B. 2_{10}.
Option C. 5_{10}.
Correct Answer is. 5_{10}.
Explanation. NIL.

Question Number. 19. The binary coded decimal number 10011000 expressed as a decimal number is.
Option A. 152_8.
Option B. 98_{10}.
Option C. 1522.
Correct Answer is. 98_{10}.
Explanation. NIL.

Question Number. 20. The decimal number 7 expressed as a binary number is.
Option A. 101 Base 2.
Option B. 111 Base 2.
Option C. 7 Base 2.
Correct Answer is. 111 Base 2.
Explanation. NIL.

Question Number. 21. Convert 011101 binary to octal.
Option A. 25.
Option B. 35.
Option C. 33.
Correct Answer is. 35.
Explanation. NIL.

Question Number. 22. Binary Number: 110010 is.
Option A. 80.
Option B. 50.
Option C. 34.
Correct Answer is. 50.

Explanation. NIL.

Question Number. 23. Binary addition of 1101 + 101101 is.
Option A. 58.
Option B. 70.
Option C. 61.
Correct Answer is. 58.
Explanation. NIL.

Question Number. 24. The binary number 11010111 is expressed as a decimal is.
Option A. 107.
Option B. 215.
Option C. 53.
Correct Answer is. 215.
Explanation. NIL.

Question Number. 25. The octal number 1001 expressed as a decimal is.
Option A. 713.
Option B. 613.
Option C. 513.
Correct Answer is. 513.
Explanation. NIL.

Question Number. 26. What is 011100001 Base2 in Octal?.
Option A. 225 Base 8.
Option B. 281 Base 10.
Option C. 341 Base 8.
Correct Answer is. 341 Base 8.
Explanation. NIL.

Question Number. 27. The binary number 1010100011100101 Base2 in hexadecimal is.
Option A. 22BC Base 16.
Option B. FFFF Base 16.
Option C. A8E5 Base 16.
Correct Answer is. A8E5 Base 16.
Explanation. NIL.

Question Number. 28. 0011011000101001 when transferred to computer language this information can be a representation of.
Option A. binary, octal or decimal numbers.
Option B. hex, octal and binary numbers.
Option C. hex, octal and decimal numbers.
Correct Answer is. hex, octal and decimal numbers.
Explanation. Binary IS 'computer language' not a representation. Therefore any answer with 'binary' in it is wrong.

Question Number. 29. A computer message 3B4 is.
Option A. Octal.
Option B. binary.
Option C. hexadecimal.
Correct Answer is. hexadecimal.
Explanation. NIL.

Question Number. 30. What is 54 octal in hexadecimal?.
Option A. 2F.
Option B. 4F.
Option C. 2C.
Correct Answer is. 2C.
Explanation. NIL.

Question Number. 31. 2D in decimal is.
Option A. 43.
Option B. 45.
Option C. 41.
Correct Answer is. 45.
Explanation. Aircraft Electricity and Electronics Eismin 5th Edition Page 132.

Question Number. 32. 84 decimal in hexadecimal is.
Option A. 5f.
Option B. f4.
Option C. 54.
Correct Answer is. 54.
Explanation. Aircraft Electricity and Electronics Eismin 5th Edition Page 132.

Question Number. 33. 16 hexadecimal converted to decimal is equivalent to.

Option A. 48.
Option B. 38.
Option C. 22.
Correct Answer is. 22.
Explanation. Aircraft Electricity and Electronics Eismin 5th Edition Page 132.

Question Number. 34. Decimal 10 converted to binary is.
Option A. 1111.
Option B. 1001.
Option C. 1010.
Correct Answer is. 1010.
Explanation. Aircraft Electricity and Electronics Eismin 5th Edition Page 128.

Question Number. 35. What systems uses base 10?.
Option A. Octal.
Option B. Binary.
Option C. Decimal.
Correct Answer is. Decimal.
Explanation. Aircraft Electricity and Electronics Eismin 5th Edition Page 128.

Question Number. 36.What systems use base 16?.
Option A. BCD.
Option B. Octal.
Option C. Hexadecimal.
Correct Answer is. Hexadecimal.
Explanation. Aircraft Electricity and Electronics Eismin 5th Edition Page 132.

Question Number. 37. Binary coded decimal (BCD) format has a minimum of.
Option A. 2 lots of four.
Option B. four.
Option C. 3 lots of four.
Correct Answer is. four.
Explanation. NIL.

Question Number. 38. What is the Hexadecimal number F86 in Binary?.
Option A. 111110000001.
Option B. 3974.
Option C. 111110000110.
Correct Answer is. 111110000110.

Explanation. Convert it to Decimal first (15 x 256 + 8 x 16 + 6 x 1) = 3974. Since it is an even number, it must be the answer with a zero on the end.

Question Number. 39. What is 11000012 - 1011002?.
Option A. 10001101 Base 2.
Option B. 110111 Base 2.
Option C. 110101 Base 2.
Correct Answer is. 110101 Base 2.
Explanation. Aircraft Electricity and Electronics Eismin 5th Edition Page 1129.

Question Number. 40. What is used for the power of 10?.
Option A. Digital.
Option B. Octal.
Option C. Decimal.
Correct Answer is. Decimal.
Explanation. Decimal is a power of 10 counting system.

Question Number. 41. What is 44 in hexadecimal?.
Option A. 2d.
Option B. 2c.
Option C. 2F.
Correct Answer is. 2c.
Explanation. (2 * 16) + (12 * 1) = 44 (c = 12).

Question Number. 42. What is octal 33 in hexadecimal?.
Option A. 1b.
Option B. 11.
Option C. 22.
Correct Answer is. 1b.
Explanation. Octal 33 = (3 * 8) + (3 * 1) = 27 decimal. 27 = (1 * 16) + (11 * 1) = 1b (b = 11).

Question Number. 43. An octal format hexadecimal number 3F written as binary would be.
Option A. 110 111.
Option B. 111 111.
Option C. 101 011.
Correct Answer is. 111 111.
Explanation. NIL.

Question Number. 44. What is f86 hex when converted to binary?.
Option A. 1000010000110.
Option B. 111110000110.
Option C. 100000000000.
Correct Answer is. 111110000110.
Explanation. NIL.

Question Number. 45. In a computer, the address 3B8 is.
Option A. hexadecimal.
Option B. decimal.
Option C. octal.
Correct Answer is. hexadecimal.
Explanation. NIL.

Question Number. 46. What is a Grays converter?.
Option A. Analogue to Analogue.
Option B. Analogue to Digital.
Option C. Digital to Analogue.
Correct Answer is. Analogue to Digital.
Explanation. NIL.

Question Number. 47.What is the hexadecimal number AE5 in octal form?.
Option A. 5445.
Option B. 5340.
Option C. 5345.
Correct Answer is. 5345.
Explanation. NIL.

Question Number. 48. Hexadecimal 5C is what in binary?.
Option A. 1011111.
Option B. 1011100.
Option C. 1110100.
Correct Answer is. 1011100.
Explanation. NIL.

Question Number. 49. Binary 11001101 converted to octal is.
Option A. 12E.
Option B. 315.

Option C. 205.
Correct Answer is. 315.
Explanation. NIL.

Question Number. 50. What is the binary notation for 29?.
Option A. 0001 0110.
Option B. 0010 1001.
Option C. 0001 1101.
Correct Answer is. 0001 1101.
Explanation. Despite the deliberate gap between the blocks of 4 digits, this is not a BCD question.

Question Number. 51. 101012 + 110012 =.
Option A. 462.
Option B. 468. **Option C.** 4610.
Correct Answer is. 4610.
Explanation. 101012 + 110012 = 1011102 = 4610.

05.03. Data Conversion.

Question Number. 1. If a signal has quantity in volts and physical position it is.
Option A. digital.
Option B. synchronous.
Option C. analogue.
Correct Answer is. analogue.
Explanation. This is the definition of an analogue signal.

Question Number. 2. Within a computer controlled flight system, position feedback is converted from.
Option A. position feedback to rate feedback.
Option B. analogue to digital.
Option C. digital to analogue.
Correct Answer is. analogue to digital.
Explanation. NIL.

Question Number. 3. What is serial to parallel and vice-versa called?.
Option A. Switching.
Option B. Multiplex/Demultiplex.
Option C. Encoder/Decoder.
Correct Answer is. Multiplex/Demultiplex.

Explanation. NIL.

Question Number. 4. A thyristor is a device which has.
Option A. a positive temperature coefficient.
Option B. a negative temperature coefficient.
Option C. a temperature coefficient of zero.
Correct Answer is. a negative temperature coefficient.
Explanation. NIL.

Question Number. 5. Physical variables in quantitative forms, such as voltage or angular rotation of a shaft are.
Option A. digital.
Option B. analogue.
Option C. binary.
Correct Answer is. analogue.
Explanation. NIL.

Question Number. 6. A D to A converter is required to produce an output range of 0 to 10V. This can be achieved by.
Option A. a non inverting op amp connected in series with output.
Option B. an inverting op amp connected in series with output.
Option C. a differentiator with a 100 Kilohm feedback resistor.
Correct Answer is. an inverting op amp connected in series with output.
Explanation. NIL.

Question Number. 7. A D to A converter would use a precision amplifier to.
Option A. compensate for the variation of the feedback resistor with temperature.
Option B. ensure that the output voltages remain accurate.
Option C. ensure that the input voltage remains accurate.
Correct Answer is. ensure that the output voltages remain accurate.
Explanation. NIL.

Question Number. 8. A given transducer provides a voltage which corresponds to true heading. This voltage can beconverted to 'bits' by using a.
Option A. analogue to digital converter.
Option B. digital to analogue converter.
Option C. commutator.
Correct Answer is. analogue to digital converter.
Explanation. NIL.

Question Number. 9. An A to D converter uses successive approximation to.
Option A. increase resolution.
Option B. increase accuracy.
Option C. increase speed.
Correct Answer is. increase speed.
Explanation. NIL.

Question Number. 10. An R-2R D to A converter uses.
Option A. two values of resistors whose precision is not important.
Option B. two values of precision resistors.
Option C. resistors whose values are logarithmic.
Correct Answer is. two values of resistors whose precision is not important.
Explanation. NIL.

Question Number. 11. The function of a commutator is to.
Option A. convert from analogue to binary form.
Option B. provide continuous availability of all parameters connected to the system.
Option C. provide a sampling in sequence of a number of parameters.
Correct Answer is. provide a sampling in sequence of a number of parameters.
Explanation. NIL.

Question Number. 12. An encoder using Grey code.
Option A. changes analogue to binary.
Option B. changes digital to analogue.
Option C. changes analogue to digital.
Correct Answer is. changes analogue to digital.
Explanation. NIL.

Question Number. 13. An analogue to digital converter is as accurate as.
Option A. the frequency.
Option B. the sampling rate.
Option C. the amplitude.
Correct Answer is. the sampling rate.
Explanation. NIL.

Question Number. 14. A digital to analogue converter that requires the output to range between 0v and -10v would have.
Option A. a non-inverting amplifier in line with the output with a resistor to ground.

Option B. an inverting amplifier in series with the output line.
Option C. a non-inverting amplifier in parallel with the output line.
Correct Answer is. an inverting amplifier in series with the output line.
Explanation. NIL.

Question Number. 15. In an analogue to digital converter, the input voltage.
Option A. is switched by the digital input.
Option B. is intermittent.
Option C. stays on constantly.
Correct Answer is. stays on constantly.
Explanation. NIL.

Question Number. 16. An R-2R Converter has values or resistance.
Option A. whose relative precision are accurate.
Option B. whose precision are not accurate.
Option C. whose precision are accurate.
Correct Answer is. whose precision are not accurate.
Explanation. NIL.

Question Number. 17. What does 1 represent in an analogue system?.
Option A. High frequency
Option B. Switches closed, magnetised
Option C. Switches open, unmagnetised
Correct Answer is. Switches closed, magnetised
Explanation. NIL.

Question Number. 18. Audio sounds recorded digitally.
Option A. are superior quality and graeter bandwidth.
Option B. are narrow bandwidth.
Option C. are not as accurate due to clipping and input errors.
Correct Answer is. are superior quality and graeter bandwidth.
Explanation. NIL.

Question Number. 19. An analogue to digital converter where it counts up to binary state equal to the analogue input and then back down when this is reached is a.
Option A. a ramp type converter.
Option B. successive approximation counter.
Option C. flash type converter.
Correct Answer is. a ramp type converter.

Explanation. Digital Fundamentals T L Floyd page 790.

Question Number. 20. Transistors are used in a current triggered D to A device to.
Option A. switch off the inputs.
Option B. switch on the input.
Option C. change the state of the inputs.
Correct Answer is. change the state of the inputs.
Explanation. NIL.

Question Number. 21. Op amps generally used in ADCs and DACs are normally.
Option A. high input impedance, high output impedance.
Option B. high input impedance, low output impedance.
Option C. low input impedance , how output impedance.
Correct Answer is. high input impedance, low output impedance.
Explanation. NIL.

Question Number. 22. Analogue logic 1 is.
Option A. closed switch, Logic Q=0.
Option B. closed circuit, Logic Q=1.
Option C. open circuit.
Correct Answer is. closed circuit, Logic Q=1.
Explanation. NIL.

Question Number. 23. An ADC uses successive approximation to.
Option A. increase speed.
Option B. increase accuracy.
Option C. increase resolution.
Correct Answer is. increase speed.
Explanation. NIL.

Question Number. 24. A DAC uses a precision amplifier to.
Option A. ensure the output voltages remain accurate.
Option B. compensates for the variation of the feedback resistor due to temperature.
Option C. ensure the input remains accurate.
Correct Answer is. ensure the output voltages remain accurate.
Explanation. NIL.

Question Number. 25. A precision op-amp is used in a DAC to.
Option A. compensate for temperature variation.

Option B. give output at required level.
Option C. make output between 0 - 5V.
Correct Answer is. give output at required level.
Explanation. NIL.

Question Number. 26. In an R-2R ladder converter the values of resistors.
Option A. do not need to be of precise values.
Option B. only the first resistor need to be precise.
Option C. are precise.
Correct Answer is. do not need to be of precise values.
Explanation. NIL.

Question Number. 27. What is the quickest method of analogue to digital conversion?
Option A. Voltage to frequency.
Option B. Flash converter.
Option C. Single ramp method.
Correct Answer is. Flash converter.
Explanation. Digital Fundamentals by Thomas L Floyd.

Question Number. 28. A charge balancing ADC uses.
Option A. successive approximation logic circuit to control the output.
Option B. a closed loop system to compare the analogue input to give the required digital output.
Option C. a closed loop system to check the analogue input with the input sample.
Correct Answer is. a closed loop system to compare the analogue input to give the required digital output.
Explanation. NIL.

Question Number. 29. Sample and hold is a technique used in.
Option A. D to A conversion.
Option B. Moving coil instruments.
Option C. A to D conversion.
Correct Answer is. A to D conversion.
Explanation. NIL.

Question Number. 30. An analogue to digital converter (ADC) requires the following.
Option A. a reference voltage, an input gate, an internal counter, a comparitor.

Option B. a reference voltage, an input gate, a comparator.
Option C. a reference voltage, an input gate, an internal counter.
Correct Answer is. a reference voltage, an input gate, a comparator.
Explanation. NIL.

Question Number. 31. What is 'Throughput Rate' for the A/D converter?.
Option A. Number of complete digital words encoded in a specified unit of time.
Option B. None of the above.
Option C. Speed of variable resistor which senses the analogue signal.
Correct Answer is. Number of complete digital words encoded in a specified unit of time.
Explanation. NIL.

Question Number. 32. What is the Resolution of A/D and D/A converters?.
Option A. Resolution of the Instrument which displays the values.
Option B. Number of discrete values that can be represented by the digital word.
Option C. Rate at which data is converted.
Correct Answer is. Number of discrete values that can be represented by the digital word.
Explanation. NIL.

Question Number. 33. Digital signals can be represented.
Option A. only as a binary value.
Option B. by a series of integers.
Option C. by real numbers.
Correct Answer is. by a series of integers.
Explanation. NIL.

Question Number. 34. When testing EGT probe.
Option A. it must be soaked and ambient temperature allowance taken into consideration.
Option B. not necessarily soaked but ambient temperature must be taken into consideration.
Option C. if it’s not soaked, a minimum temperature of 20 degrees C taken as OAT.
Correct Answer is. it must be soaked and ambient temperature allowance taken into consideration.
Explanation. NIL.

Question Number. 35. A Digital to Analogue Converter has a resolution of 0.3 Volts. What will be the analogue output when the digital input is 10110.
Option A. 6.6 Volts RMS.
Option B. -6.6 Volts DC.G36.
Option C. 6.6 Volts DC.
Correct Answer is. 6.6 Volts DC.
Explanation. NIL.

Question Number. 36. A number represented as a physical quantity, e.g. voltage or speed of rotation is.
Option A. digital.
Option B. maximum value.
Option C. analogue.
Correct Answer is. analogue.
Explanation. NIL.

05.04. Data Buses.

Question Number. 1. In arinc 629, LRUs are programmed to transmit.
Option A. one at a time.
Option B. one transmits and one recieves.
Option C. all at the same time.
Correct Answer is. one transmits and one recieves.
Explanation. NIL.

Question Number. 2. In aircraft use, fiber optic cables should comply with.
Option A. ARINC 629 standard.
Option B. ARIND 429 standard.
Option C. ARIND 636 standard.
Correct Answer is. ARIND 636 standard.
Explanation. NIL.

Question Number. 3. ARINC 629 databus is.
Option A. one cable, bi-directional.
Option B. two cables, uni-directional.
Option C. two cables, bi directional.
Correct Answer is. two cables, bi directional.
Explanation. NIL.

Question Number. 4. An ARINC 573 data bus is used.

Option A. to input into a Digital Flight Data Recorder.
Option B. to supply digital inputs from a Symbol Generator to the EADI and EHSI.
Option C. to input into a FDR Digital Acquisition Unit.
Correct Answer is. to input into a Digital Flight Data Recorder.
Explanation. The FDR can have different inputs depending upon the age of the system, modern systems use ARINC 573. The inputs to FDR DAU are only analogue, discreet and ARINC 429. The interface between SGUs, EADI and EHSI is only ARINC 429.

Question Number. 5. An ARINC 429 bus uses.
Option A. a twisted shielded pair of wires.
Option B. two bi-directional twin sheathed and earthed wires.
Option C. a single twin wire cable for each transmitter.
Correct Answer is. a twisted shielded pair of wires.
Explanation. Pallett - Aircraft Instruments Page 157.

Question Number. 6. The ARINC 429 data bus word systems use.
Option A. binary coded decimal.
Option B. decimal numbering.
Option C. hexadecimal numbering.
Correct Answer is. binary coded decimal.
Explanation. Pallett - Aircraft Instruments Page 156.

Question Number. 7. ARINC 573 is related to what system?
Option A. Weather Radar.
Option B. FDR.
Option C. INS.
Correct Answer is. FDR.
Explanation. Boeing Maintenance Training notes for B757.

Question Number. 8. ARINC 629 current mode couplers are.
Option A. capacitive.
Option B. resistive.
Option C. inductive.
Correct Answer is. inductive.
Explanation. NIL.

Question Number. 9. ARINC 629 databus is.
Option A. one bus, bi-directional data flow.

Option B. two buses, unidirectional.
Option C. two buses, bi-directional data flow.
Correct Answer is. one bus, bi-directional data flow.
Explanation. NIL.

Question Number. 10. Normal transmission order of ARINC 629 LRUs in periodic mode is in order of.
Option A. shortest to largest TI.
Option B. shortest to largest TG.
Option C. power up.
Correct Answer is. power up.
Explanation. B777 MM 23-91-00 pg 41. Shortest to longest terminal gap is for aperiodic mode only.

Question Number. 11. In an ARINC 429 wordstring, bits 1 to 8 represent the.
Option A. destination LRU address.
Option B. monitored parameter.
Option C. message.
Correct Answer is. monitored parameter.
Explanation. Aircraft Instruments and Integrated Systems Pallett Page 159 and ARINCs tutorial.

Question Number. 12. ARINC 629 terminal transmit interval is.
Option A. common to each terminal.
Option B. unique to each terminal.
Option C. when all terminals are quiet.
Correct Answer is. common to each terminal.
Explanation. The ARINC 629 TI is common to all LRUs.

Question Number. 13. MIL-STD-1533 is a data bus for.
Option A. Inertial Reference System.
Option B. Flight Data Recorders.
Option C. Digital Information Transfer System.
Correct Answer is. Digital Information Transfer System.
Explanation. NIL.

Question Number. 14. ARINC 629 periodic mode is used for.
Option A. transferring data only on events important to aircraft operation.
Option B. database loads.

Option C. normal operation.
Correct Answer is. normal operation.
Explanation. NIL.

Question Number. 15. How is data coupled to an ARINC 629 data bus?.
Option A. By a resistive pickup.
Option B. By an inductive pickup.
Option C. By a capacitive pickup.
Correct Answer is. By an inductive pickup.
Explanation. NIL.

Question Number. 16. How does MIL-STD-1533 put data onto the databus?.
Option A. Through the bus controller.
Option B. R1 (remote terminal).
Option C. SSIFU (sub-system interface unit).
Correct Answer is. Through the bus controller.
Explanation. Through the bus controller.

Question Number. 17. The parity bit in digital information is used.
Option A. to check the validity of data information.
Option B. for BITE programs.
Option C. to check the status of the system.
Correct Answer is. to check the validity of data information.
Explanation. NIL.

Question Number. 18. ARINC 429 SDI word format is at bits.
Option A. 32.
Option B. 1-8.
Option C. 9-10.
Correct Answer is. 9-10.
Explanation. SDI = Source Destination Ident.

Question Number. 19. What is the parity bit for on an ARINC 429 bus?.
Option A. To act as a terminal gap in an emergency.
Option B. To delay the signal.
Option C. To check for corruption during transmission of a word.
Correct Answer is. To check for corruption during transmission of a word.
Explanation. NIL.

Question Number. 20. An ARINC 429 word label format is.
Option A. hexadecimal.
Option B. octal.
Option C. binary.
Correct Answer is. octal.
Explanation. NIL.

Question Number. 21. How many LRUs can be connected to an ARINC 429 data bus?.
Option A. 120.
Option B. 60.
Option C. 20.
Correct Answer is. 20.
Explanation. NIL.

Question Number. 22. ARINC 629 terminal transmit interval is.
Option A. common to each terminal.
Option B. is when all transmissions are quiet.
Option C. unique to each terminal.
Correct Answer is. common to each terminal.
Explanation. NIL.

Question Number. 23. An ARINC 429 bus uses.
Option A. a twisted shielded pair of wires.
Option B. a single twin cable for each transmitter.
Option C. two bi-directional twin, sheathed and earthed wires.
Correct Answer is. a twisted shielded pair of wires.
Explanation. NIL.

Question Number. 24. ARINC 429 data bus systems uses.
Option A. hexadecimal numbering.
Option B. binary coded decimal.
Option C. decimal numbering.
Correct Answer is. binary coded decimal.
Explanation. NIL.

Question Number. 25. An ARINC 429 Binary Coded Decimal word occupies word bits.

Option A. 1-8.
Option B. 11-29.
Option C. 11-28.
Correct Answer is. 11-29.
Explanation. Two versions of ARINC 429. BCD uses 11 - 29, Binary uses 11 - 28.

Question Number. 26. An ARINC 429 system uses a.
Option A. 20 bit word over a bi-directional bus.
Option B. 32 bit word over a twisted pair of wires.
Option C. 16 bit word over a twisted pair of wires.
Correct Answer is. 32 bit word over a twisted pair of wires.
Explanation. NIL.

Question Number. 27. An ARINC 629 characteristic is.
Option A. all LRUs can transmit and receive at the same time.
Option B. data can transmit in both directions down the data bus.
Option C. all LRUs can transmit at the same time.
Correct Answer is. data can transmit in both directions down the data bus.
Explanation. NIL.

Question Number. 28. What limits the number of ARINC 429 receivers on a bus?.
Option A. The speed and size.
Option B. The weight.
Option C. The parallel input impedance.
Correct Answer is. The parallel input impedance.
Explanation. NIL.

Question Number. 29. Data is transferred on the MIL-STD-1553B by.
Option A. non return to zero.
Option B. Manchester bi-phase.
Option C. bi-polar return to zero.
Correct Answer is. Manchester bi-phase.
Explanation. NIL.

Question Number. 30. How are engine indications sent to the FDR?.
Option A. Source isolated.
Option B. Via ARINC 629.
Option C. Via ARINC 573.
Correct Answer is. Via ARINC 573.

Explanation. NIL.

Question Number. 31. What system uses base 8?.
Option A. ARINC 429, in dataword labels only.
Option B. ARINC 573.
Option C. ARINC 629.
Correct Answer is. ARINC 429, in dataword labels only.
Explanation. NIL.

Question Number. 32. On an ARINC 629 data bus, the maximum amount of current-mode couplers per data bus is.
Option A. 46.
Option B. 120.
Option C. 64.
Correct Answer is. 120.
Explanation. 120 LRUs maximum (but the B777 uses 46).

Question Number. 33. To connect an LRU to the data bus.
Option A. a terminal controller and interface module only is required.
Option B. current mode coupler, terminal controller and a production break is required.
Option C. a current mode coupler, serial interface module and terminal controller is required.
Correct Answer is. a current mode coupler, serial interface module and terminal controller is required.
Explanation. NIL.

Question Number. 34. A current-mode coupler contains an E-Core assembly. The purpose of the E-Core is to provide effective screening of the signal through the.
Option A. current-mode coupler.
Option B. couple the signal to the data bus.
Option C. enable easy access for monitoring of the signal.
Correct Answer is. couple the signal to the data bus.
Explanation. NIL.

Question Number. 35. The ARINC 429 low rate of transmission is.
Option A. 100 kbits/second with high of 12-14 Mbits/second.
Option B. 12-14 Kbits/second with high of 100 kBits/second.
Option C. 12-14 Mbits/second with high of 100 Mbits/secon.

Correct Answer is. 12-14 Kbits/second with high of 100 kBits/second.
Explanation. NIL.

Question Number. 36. An ARINC 629 bus cable is a twisted pair of wires with.
Option A. a 130 ohm resistor at one end.
Option B. a 130 ohm resistor at both ends.
Option C. a 230 ohm resistor at one end.
Correct Answer is. a 130 ohm resistor at both ends.
Explanation. NIL.

Question Number. 37. An ARINC 629 stub cable.
Option A. connects single directional data between the LRU and current mode coupler.
Option B. connects bi-directional data between the LRU and current mode coupler.
Option C. connects bi-directional data between two LRUs.
Correct Answer is. connects bi-directional data between the LRU and current mode coupler.
Explanation. NIL.

Question Number. 38. Care must be taken when installing ARINC 629 cables into bus panels, damage to cables can cause.
Option A. corrosion of the conductor.
Option B. arcing of high voltage signals.
Option C. standing waves.
Correct Answer is. corrosion of the conductor.
Explanation. NIL.

Question Number. 39. An aircraft databus system.
Option A. can use both ARINC 629 and ARINC 429 as they are compatible.
Option B. can use both systems, ARINC 629 and ARINC 429 via system card files and signal gateways.
Option C. cannot use both ARINC 629 and ARINC 429 data buses.
Correct Answer is. can use both systems, ARINC 629 and ARINC 429 via system card files and signal gateways.
Explanation. NIL.

Question Number. 40. ARINC 629 is used for.
Option A. emergency only.
Option B. a backup to ARINC 429.

Option C. normal flight.
Correct Answer is. normal flight.
Explanation. NIL.

Question Number. 41. Once an ARINC 629 LRU has transmitted a message it will wait how long before transmitting again?.
Option A. Until the end of the synchronization gap.
Option B. Until the start of the terminal gap.
Option C. Until the end of the transmit interval
Correct Answer is. Until the end of the transmit interval.
Explanation. NIL.

Question Number. 42. How is the word label 206 written in ARINC 429?.
Option A. Decimal 206.
Option B. Octal 01100001.
Option C. Binary 11000110.
Correct Answer is. Octal 01100001.
Explanation. Label is Octal - MSB to right - so yes, it is backwards.

Question Number. 43. What is ARINC 561 used for?.
Option A. Fly by Wire systems.
Option B. Flight Data Recorder systems.
Option C. Inertial Navigation Systems.
Correct Answer is. Inertial Navigation Systems.
Explanation. NIL.

Question Number. 44. An ARINC data word is bits 11-29, if bits 11-18 are patched which of the following would be the LSB bit?.
Option A. 19.
Option B. 29.
Option C. 21.
Correct Answer is. 19.
Explanation. NIL.

Question Number. 45. Fiber optic database links are.
Option A. simplex.
Option B. bi-directional.
Option C. one way data buses.
Correct Answer is. bi-directional.

Explanation. NIL.

Question Number. 46. ARINC 629 is.
Option A. half duplex.
Option B. full duplex.
Option C. simplex.
Correct Answer is. half duplex.
Explanation. NIL.

Question Number. 47. A signal in an ARINC 629 system uses.
Option A. a pair of wires per transmitter unit.
Option B. a single wire.
Option C. a twisted pair of wires or fiber optics.
Correct Answer is. a twisted pair of wires or fiber optics.
Explanation. Aircraft Electricity and Electronics Eismin 5th Edition Page 148.
http://www.condoreng.com ARINC 429 tutorial

Question Number. 48. An in-series ARINC 429 system transmits using.
Option A. encoder.
Option B. time division multiplexing.
Option C. wave division multiplexing.
Correct Answer is. time division multiplexing.
Explanation. NIL.

Question Number. 49. A terminal controller.
Option A. is repetitive transmitting.
Option B. will transmit only once during each transmit interval.
Option C. transmits only when addressed.
Correct Answer is. will transmit only once during each transmit.
Explanation. NIL.

Question Number. 50. The number of LRUs which transmit/receive on ARINC429 is dependent upon.
Option A. speed of transmission & size of aircraft systems.
Option B. parallel input impedance.
Option C. size of S.D.I.
Correct Answer is. parallel input impedance.
Explanation. NIL.

Question Number. 51. One of the ARINC 429 formats is.
Option A. BCD.
Option B. octal.
Option C. hexadecimal.
Correct Answer is. BCD.
Explanation. http://www.condoreng.com ARINC 429 tutorial

Question Number. 52. A group of bits transmitted at the same time is.
Option A. parallel data.
Option B. a clock signal.
Option C. serial data.
Correct Answer is. parallel data.
Explanation. NIL.

Question Number. 53. The ARINC 429 system uses which of the following system to transfer data?.
Option A. Non return to zero.
Option B. Harvard bi phase.
Option C. Bi-directional return to zero.
Correct Answer is. Bi-directional return to zero.
Explanation. http://www.condoreng.com ARINC 429 tutorial

Question Number. 54. Which of the following ARINCs is bidirectional?.
Option A. 629.
Option B. 429.
Option C. 573.
Correct Answer is. 629.
Explanation. Aircraft Electricity and Electronics Eismin 5th Edition Page 148.
http://www.condoreng.com ARINC 429 tutorial

Question Number. 55. Data is transferred on the MIL-STD-1553B by using.
Option A. non return to zero.
Option B. Manchester bi-phase.
Option C. bipolar return to zero.
Correct Answer is. Manchester bi-phase.
Explanation. http://www.condoreng.com MIL-STD-1553 tutorial

Question Number. 56. The general arrangement of ARINC 629 includes.
Option A. databus cable, current mode coupler, stub cable.

Option B. current mode coupler, databus cable only.
Option C. databus cable, stub cable, voltage mode coupler.
Correct Answer is. databus cable, current mode coupler, stub cable.
Explanation. NIL.

Question Number. 57. ARINC 629 Databus cables are terminated using.
Option A. 100 ohms resistor.
Option B. 130 ohms resistor.
Option C. 25 ohms resistor.
Correct Answer is. 130 ohms resistor.
Explanation. NIL.

Question Number. 58. In ARINC 429 data field is bits 11 to 28. If the bits 11 to 18 had pad bits, the L.S.B. Of the data would be.
Option A. bit 11.
Option B. bit 28.
Option C. bit 19.
Correct Answer is. bit 19.
Explanation. NIL.

Question Number. 59. The BCD data field of ARINC 429 is contained within bits.
Option A. 11-29.
Option B. 11-28.
Option C. 1-8.
Correct Answer is. 11-29.
Explanation. Binary Word is 11 - 28. BCD Word is 11 - 29.

Question Number. 60. ARINC 629 is transmitted using.
Option A. single wire for each transmitter.
Option B. fiber optics or twisted pair of wires.
Option C. SWG 28 wire.
Correct Answer is. fiber optics or twisted pair of wires.
Explanation. Aircraft Electricity and Electronics Eismin 5th Edition Page 148.

Question Number. 61. A simplex system has.
Option A. 1 transmitter and multiple receivers.
Option B. 1 bus controller and 1 remote terminal.
Option C. 1 bus controller and multiple receivers.
Correct Answer is. 1 transmitter and multiple receivers.

Explanation. NIL.

Question Number. 62. To create a bi-directional communications link within an ARINC 429 system.
Option A. four databuses are required.
Option B. only one databus is required.
Option C. two databuses are required.
Correct Answer is. two databuses are required.
Explanation. NIL.

Question Number. 63. Why does an ARINC databus system send data to LRUs in series?.
Option A. Saves weight.
Option B. More information can be sent.
Option C. Takes less time.
Correct Answer is. Saves weight.
Explanation. Aircraft Electricity and Electronics Eismin 5th Edition Page 146.

Question Number. 64. Can an LRU transmit and receive on more than one 629 bus?.
Option A. Yes.
Option B. Only if paralleled.
Option C. No.
Correct Answer is. Yes.
Explanation. NIL.

Question Number. 65. ARINC 629 LRUs transmit.
Option A. when addressed.
Option B. when signal gap is sensed.
Option C. when terminal gap is sensed.
Correct Answer is. when terminal gap is sensed.
Explanation. Aircraft Electricity and Electronics Eismin 5th Edition Page 149.

Question Number. 66. An ARINC 429 BCD word occupies bits 11-29, if 11-15 are filled with padders then the LSB of the word will be.
Option A. 11.
Option B. 16.
Option C. 29.
Correct Answer is. 16.

Explanation. Aircraft Electricity and Electronics, Eismin Page 147.

Question Number. 67. A simplex system has.
Option A. one transmitter, many receivers.
Option B. a bus controller and separate controller.
Option C. one transmitter, one receiver.
Correct Answer is. one transmitter, many receivers.
Explanation. NIL.

Question Number. 68. In an Arinc 429 Word label-representing heading is 320, this is represented in bits 1- 8 as.
Option A. 01011001.
Option B. 00001011.
Option C. 01101000.
Correct Answer is. 00001011.
Explanation. Octal 320 converted to binary, and reversed.

Question Number. 69. In ARINC 629 aperiodic mode, LRUs transmit in order of.
Option A. longest terminal gap to shortest terminal gap.
Option B. power up.
Option C. shortest terminal gap to longest terminal gap.
Correct Answer is. shortest terminal gap to longest terminal gap.
Explanation. NIL.

Question Number. 70. ARINC 629, aperiodic mode is used.
Option A. for landing and approach operation.
Option B. for normal operation.
Option C. for database loads.
Correct Answer is. for database loads.
Explanation. B777 MM 23-91-00 pg 41. Periodic mode is for normal operation. Aperiodic mode is for non-normal operation and large information transfer such as database loads and operating software loads.

Question Number. 71. How is ARINC 429 bi-directional data transfer achieved?.
Option A. Via a current mode coupler.
Option B. Using two data buses.
Option C. Via a twisted pair of shielded cables.
Correct Answer is. Using two data buses.
Explanation. NIL.

Question Number. 72. The data format use to transmit signal to flight data recorder.
Option A. Harvard bi-phase 12 bit.
Option B. Bi-Polar RZ 12 bit.
Option C. Manchester 2 bi-phase 12 bit.
Correct Answer is. Harvard bi-phase 12 bit.
Explanation. NIL.

Question Number. 73. The output voltage of ARINC 429 signal is.
Option A. +5v.
Option B. +10v to -10v. H73.
Option C. -5v.
Correct Answer is. +10v to -10v. H73.
Explanation. NIL.

Question Number. 74. An ARINC 629 label word is.
Option A. 10 bits.
Option B. 12 bits.
Option C. 8 bits.
Correct Answer is. 12 bits.
Explanation. 12-bit label field, 4-bit label extension, single parity, 3-bit time hi-lo synch pulse. 20 bit in total.

Question Number. 75. The T/R of ARINC 629 is.
Option A. Encoder / decoder.
Option B. Multiplex / demultiplex.
Option C. switching.
Correct Answer is. Multiplex / demultiplex.
Explanation. NIL.

Question Number. 76. Terminal gap in ARINC 629 is.
Option A. always the same period.
Option B. flexible.
Option C. can be changed by adjusting the rx/tx software.
Correct Answer is. can be changed by adjusting the rx/tx software.
Explanation. Aircraft Electricity and Electronics, Eismin 5th Ed, pg149.

Question Number. 77. How does ARINC 629 bus transmit and receive information?.

Option A. Sockets and pins.
Option B. Inductive coupling.
Option C. Optical coupling.
Correct Answer is. Inductive coupling.
Explanation. NIL.

Question Number. 78. What is ARINC 561 used for?.
Option A. To specify LRU pin-outs.
Option B. To specify Radio Comms data bus.
Option C. To specify Flight Data Recorder data bus.
Correct Answer is. To specify Radio Comms data bus.
Explanation. NIL.

Question Number. 79. What is the purpose of the parity bit on an ARINC 429 bus?
Option A. To indicate if the data is analogue.
Option B. To indicate that the data is digital.
Option C. To indicate to the receiver that the data is valid.
Correct Answer is. To indicate to the receiver that the data is valid.
Explanation. NIL.

Question Number. 80. ARINC 429 is.
Option A. Single Source Multiple Sink System.
Option B. Multiple Source Multiple Sink system.
Option C. Single Source Single Sink system.
Correct Answer is. Single Source Multiple Sink System.
Explanation. NIL.

Question Number. 81. What is the purpose of intermediate production breaks in ARINC 429 or 629 Data cables?.
Option A. Cables are only manufactured 40 feet long.
Option B. To allow maintenance personnel to divide the right and left system buses into two parts for easy removal and installation.
Option C. To allow connection of new cables to the existing ones in case of a modification.
Correct Answer is. To allow maintenance personnel to divide the right and left system buses into two parts for easy removal and installation.
Explanation. NIL.

Question Number. 82. Where is the parity bit installed in a data word?.

Option A. Front.
Option B. End MSB.
Option C. Middle.
Correct Answer is. End MSB.
Explanation. NIL.

Question Number. 83. RZ bi-polar modulation consists of bits which are one of _____ states?.
Option A. Eight.
Option B. Two.
Option C. Three.
Correct Answer is. Three.
Explanation. NIL.

Question Number. 84. In the ARINC 429 digital information transfer system, data may travel in:.
Option A. both directions on the same bus simultaneously.
Option B. one direction only.
Option C. both directions on the same bus sequentially by time multiplexing.
Correct Answer is. one direction only.
Explanation. NIL.

Question Number. 85. An ARINC 629 data word.
Option A. includes an 8 bit label and a 16 bit data field.
Option B. has only 20 bits.
Option C. comprises up to 256 data bits.
Correct Answer is. has only 20 bits.
Explanation. NIL.

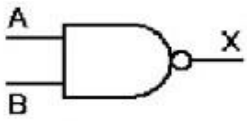
Question Number. 86. In an ARINC 429 digital word bit number 32 is used for.
Option A. terminating the data field.
Option B. checking parity.
Option C. identifying word type.
Correct Answer is. checking parity.
Explanation. NIL.

Question Number. 87. What connects an LRU to the Bus Coupler in an ARINC 629 Data Bus?.
Option A. Patch Cord.

Option B. Stub Cable.
Option C. Interconnect Cable.
Correct Answer is. Stub Cable.
Explanation. NIL.

05.05a. Logic Circuits.

Question Number. 1. What is the equivalent of this gate?.
Option A. = (NOT-A + NOT-B).
Option B. = (A + B)NOT.
Option C. = (A.B)NOT.



Correct Answer is. = (NOT-A + NOT-B).
Explanation. Draw the truth table for the NAND gate, then draw the truth tables for each answer in turn until you get one to match.

Question Number. 2. A NOR gate with both inputs inverted becomes a.
Option A. NAND gate.
Option B. AND gate.
Option C. OR gate.
Correct Answer is. AND gate.
Explanation. NIL.

Question Number. 3. Adding invertors to the two inputs of an AND gate makes a.
Option A. OR gate.
Option B. NOR gate.
Option C. NAND gate.
Correct Answer is. NOR gate.
Explanation. NIL.

Question Number. 4. This truth table is for a.

Option A. OR gate.
Option B. AND gate.
Option C. NAND gate.
Correct Answer is. AND gate.
Explanation. NIL.

A	B	C
0	0	0
1	0	0
0	1	0
1	1	1

Question Number. 5. Which logic gate can be represented as a parallel circuit?.
Option A. OR gate.

Option B. Exclusive OR gate.
Option C. NAND gate.
Correct Answer is. OR gate.
Explanation. NIL.

Question Number. 6. Making an inverter from a NAND or NOR gate is achieved by.
Option A. connecting the inputs.
Option B. inverting the input.
Option C. connecting two in series.
Correct Answer is. connecting the inputs.
Explanation. NIL.

Question Number. 7. An AND gate output is 1 when inputs are.
Option A. both 1.
Option B. both 0.
Option C. 1 and 0.
Correct Answer is. both 1.
Explanation. NIL.

Question Number. 8. What sort of gate requires two positive voltages to operate?.
Option A. AND.
Option B. OR.
Option C. NOT.
Correct Answer is. AND.
Explanation. NIL.

Question Number. 9. When will a NAND gate give logic 0 at the output?.
Option A. When both inputs are at 1.
Option B. When the inputs are different.
Option C. When both inputs are at 0.
Correct Answer is. When both inputs are at 1.
Explanation. NIL.

Question Number. 10. Which logic gate has this truth table?.

A	B	C
0	0	0
0	1	1
1	0	1
1	1	0

Option A. NOT.
Option B. NAND.
Option C. Exclusive OR.

Correct Answer is. Exclusive OR.
Explanation. NIL.

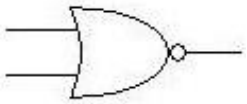
Question Number. 11. Which logic gate can be represented as a parallel circuit?.
Option A. Exclusive OR.
Option B. NAND.
Option C. OR.
Correct Answer is. OR.
Explanation. NIL.

Question Number. 12. What is this truth table?.

A	B	A.B
0	0	0
1	0	0
0	1	0
1	1	1

Option A. NOR gate.
Option B. NOT gate.
Option C. AND gate.
Correct Answer is. AND gate.
Explanation.

Question Number. 13. What sort of gate is this?.



Option A. NOT gate.
Option B. NOR gate.
Option C. Or gate.
Correct Answer is. NOR gate.
Explanation. NIL.

Question Number. 14. The output of a NOT gate is logic 1. The input is.
Option A. logic 0.
Option B. logic 1.
Option C. both logic 1.
Correct Answer is. logic 0.
Explanation. NIL.

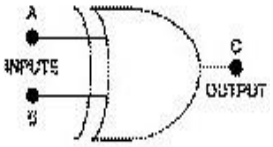
Question Number. 15. When the voltage that represents a logic 1 state is less than the voltage that represents a logic 0 state, the logic being used is.
Option A. either positive or negative.
Option B. positive.
Option C. negative.

Correct Answer is. negative.
Explanation. NIL.

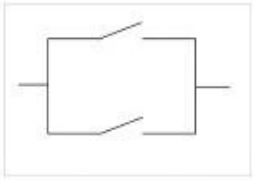
Question Number. 16. The output of an AND gate having two inputs A and B is logic 1. The two inputs will have the logic states of.
Option A. A = 0, B = 0.
Option B. A = 1, B = 0.
Option C. A = 1, B = 1.
Correct Answer is. A = 1, B = 1.
Explanation. NIL.

Question Number. 17.The output of an OR gate having two inputs A and B is logic 0. The two inputs will have the logic states of.
Option A. A = 1, B = 0.
Option B. A = 0, B = 1.
Option C. A = 0, B = 0.
Correct Answer is. A = 0, B = 0.
Explanation. NIL.

Question Number. 18. What is this symbol?.
Option A. Exclusive AND gate.
Option B. Exclusive NOR gate.
Option C. Exclusive OR gate.
Correct Answer is. Exclusive OR gate.
Explanation. NIL.



Question Number. 19. What Logic Gate does this switch circuit indicate?.
Option A. NOR gate.
Option B. AND gate.
Option C. OR gate.
Correct Answer is. OR gate.
Explanation. NIL.



Question Number. 20. Which logic gate has both inputs high to get an output?.
Option A. AND gate.
Option B. OR gate.
Option C. NAND gate.
Correct Answer is. AND gate.

Explanation. NIL.

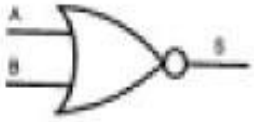
Question Number. 21. A NAND and NOR to become a NOT gate have.
Option A. inputs inverted.
Option B. outputs inverted.
Option C. inputs connected together.
Correct Answer is. inputs connected together.
Explanation. NIL.

Question Number. 22. An AND gate with inverted inputs and an inverted output is equivalent to.
Option A. an AND gate.
Option B. a NOR gate.
Option C. an OR gate.
Correct Answer is. an OR gate.
Explanation. NIL.

Question Number. 23. Logic gates internal operating mechanisms are produced from.
Option A. thin film resistors.
Option B. transistors.
Option C. diodes.
Correct Answer is. transistors.
Explanation. NIL.

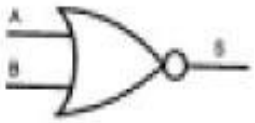
Question Number. 24. A logic 1 may be represented in an analogue system by (where Q is an output of a latch / flip-flop).
Option A. switch closed / light off / Not Q.
Option B. positive / magnetised / Q.
Option C. switch open / light on / Q.
Correct Answer is. positive / magnetised / Q.
Explanation. NIL.

Question Number. 25. To get logic 1 using this gate.



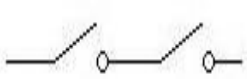
Option A. A and B = 0.
Option B. A or B = 1.
Option C. A and B = 1.
Correct Answer is. A and B = 0.
Explanation. NIL.

Question Number. 25. To get logic 1 using this gate.



Option A. A and B = 1.
Option B. A or B = 1.
Option C. A and B = 0.
Correct Answer is. A and B = 0.
Explanation. NIL.

Question Number. 26. What logic gate would this circuit represent?.



Option A. NAND Gate.
Option B. NOR gate.
Option C. AND gate.
Correct Answer is. AND gate.
Explanation. NIL.

Question Number. 27. What type of gate is this?.

A	B	S
0	0	0
0	1	1
1	0	1
1	1	0

Option A. NAND.
Option B. NOT.
Option C. E-OR.
Correct Answer is. E-OR.
Explanation. E-OR is another name for XOR.

Question Number. 28. What sort of gate requires two negative input voltages to operate?.
Option A. OR.
Option B. NAND.
Option C. NOT.
Correct Answer is. NAND.
Explanation. NIL.

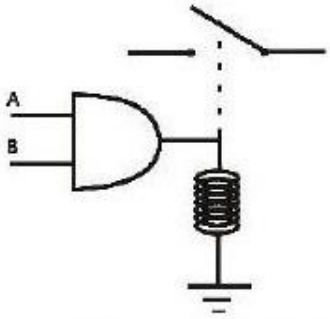
Question Number. 28. What sort of gate requires two negative input voltages to operate?.
Option A. NAND.
Option B. OR.
Option C. NOT.
Correct Answer is. NAND.
Explanation. NIL.

Question Number. 29. In Positive Logic representation.
Option A. both states have same positive voltages but stage 1 has more current.
Option B. state 1 is more positive than state 0.
Option C. state 0 is more positive than state 1.
Correct Answer is. state 1 is more positive than state 0.
Explanation. NIL.

Question Number. 30. Switching within logic gates is normally achieved with the use of.
Option A. BTB's.
Option B. relays.
Option C. diodes.
Correct Answer is. diodes.
Explanation. NIL.

Question Number. 31. The truth table of A =0011 B=0101 and =0110 indicates that the logic device is.
Option A. an ECLUSIVE OR gate.
Option B. a NOR gate.
Option C. an AND gate.
Correct Answer is. an ECLUSIVE OR gate.
Explanation. NIL.

Question Number. 32. What input is required to activate the relay shown?.



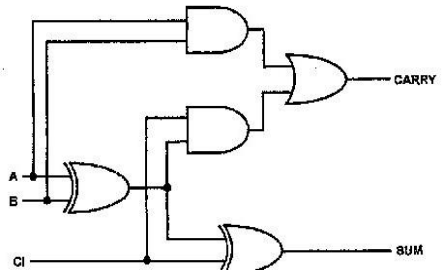
Option A. A=0 B=1.
Option B. A=1 B=0.
Option C. A=1 B=1.
Correct Answer is. A=1 B=1.
Explanation. NIL.

Question Number. 33. A NAND gate has inputs A and B and output C. If the output (c) was zero, what are the inputs?.
Option A. A=1 B=1.
Option B. A=0 B=0.
Option C. A=1 B=0.
Correct Answer is. A=1 B=1.
Explanation. NIL.

05.05b. Logic Circuits.

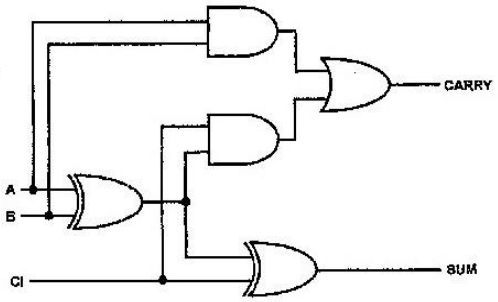
Question Number. 1. The 'fan-in' in a gate is the.
Option A. number of inputs to a gate.
Option B. number of outputs from a gate.
Option C. number of inputs and outputs of a gate.
Correct Answer is. number of inputs to a gate.
Explanation. NIL.

Question Number. 2. What does the logic circuit shown represent?.



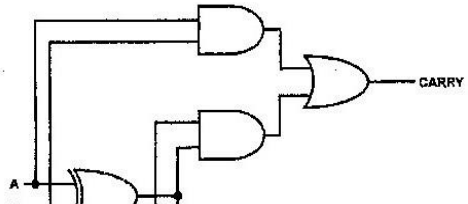
Option A. Full Adder Circuit.
Option B. Half adder circuit.
Option C. Multi-bit adder.
Correct Answer is. Full Adder Circuit.
Explanation. NIL.

Question Number. 3. What would be the outputs of this circuit, if A=0 B=0 C=1.



Option A. 1, 1.
Option B. 0, 1.
Option C. 0, 0.
Correct Answer is. 0, 1.
Explanation. Check out the table on http://www.play-hookey.com/digital/adder.html.
http://www.play-hookey.com/digital/adder.html

Question Number. 4. What would be the outputs of this circuit, if A=1 B=1 C=0.

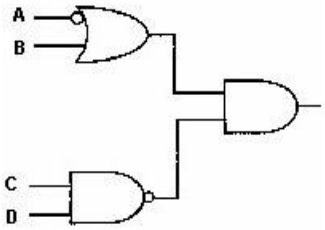


Option A. 0, 1.
Option B. 1, 1.
Option C. 1, 0.
Correct Answer is. 1, 0.
Explanation. Check out the table on
http://www.play-hookey.com/digital/adder.html.
http://www.play-hookey.com/digital/adder.html

Question Number. 5. Tristate devices are found.
Option A. on input circuits.
Option B. on output circuits.
Option C. on both input and output circuits.
Correct Answer is. on input circuits.
Explanation. NIL.

Question Number. 6. A full adder has.
Option A. three inputs and two outputs.
Option B. two inputs and one output.
Option C. three inputs and one output.
Correct Answer is. three inputs and two outputs.
Explanation. NIL.

Question Number. 7. What is the Boolean Algebra for the circuit shown?.



Option A. $A + B \,.\, \overline{C \,.\, D}$
Option B. $\overline{A} + B \,.\, \overline{C \,.\, D}$
Option C. $\overline{A + B} \,.\, C \,.\, D$
Correct Answer is. .
Explanation. NIL.

05.06a. Basic Computer Structure.

Question Number. 1. In a computer memory device, which one of these has the slowest access time?.
Option A. floppy disk.

Option B. magnetic tape.
Option C. 8mm video tape.
Correct Answer is. magnetic tape.
Explanation. 8mm video tape is not (and never has been) a computer memory device.

Question Number. 2. The advantage of DRAM over SRAM is.
Option A. are cheaper to manufacture.
Option B. has a larger storage capacity per chip area.
Option C. they operate slower.
Correct Answer is. has a larger storage capacity per chip area.
Explanation. NIL. http://en.wikipedia.org/wiki/DRAM

Question Number. 3. A BYTE is usually.
Option A. an 8 bit word.
Option B. a six bit word.
Option C. a 12 bit word.
Correct Answer is. an 8 bit word.
Explanation. NIL.

Question Number. 4. What is the definition of baud rate?.
Option A. 1 word per second.
Option B. 1 byte per second.
Option C. 1 bit per second.
Correct Answer is. 1 bit per second.
Explanation. NIL.

Question Number. 5. Which would have the least components?.
Option A. ALU.
Option B. CPU.
Option C. LSI.
Correct Answer is. ALU.
Explanation. NIL.

Question Number. 6. What is a baud?.
Option A. A bit of data.
Option B. A block of data.
Option C. A byte of data.
Correct Answer is. A bit of data.

Explanation. NIL.

Question Number. 7. In a bi-stable memory circuit.
Option A. the memory is retained indefinably.
Option B. the memory is lost as soon as power is removed.
Option C. the memory needs to be refreshed constantly, even when power is on.
Correct Answer is. the memory is lost as soon as power is removed.
Explanation. NIL.

Question Number. 8. What is the advantage of series over parallel message sending?.
Option A. Only one pair of conductors.
Option B. More information sent.
Option C. Quicker.
Correct Answer is. Only one pair of conductors.
Explanation. Aircraft Electricity and Electronics Eismin 5th Edition Page 146.

Question Number. 9. A typical example of a mass storage memory device which is also WORM (Write Once Read Many) is.
Option A. an IC.
Option B. a magnetic tape.
Option C. a CD Rom.
Correct Answer is. a CD Rom.
Explanation. NIL.

Question Number. 10. A computer using RAM would utilize.
Option A. magnetic tape.
Option B. a compact disc.
Option C. an integrated circuit (chip).
Correct Answer is. an integrated circuit (chip).
Explanation. Aircraft Electricity and Electronics Eismin 5th Edition Page 146.

Question Number. 11. Magnetic materials are used in.
Option A. ROMs only.
Option B. some RAMs.
Option C. EPROM.
Correct Answer is. some RAMs.
Explanation. NIL.

Question Number. 12. A typical example of a mass storage device is.
Option A. IC.
Option B. magnetic tape.
Option C. CD.
Correct Answer is. CD.
Explanation. NIL.

Question Number. 13. What is EPROM?.
Option A. Enhanced programmable read only memory.
Option B. Erasable programmable read only memory.
Option C. Erasable programming read only module.
Correct Answer is. Erasable programmable read only memory.
Explanation. Basic Electronics Malcolm Plant Page 87E.

Question Number. 14. How many bytes can be carried in a 32bit word?.
Option A. 8 bytes.
Option B. 4 bytes.
Option C. 2 bytes.
Correct Answer is. 4 bytes.
Explanation. 8 bits per byte.

Question Number. 15. A common used material in computer manufacturing is.
Option A. ferrite material.
Option B. permeamag material.
Option C. ferromagnetic material.
Correct Answer is. ferromagnetic material.
Explanation. Ferromagnetic material is that which hard-drives and floppy drives are made from.

Question Number. 16. Ferrite medium is used for computer memory because.
Option A. data is stored after the power is removed.
Option B. it is light.
Option C. it has low eddy current losses.
Correct Answer is. data is stored after the power is removed.
Explanation. NIL.

Question Number. 17. Data is usually stored in.
Option A. RAM.
Option B. ROM.

Option C. EEPROM.
Correct Answer is. ROM.
Explanation. NIL.

05.06b. Basic Computer Structure.

Question Number. 1. Registers are used in digital computers to.
Option A. store bits of information in a permanent memory.
Option B. store a limited amount of information on a temporary basis.
Option C. keep a count of operations completed.
Correct Answer is. store a limited amount of information on a temporary basis.
Explanation. NIL.

Question Number. 2. A computer consist of at least the C.P.U and.
Option A. memory and input & output port.
Option B. memory, ALU, input & output port.
Option C. register section, ALU, timing and control section.
Correct Answer is. memory and input & output port.
Explanation. Aircraft Electricity and Electronics Eismin 5th Edition Page 144, and Aircraft Instruments and Integrated Systems Pallett Page 153 Fig 6.1.

Question Number. 3. A basic computer would consist of.
Option A. register section, ALU and timing and control section.
Option B. memory, input/output ports and CPU.
Option C. RAM/ROM and input/output ports.
Correct Answer is. memory, input/output ports and CPU.
Explanation. Pallett Aircraft instuments & Integrated Systems Page 153.

Question Number. 4. DRAM.
Option A. requires a refreshing charge.
Option B. memory is stored when power supply is removed.
Option C. it does not require a refreshing charge.
Correct Answer is. requires a refreshing charge.
Explanation. NIL. http://computer.howstuffworks.com/ram4.htm

Question Number. 5. Bubble memory stores data on.
Option A. magnetic tape.
Option B. semiconductor material.
Option C. ferrite core.
Correct Answer is. semiconductor material.

Explanation. NIL. www.tpub.com/neets/book22/92a.htm

Question Number. 6. An EPROM.
Option A. is non-volatile memory.
Option B. requires constant refreshing.
Option C. is erased after reading.
Correct Answer is. is non-volatile memory.
Explanation. NIL.

Question Number. 7. A computer requires to operate, a.
Option A. address bus, a data bus only.
Option B. data bus, a control bus, a address bus.
Option C. data bus, a control bus only.
Correct Answer is. data bus, a control bus, a address bus.
Explanation. NIL.

Question Number. 8. data bus, a control bus only.
Option A. DRAM.
Option B. SRAM.
Option C. RAM.
Correct Answer is. SRAM.
Explanation. NIL.

Question Number. 9. A computer is acting in real time when.
Option A. the CPU requires a clock pulse.
Option B. the output is equal to the input of data.
Option C. the time to access memory is equal to the data speed in.
Correct Answer is. the output is equal to the input of data.
Explanation. NIL.

05.07. Microprocessors.

Question Number. 1. What is the function of a status register in a microprocessor?.
Option A. To indicate the status of the processor.
Option B. In the ALU, to store the position of the program during an interrupt.
Option C. To synchronize the clock pulse.
Correct Answer is. To indicate the status of the processor.
Explanation. NIL. http://www.i-garden.org/docu/cecs/cs14.pdf

Question Number. 2. What is the purpose of the ALU?.

Option A. To store data being used by the CPU.
Option B. The part of the CPU unit where arithmetic & logic operations are carried out.
Option C. To convert serial into parallel data.
Correct Answer is. The part of the CPU unit where arithmetic & logic operations are carried out.
Explanation. Aircraft Electricity and Electronics, Eismin, 5th Edition Page 146.

Question Number. 3. The CPU consists of.
Option A. ALU, timing and control section, register.
Option B. register and arithmetic logic unit only.
Option C. register, timing and control section only.
Correct Answer is. ALU, timing and control section, register.
Explanation. Aircraft Instruments and Integrated Systems EHJ Pallett Page 153 Basic CPU,. Aircraft Electricity and Electronics Eismin 5th Edition Page 145.

Question Number. 4. How is multiplication achieved in an ALU?.
Option A. by addition.
Option B. by subtraction.
Option C. by coupling.
Correct Answer is. by addition.
Explanation. NIL.

Question Number. 5. The smallest operation of a CPU is.
Option A. the processor cycle.
Option B. the processor sub-cycle.
Option C. the time cycle.
Correct Answer is. the time cycle.
Explanation. NIL.

Question Number. 6. Where does the clock signal in a microprocessor come from?.
Option A. ALU.
Option B. Memory.
Option C. Control unit.
Correct Answer is. Control unit.
Explanation. Aircraft Instruments and Integrated Systems, Pallett. Page 153.

Question Number. 7. Where is the operating program for the CPU stored?.
Option A. Control unit.

Option B. ALU.
Option C. Memory unit.
Correct Answer is. Memory unit.
Explanation. Aircraft Instruments and Integrated Systems, Pallett. Page 153.

Question Number. 8. A priority encoder.
Option A. outputs the highest input.
Option B. outputs the selected input.
Option C. outputs the lowest input.
Correct Answer is. outputs the highest input.
Explanation. NIL.

Question Number. 9. The smallest operation possible in a computer is the.
Option A. timing cycle.
Option B. processor sub-cycle.
Option C. processor cycle.
Correct Answer is. timing cycle.
Explanation. Also known as the clock pulse.

Question Number.10. A clock pulse in processor equipment.
Option A. is to synchronise everything.
Option B. is used for the maintenance tests.
Option C. is to give the correct timing when calculations are made.
Correct Answer is. is to synchronise everything.
Explanation. NIL.

Question Number. 11. In a computer, the code that fetches correct data and feeds it to the ALU is called.
Option A. the instruction set.
Option B. ARINC.
Option C. the computer program.
Correct Answer is. the instruction set.
Explanation. NIL. http://www.webopedia.com/TERM/I/instruction.html

Question Number. 12. A computer processor has within it.
Option A. register, buffer, data bus.
Option B. ALU, register, memory.
Option C. ALU, control section, register.
Correct Answer is. ALU, control section, register.

Explanation. NIL.

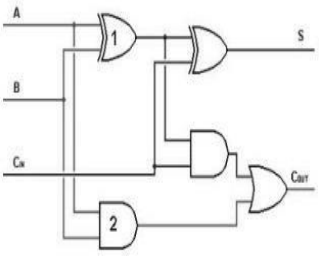
Question Number. 13. The arithmetic logic unit (ALU) in a central processor unit (CPU) carries out.
Option A. addition, subtraction, multiplication and division.
Option B. computations as instructed.
Option C. timing and synchronisation.
Correct Answer is. addition, subtraction, multiplication and division.
Explanation. NIL.

Question Number. 14. The CPU requires a clock to determine.
Option A. the number of bits on the highway.
Option B. the speed of operation.
Option C. the date and time.
Correct Answer is. the speed of operation.
Explanation. NIL.

Question Number. 15. An ALU performs the following.
Option A. Arithmetic, Logic, Branch and Move Operations.
Option B. Input/Output operations, Arithmetic, Logic Functions.
Option C. Arithmetic, Logic, Branch and Find Operations.
Correct Answer is. Input/Output operations, Arithmetic, Logic Functions.
Explanation. NIL.

05.08. Integrated Circuits.

Question Number. 1. What function do gates 1 and 2 perform?.



Option A. Full adder.
Option B. Half Adder.
Option C. Shift Register.
Correct Answer is. Half Adder.
Explanation. NIL.
http://gs.fanshawec.ca/tlc/math270/2_7_Binary_Adders.htm

Question Number. 2. On an IC, pin 1 is to the left of the notch. Which way are the pins numbered?.
Option A. Left to right.
Option B. Anticlockwise.

Option C. Clockwise.
Correct Answer is. Anticlockwise.
Explanation. NIL. http://www.kpsec.freeuk.com/components/ic.htm

Question Number. 3. When 4 binary serial counters are connected in cascade for frequency division, what division factor is required?.
Option A. 8.
Option B. 16.
Option C. 4.
Correct Answer is. 16.
Explanation. Each serial counter changes its state once every 2 clock pulses. So 4 serial counters divides by 2x2x2x2 = 16.

Question Number. 4. 3 binary counters in cascade. What is the division?.
Option A. 32.
Option B. 8.
Option C. 16.
Correct Answer is. 8.
Explanation. Each serial counter changes its state once every 2 clock pulses. So 3 serial counters divides by 2x2x2 = 8.

Question Number. 5. Within a 3 bit frequency cascade, division is to.
Option A. 2.
Option B. 4.
Option C. 8.
Correct Answer is. 8.
Explanation. NIL.

Question Number. 6. Very Large Scale Integrated (VLSI) means the number of gates in a single IC is.
Option A. up to 10,000.
Option B. over 10,000.
Option C. up to 1000.
Correct Answer is. over 10,000.
Explanation. NIL.

Question Number. 7. An encoder changes.
Option A. digital to analogue.
Option B. analogue to digital.

Option C. data from one format to another.
Correct Answer is. data from one format to another.
Explanation. NIL.

Question Number. 8. An RS flip-flop with Q at 1 is said to be.
Option A. set.
Option B. reset.
Option C. zero.
Correct Answer is. set.
Explanation. NIL.

Question Number. 9. When a JK flip flop is used as a memory device, what type of memory would it be?.
Option A. read-only.
Option B. non-volatile.
Option C. volatile.
Correct Answer is. volatile.
Explanation. NIL.

Question Number. 10. In an RS flip flop, output is one. This means it is.
Option A. intermediate.
Option B. reset.
Option C. set.
Correct Answer is. set.
Explanation. Aircraft Electricity and Electronics Eismin 5th Edition Page 143.

Question Number. 11. An ALU is an example of.
Option A. MSI.
Option B. SSI.
Option C. LSI.
Correct Answer is. LSI.
Explanation. NIL.

Question Number. 12. With a j-k flip flop which is the output set.
Option A. q = 1.
Option B. q = 0.
Option C. either.
Correct Answer is. q = 1.
Explanation. NIL.

Question Number. 13. Data is converted from serial to parallel and parallel to serial by.
Option A. a synchronous counter.
Option B. a parallel register.
Option C. a shift register.
Correct Answer is. a shift register.
Explanation. NIL.

Question Number. 14. A typical characteristic of a CMOS is.
Option A. high power dissipation.
Option B. high voltage handling.
Option C. low power dissipation.
Correct Answer is. low power dissipation.
Explanation. Aircraft Electricity and Electronics Eismin 5th Edition Page 140.

Question Number. 15. The pins on an op amp are numbered.
Option A. anticlockwise.
Option B. clockwise.
Option C. cross ways.
Correct Answer is. anticlockwise.
Explanation. NIL.

Question Number. 16. A parallel register.
Option A. requires a clock pulse for each bit.
Option B. reads each bit to be stored simultaneously.
Option C. reads the stored data when logic 0 is applied to the read line.
Correct Answer is. reads each bit to be stored simultaneously.
Explanation. NIL.

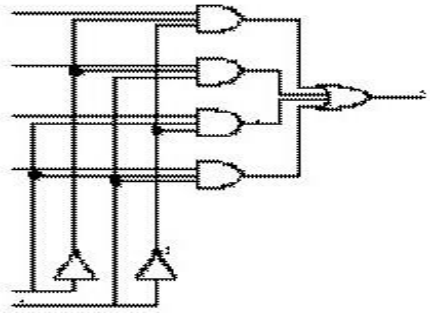
Question Number. 17. A device, which converts serial to parallel and parallel to serial for arithmetical functions, is a.
Option A. Parallel to serial and serial to parallel converter.
Option B. Shift Register.
Option C. Multiplexer and De-Multiplexer.
Correct Answer is. Shift Register.
Explanation. Pulse code modulation/parallel to seria.

Question Number. 18. What is the device used to convert Binary Coded Decimal into separate supplies for a seven segment digital display?.
Option A. Multiplexer.
Option B. Decoder.
Option C. Demultiplexer.
Correct Answer is. Decoder.
Explanation. RS catalogue...part number CA3161 (see www.RSwww.com website and enter the part number in their search box).

Question Number. 19. Operation of a frequency counter is such that.
Option A. it compares the incoming waveform with standard sine waves.
Option B. it detects incidences of peak value.
Option C. it changes the incoming waveform to a standard square wave.
Correct Answer is. it changes the incoming waveform to a standard square wave.
Explanation. Aircraft Electricity and Electronics, Eismin Page 168.

Question Number. 20. An example of a small size integrated circuit would be.
Option A. DIP switch.
Option B. Control Processor Unit.
Option C. ALU.
Correct Answer is. Control Processor Unit.
Explanation. A DIP switch is not an IC. ALU is an integrated part of the CPU. The 'Control Processor Unit' is another term used for the 'Central Processor Unit (CPU)' or sometimes a switching unit used in telegraphy (such as the touch-pad of a telephone) - the latter would be an SSI (defined as containing up to 100 transistors or gates).

Question Number. 21. What is this?.



Option A. Counter.
Option B. Shift register.
Option C. Multiplexer.
Correct Answer is. Multiplexer.
Explanation. NIL.

Question Number. 22. In a Master Slave, negative edge triggered JK flip flop, both inputs are connected to logic 1. The output.
Option A. will change state when the leading edge of the clock pulse is applied.

Option B. will change state when the trailing edge of the clock pulse is applied.
Option C. does not change state when a clock pulse is applied.
Correct Answer is. will change state when the trailing edge of the clock pulse is applied.
Explanation. NIL.

05.09. Multiplexing.

Question Number. 1. A 12 bit 16 Channel encoder will use a multiplexer with.
Option A. 3 bit parallel address line.
Option B. 4 bit parallel address line.
Option C. 2 wire series address line.
Correct Answer is. 4 bit parallel address line.
Explanation. With 16 inputs, it needs 4 data select lines (to provide all 16 combinations).

Question Number. 2. How many address lines would be needed for an 8 line MU?.
Option A. 2.
Option B. 3.
Option C. 4.
Correct Answer is. 3.
Explanation. NIL.

Question Number. 3. In a MU, how is parallel converted to serial?.
Option A. By way of a shift register.
Option B. By way of an encoder.
Option C. By way of a demultiplexer.
Correct Answer is. By way of a shift register.
Explanation. NIL.

Question Number. 4. A multiplexer.
Option A. takes many signals in and converts it to a serial transmission output.
Option B. takes many signals in and puts these in a parallel transmission on the output.
Option C. takes one signal in and converts it to a parallel transmission output.
Correct Answer is. takes many signals in and converts it to a serial transmission output.
Explanation. NIL.

Question Number. 5. A multiplexer in test equipment could be used for.
Option A. frequency divider.
Option B. analogue to digital converter.
Option C. digital to analogue converter.
Correct Answer is. frequency divider.
Explanation. NIL.

Question Number. 6. An 8 data input multiplexer has how many Data Select lines.
Option A. 8.
Option B. 3.
Option C. 2.
Correct Answer is. 3.
Explanation. NIL.

Question Number. 7. The signal sent between a MU/DEMU is controlled by.
Option A. clock.
Option B. the ALU.
Option C. control unit.
Correct Answer is. control unit.
Explanation. NIL.

05.10. Fiber Optics.

Question Number. 1. Some of the advantages of fiber optic cable over copper cables are.
Option A. non conductive, easy to manufacture and assemble, more robust, cheap.
Option B. smaller in size and weight, non conductive, higher security and higher bandwidth.
Option C. non conductive, smaller in size and weight, easy to manufacture and assemble and higher security.
Correct Answer is. smaller in size and weight, non conductive, higher security and higher bandwidth.
Explanation. NIL.

Question Number. 2. A fiber optic cable consists of.
Option A. a silica glass core with a cladding having a lower refractive index.
Option B. a silica glass core with a cladding having a higher refractive index.
Option C. a plastic core with a cladding having a higher refractive index.
Correct Answer is. a silica glass core with a cladding having a lower refractive index.

Explanation. NIL. www.commspecial.com/fiberguide

Question Number. 3. Fiber optic cables.
Option A. are immune to EMI.
Option B. attenuate EMI.
Option C. are susceptible to EMI.
Correct Answer is. are immune to EMI.
Explanation. NIL.

Question Number. 4. Two connected fiber optic cable ends are parallel but not quite touching. This is called.
Option A. end to end coupling.
Option B. lens connector.
Option C. end fire coupling.
Correct Answer is. end to end coupling.
Explanation. NIL.

Question Number. 5. A disadvantage of a fiber optic cable is.
Option A. couplings susceptible to ingress of fluid.
Option B. end terminals are susceptible to environmental contamination.
Option C. shallow bend radius allowed.
Correct Answer is. end terminals are susceptible to environmental contamination.
Explanation. NIL. www.commspecial.com/fiberguide.htm

Question Number. 6. What kind of light is used in a fiber optic systems?.
Option A. Infrared.
Option B. Visible.
Option C. Ultraviolet.
Correct Answer is. Infrared.
Explanation. NIL. www.floti.bell.ac.uk/MathsPhysics/light.htm

Question Number. 7. Fiber optic data is sent by.
Option A. modulating the frequency of a laser beam.
Option B. a strobe light.
Option C. modulating the frequency of a filament beam.
Correct Answer is. a strobe light.
Explanation. Modulating the frequency would change the color of the light.

Question Number. 8. HIRF is prevented from entering a fiber optic cable by.

Option A. using an opto-isolator coupling.
Option B. grounding the fiber at both ends.
Option C. enclosing it in a metal braid.
Correct Answer is. using an opto-isolator coupling.
Explanation. Although a fiber optic cable is 'immune' from collecting HIRF, it can still transmit HIRF which has been picked up by the source circuitry. An optoelectronic isolator will filter out the HIRF prior to transmission.

Question Number. 9. Continuity of a fiber optic cable is checked by.
Option A. a calibrated light source.
Option B. a calibrated light source and an opto-power meter.
Option C. a light source and an opto-power meter.
Correct Answer is. a calibrated light source and an opto-power meter.
Explanation. NIL. http://www.tpub.com/neets/tm/109-13.htm

Question Number. 10. A fiber optic data bus used on an aircraft.
Option A. can send only one message at a time.
Option B. can transmit on several channels at the same time.
Option C. connects non-essential systems only.
Correct Answer is. can transmit on several channels at the same time.
Explanation. NIL.

Question Number. 11. Light travels along a fiber optic by.
Option A. refraction.
Option B. reflection.
Option C. dispersion.
Correct Answer is. reflection.
Explanation. NIL.

Question Number. 12. What is the main disadvantage of a fiber optic data bus?.
Option A. Less strong and durable when compared to twisted pair and coaxial cable.
Option B. Expensive to install.
Option C. Bend radius and moisture ingress at connections.
Correct Answer is. Expensive to install.
Explanation. NIL.

Question Number. 13. A typical fiber optic connector is.
Option A. F-type connector.
Option B. coupling type, with lens fitted.

Option C. push-pull connector.
Correct Answer is. coupling type, with lens fitted.
Explanation. NIL.

Question Number. 14. Which of the following is an optoelectronic device?.
Option A. Triac.
Option B. Laser Diode.
Option C. Thyristor.
Correct Answer is. Laser Diode.
Explanation. NIL.

Question Number. 15. What is the advantage of a single mode fiber optic over ordinary wire?.
Option A. Not prone to damage.
Option B. Large bandwidth.
Option C. Small bend radius.
Correct Answer is. Large bandwidth.
Explanation. NIL.

Question Number. 16. A fiber optic light source is normally.
Option A. a strobe light.
Option B. a filament lamp.
Option C. a laser or LED.
Correct Answer is. a laser or LED.
Explanation. NIL.

Question Number. 17. The fiber optic cable can be identified on aircraft by its jacket color which is.
Option A. purple.
Option B. yellow.
Option C. red.
Correct Answer is. purple.
Explanation. NIL.

Question Number. 18. For a fiber optic cable connector that is not regularly disconnected you would use the.
Option A. butt type.
Option B. ball lens type.
Option C. ceramic lens type.

Correct Answer is. butt type.
Explanation. NIL.

Question Number. 19. What maintenance problems are associated with fiber optics?.
Option A. Corrosion.
Option B. Kinking and contamination of connectors.
Option C. Earthing faults.
Correct Answer is. Kinking and contamination of connectors.
Explanation. NIL.

Question Number. 20. A fiber optic data bus.
Option A. can transmit several messages simultaneously.
Option B. is only used for non essential messages.
Option C. can only transmit 1 message at a time.
Correct Answer is. can transmit several messages simultaneously.
Explanation. NIL.

Question Number. 21. A fiber optic cable to LRU connector should be connected.
Option A. very carefully to ensure alignment and reduce light loss.
Option B. using torque-loaded pliers.
Option C. hand tight only.
Correct Answer is. very carefully to ensure alignment and reduce light loss.
Explanation. NIL.

Question Number. 22. Some of the advantages of fiber optic cable over copper cable are.
Option A. smaller size and weight, non conductive, more rugged, higher security.
Option B. non conductive, easy to manufacture and assemble, higher bandwidth.
Option C. non conductive, higher bandwidth, higher security, smaller size and weight.
Correct Answer is. smaller size and weight, non conductive, more rugged, higher security.
Explanation. NIL.

Question Number. 23. In a single mode fiber optic cable.
Option A. several waves travel down the cable.

Option B. the diameter of the cable is dependent on the wavelength of the light used.
Option C. the distortion of the signal is dependent on the length of cable.
Correct Answer is. the diameter of the cable is dependent on the wavelength of the light used.
Explanation. NIL.

Question Number. 24. A semiconductor which emits photons and releases electrons when stimulated by photons is called.
Option A. a photodiode.
Option B. a laser diode.
Option C. an LED.
Correct Answer is. a laser diode.
Explanation. NIL.

Question Number. 25. What does a fiber optic star connection do?.
Option A. Provides a continuous loop of fiber interconnecting all nodes.
Option B. Provides direct point-to-point services to units on dedicated lines emanating from the central hub.
Option C. Shares a common bandwidth of a common cable.
Correct Answer is. Provides direct point-to-point services to units on dedicated lines emanating from the central hub.
Explanation. NIL.

Question Number. 26. A fiber optic lens type coupling with lens and integral LED compared to an end-fire coupling is.
Option A. more efficient.
Option B. less efficient.
Option C. equally efficient.
Correct Answer is. more efficient.
Explanation. NIL.

Question Number. 27. Passive sensors in fiber optics.
Option A. Passive sensors in fiber optics.
Option B. require power for processing the signal before they send them down the fiber optic.
Option C. require no power and they do not process signals.
Correct Answer is. process the signal but do not require power.
Explanation. NIL.

Question Number. 28. Optical fiber losses are due to.
Option A. absorption only.
Option B. absorption, scattering and reflection.
Option C. radiation, absorption and reflection.
Correct Answer is. absorption, scattering and reflection.
Explanation. Introduction to Fiber Optics John Crisp Page 50.

Question Number. 29. The cone of acceptance is measured between.
Option A. the two outer angles.
Option B. the two outer angles.
Option C. longitudinal axis of the core and the outer angle.
Correct Answer is. longitudinal axis of the core and the outer angle.
Explanation. Introduction to Fiber Optics John Crisp Page 29.

Question Number. 30. Fiber optic cables use.
Option A. refractive outer shell.
Option B. reflective inner shell.
Option C. reflective outer shell.
Correct Answer is. refractive outer shell.
Explanation. The outer cladding is glass, so it is refractive (but less so than the core). Cladding causes Total Internal Reflection (TIR), so question can be interpreted in two ways.

Question Number. 31. In fiber optic cable, signals are separated by.
Option A. active optic filter.
Option B. low pass filter.
Option C. passive optic filter.
Correct Answer is. active optic filter.
Explanation. NIL.

Question Number. 32. Most fiber optic connectors are designed so.
Option A. the receptacle has to be torqued to a designated value to ensure correct alignment.
Option B. the connectors can not be over tightened.
Option C. the connector can not be replaced on the aircraft.
Correct Answer is. the connectors can not be over tightened.
Explanation. NIL.

Question Number. 33. The light source used in fiber optics is.
Option A. visible light.
Option B. lower bandwidth than visible light.
Option C. higher bandwidth than visible light.
Correct Answer is. lower bandwidth than visible light.
Explanation. Introduction to Fiber Optics J Crisp Page 18/19.

Question Number. 34. Light transmission in a fiber optic cable is due to.
Option A. repeated internal reflection.
Option B. diffraction of the light.
Option C. refraction of the light.
Correct Answer is. repeated internal reflection.
Explanation. NIL.

Question Number. 35. The name given to the joining of two fiber optic cables by aligning them carefully and bringing them into close proximity of each other is.
Option A. Fusion.
Option B. Lens Coupling.
Option C. End to end.
Correct Answer is. End to end.
Explanation. NIL.

Question Number. 36. In a fiber optic cable.
Option A. multiple data signals can be sent down it at one time.
Option B. data can only be sent in one direction.
Option C. only one data signal can be sent down it at any one time.
Correct Answer is. multiple data signals can be sent down it at one.
Explanation. Introduction to Fiber Optics John Crisp page 189.

Question Number. 37. Fiber optics relies on.
Option A. fiber absorbing light.
Option B. light escaping cladding.
Option C. light reflecting off cladding.
Correct Answer is. light reflecting off cladding.
Explanation. NIL.

Question Number. 38. The 'light' emitted from a LED used within a fiber -optic system will have a wavelength.
Option A. slightly shorter then that of visible light.

Option B. equal to that of visible light.
Option C. slightly longer then that of visible light.
Correct Answer is. slightly longer then that of visible light.
Explanation. Infrared from 850nm. Visible light is 400 - 800 nm.

Question Number. 39. Sensors in a fiber optic flight control system.
Option A. require processing to give output.
Option B. does not require power.
Option C. require power for processors.
Correct Answer is. require power for processors.
Explanation. The sensor is usually a photo-diode.

Question Number. 40. Fiber optic systems can transmit data in.
Option A. in two directions.
Option B. both directions at the same time.
Option C. one direction only.
Correct Answer is. both directions at the same time.
Explanation. NIL.

Question Number. 41. For high bandwidth high-speed fiber optic transmission what sort of cable would you use?.
Option A. Step index.
Option B. Single mode.
Option C. Graded index.
Correct Answer is. Single mode.
Explanation. NIL.

Question Number. 42. In fiber optics the wavelength of the light is.
Option A. more than visible light.
Option B. equal to that of visible light.
Option C. less than visible light.
Correct Answer is. more than visible light.
Explanation. NIL.

Question Number. 43. What is the advantage of an ILD over an LED when used as a light source in fiber optics?.
Option A. Lower frequency range.
Option B. Lower intensity.
Option C. Higher bandwidth.

Correct Answer is. Lower frequency range.
Explanation. NIL.

Question Number. 44. Speed of light in a fiber optic fiber .
Option A. increases if it passes through material of higher refractive index.
Option B. is always the same no matter what material it is.
Option C. is never greater then the speed of light in free space.
Correct Answer is. is never greater then the speed of light in free space.
Explanation. Fiber Optics Communication and Other Applications Page 15.

Question Number. 45. The angle of incidence of a beam of light in a fiber optic cable will be.
Option A. twice that of the cone of acceptance.
Option B. approximately half that of the cone of acceptance.
Option C. parallel with the end of the cable.
Correct Answer is. approximately half that of the cone of acceptance.
Explanation. Fiber Optics Communication and Other Applications Page 46/7. Presumably, this means the MAIMUM angle of incidence.

Question Number. 46. In an optical fiber , the angle of acceptance is.
Option A. 1/2 the signal wavelength.
Option B. equal to the cone of acceptance.
Option C. 1/2 the cone of acceptance.
Correct Answer is. 1/2 the cone of acceptance.
Explanation. Introduction to Fiber Optics John Crisp page 29.

Question Number. 47. When using a TDR (time delay reflectometer) the loss value of the cable is.
Option A. shown by the curve on the screen.
Option B. set on the TDR.
Option C. allowed for in the calculation.
Correct Answer is. shown by the curve on the screen.
Explanation. NIL.

Question Number. 48. Common aircraft fiber optics use.
Option A. modulating intensity on direct read.
Option B. modulating intensity on indirect read.
Option C. modulating frequency on direct read.
Correct Answer is. modulating intensity on direct read.

Explanation. NIL.

Question Number. 49. What is the main cause of attenuation in fiber optics?.
Option A. Poor termination.
Option B. Refractive index.
Option C. Bends in the cable.
Correct Answer is. Poor termination.
Explanation. NIL.

Question Number. 50. What is the advantage of a laser diode over an LED?.
Option A. Greater bandwidth.
Option B. Narrower bandwidth.
Option C. There are no advantages.
Correct Answer is. Narrower bandwidth.
Explanation. NIL.

Question Number. 51. A 'type A' fiber optic connector.
Option A. is used when regular disconnection and re-connection of a cable is required.
Option B. produces a larger light loss that a type B connector.
Option C. would be used for connections not regularly disconnected.
Correct Answer is. would be used for connections not regularly disconnected.
Explanation. NIL.

05.11. Electronic Displays.

Question Number. 1. The inside of a CRT consists of.
Option A. an oxide coating and rare mercury gas.
Option B. a phosphor coating and rare mercury gas.
Option C. iodine and rare mercury gas.
Correct Answer is. a phosphor coating and rare mercury gas.
Explanation. Pallett - Aircraft Instruments Page 284.

Question Number. 2. CRT horizontal beam control is achieved by a.
Option A. sinusoidal wave.
Option B. square wave.
Option C. sawtooth wave.
Correct Answer is. sawtooth wave.
Explanation. NIL.

Question Number. 3. In a CRT, if the magnetic field is parallel to the Y plates, what will be the direction of the electron beam movement?.
Option A. Horizontal.
Option B. Vertical.
Option C. No movement.
Correct Answer is. Vertical.
Explanation. The Y plates lie horizontal. Use the right hand rule to work out the direction of electron beam movement. Aircraft Instruments & Integrated Systems, Pallett, page 287.

Question Number. 4. Primary colors of a CRT are.
Option A. red, green and yellow.
Option B. red, blue and yellow.
Option C. red, green and blue.
Correct Answer is. red, green and blue.
Explanation. NIL.

Question Number. 5. What are the effects of the X and Y plates on a CRT?.
Option A. Y plates move the beam vertically, X plates move the beam horizontally.
Option B. X plates move the beam vertically, Y plates move the beam horizontally.
Option C. X and Y plates can move the beam in either direction.
Correct Answer is. Y plates move the beam vertically, X plates move the beam horizontally.
Explanation. NIL.

Question Number. 6. EADI sky and ground display is provided by.
Option A. synthetic TV signals.
Option B. stroke pulse.
Option C. raster scan.
Correct Answer is. raster scan.
Explanation. NIL.

Question Number. 7. What frequency creates the raster effect on a CRT?.
Option A. 50/60 Hz.
Option B. 250Hz.
Option C. 400 Hz.

Correct Answer is. 50/60 Hz.
Explanation. NIL.

Question Number. 8. The sweep waveform used on a electromagnetic CRT is.
Option A. trapezoidal.
Option B. sinusoidal.
Option C. sawtooth.
Correct Answer is. trapezoidal.
Explanation. Do not get confused with an electrostatic CRT. Electromagnetic CRT uses trapezoidal waveform to overcome the impedance of the coil.

Question Number. 9. What shape does the waveform take to counter the impedance effect of the coils in an electromagnetic controlled CRT?.
Option A. Sawtooth.
Option B. Rectangular.
Option C. Trapezoid.
Correct Answer is. Trapezoid.
Explanation. Do not get confused with an electrostatic CRT.

Question Number. 10. Magnetic deflection in a CRT is achieved by.
Option A. a sawtooth waveform.
Option B. a trapezoidal waveform.
Option C. a sinusoidal voltage.
Correct Answer is. a trapezoidal waveform.
Explanation. Do not get confused with electrostatic deflection (plates), which would be sawtooth.

Question Number. 11. The timebase in a CRT consists of.
Option A. an amplifier and an oscillator.
Option B. an oscillator only.
Option C. an amplifier only.
Correct Answer is. an amplifier and an oscillator.
Explanation. NIL.

Question Number. 12. What creates the raster effect on a CRT?.
Option A. Sawtooth frequency.
Option B. Trapezoidal frequency.
Option C. Sinusoidal frequency.
Correct Answer is. Sawtooth frequency.

Explanation. NIL.

Question Number. 13. LCD screens are driven by.
Option A. AC voltage.
Option B. variable current DC voltage.
Option C. fixed current DC voltage.
Correct Answer is. AC voltage.
Explanation. NIL.

Question Number. 14. A Liquid Crystal Display (LCD) has the advantage over a CRT that.
Option A. it requires no cooling.
Option B. it displays more color s.
Option C. it requires less servicing.
Correct Answer is. it requires no cooling.
Explanation. NIL.

Question Number. 15. The release of a photon by another photon is the principle of.
Option A. a photo diode.
Option B. a zener diode.
Option C. an LED.
Correct Answer is. an LED.
Explanation. NIL.

Question Number. 16. If a magnetic field is parallel to the X plates in a CRT, which way will the beam move?.
Option A. Vertically.
Option B. Horizontally.
Option C. Diagonally.
Correct Answer is. Horizontally.
Explanation. NIL.

Question Number. 17. An LED display is.
Option A. monochrome only.
Option B. red and green.
Option C. high definition.
Correct Answer is. monochrome only.
Explanation. NIL.

Question Number. 18. An LCD display uses what type of power supply?.
Option A. DC voltage.
Option B. Continuous AC.
Option C. Variable level DC voltage.
Correct Answer is. Continuous AC.
Explanation. NIL.

Question Number. 19. A beam deflection on EFIS displays are.
Option A. electrostatic.
Option B. electromagnetic.
Option C. solid state.
Correct Answer is. electromagnetic.
Explanation. Aircraft Instruments and Integrated Systems EHJ Pallett Page 297.

Question Number. 20. The supply to an LCD is.
Option A. AC.
Option B. current restricted DC.
Option C. voltage restricted DC.
Correct Answer is. AC.
Explanation. NIL.

Question Number. 21. An LED will emit light when.
Option A. it is reverse biased.
Option B. either forward or reverse biased if a sufficient level of ac voltage is applied.
Option C. it is forward biased.
Correct Answer is. it is forward biased.
Explanation. Aircraft Electricity and Electronics Eismin 5th Edition Page 121.

Question Number. 22. A CRT display has the advantage over an LCD display of a.

Option A. brighter clearer output.
Option B. more energy efficient.
Option C. large viewing angle.
Correct Answer is. large viewing angle.
Explanation. NIL.

Question Number. 23. To display a circle on a CRT you use.

Option A. 2 square wave 90 degrees out of phase.
Option B. 2 sine waves 180 degrees out of phase.
Option C. 2 sine waves 90 degrees out of phase.
Correct Answer is. 2 sine waves 90 degrees out of phase.
Explanation. NIL.

Question Number. 24. To deflect the beam of a CRT horizontally, coils are placed on the neck of the tube.
Option A. each side.
Option B. top and bottom.
Option C. one on the side, one at the bottom.
Correct Answer is. top and bottom.
Explanation. NIL.

Question Number. 25. If the magnetic deflection plates produce a magnetic field which is parallel to the horizontal then the trace is deflected in.
Option A. circular motion.
Option B. horizontal axis.
Option C. vertical axis.
Correct Answer is. vertical axis.
Explanation. NIL.

Question Number. 26. The most common CRT control for an EFIS system screen is.
Option A. a combined system.
Option B. an electrostatic system.
Option C. an electromagnetic system.
Correct Answer is. a combined system.
Explanation. Boeing 757 MM 34-22-00 page 8 paragraph G (EADI), Section (2).....'It (the CRT) utilizes magnetic deflection and electrostaic focus control.

Question Number. 27. L.E.D.s can give.
Option A. high definition displays.
Option B. monochrome displays only.
Option C. red and green displays only.
Correct Answer is. monochrome displays only.
Explanation. NIL.

Question Number. 28. At low ambient temperatures, an LCD screen.

Option A. is slower to update as data changes.
Option B. viewing angle becomes larger.
Option C. loses contrast.
Correct Answer is. is slower to update as data changes.
Explanation. NIL.

Question Number. 29. Color CRT shadow mask screen resolution is.
Option A. 400 lines per square inch.
Option B. 84 triads.
Option C. 600 lines per scan.
Correct Answer is. 84 triads.
Explanation. See http://www.lgeservice.com/monterms.html for definition of resolution (pixels per inch) and triads. The actual figure of 84 is irrelevant (as there are many different CRT resolutions). The question is asking whether you know the definition of resolution. http://www.lgeservice.com

Question Number. 30. An LCD display.
Option A. has three colors only.
Option B. is monochrome.
Option C. has infinite colors.
Correct Answer is. has three colors only.
Explanation. An LCD display uses only red, green and blue filters. By mixing them, it can get different colors, but not an infinite amount.

Question Number. 31. A segmented configuration for the display of alphanumeric data requires.
Option A. the starburst display for numbers and lower case letters only.
Option B. 16 segments to display the full range of capital letters and numerals.
Option C. at least 13 segments for all upper and lower case letters.
Correct Answer is. 16 segments to display the full range of capital letters and numerals.
Explanation. NIL.

Question Number. 32. Electronic CRT beam display is used typically in.
Option A. weather radar indicators.
Option B. IRU control display units.
Option C. distance measuring indicators; digital counters.
Correct Answer is. weather radar indicators.
Explanation. NIL.

Question Number. 33. In a color cathode ray tube, how is the phosphor arranged in the tube.
Option A. A single phosphor layer containing red, green and blue.
Option B. A red layer on the front with two green layers behind it.
Option C. Layers of red, blue and green.
Correct Answer is. A single phosphor layer containing red, green and blue.
Explanation. Success in Electronics By Tom Duncan p285.

Question Number. 34. A color LCD which is back lit has.
Option A. three colors.
Option B. monochrome.
Option C. an infinite amount of colors.
Correct Answer is. three colors.
Explanation. LCDs have 3 colors (RGB) which can be blended to make other colors (of limited number).

Question Number. 35. A dot matrix/LED construction is.
Option A. 4*7 or a 9*5 rolling end display.
Option B. 5*9 or a 4*7 rolling end display.
Option C. 4*7 or a 5*7 rolling end display.
Correct Answer is. 4*7 or a 9*5 rolling end display.
Explanation. Aircraft Instruments and Integrated Systems Pallett Pages 13 - 15 (Although, in the real world, others are available too).

Question Number. 36. What are the advantages of an LCD display over an LED?.
Option A. It is brighter.
Option B. It uses less current.
Option C. There are no advantages.
Correct Answer is. It uses less current.
Explanation. NIL.

Question Number. 37. A seven segment display is used to.
Option A. display alpha-numeric characters.
Option B. display octal and decimal numbers only.
Option C. display octal and binary numbers only.
Correct Answer is. display octal and decimal numbers only.
Explanation. NIL.

http://video-equipment.globalspec.com/LearnMore/Video_Imaging_Equipment/Meters_Readouts_In dicators/Digital_LED_Display

Question Number. 38. How are Alphanumeric Displays produced on a CRT?.
Option A. By Stroke pulse.
Option B. Raster scanning.
Option C. by the use of X & Y EM Coils.
Correct Answer is. By Stroke pulse.
Explanation. NIL.

Question Number. 39. The Shorter lead near the Flat portion of an LED is the.
Option A. Cathode.
Option B. Anode.
Option C. Gate.
Correct Answer is. Cathode.
Explanation. NIL.

Question Number. 40. Submarining' is.
Option A. caused by the inability of some LCD screens to respond to fast moving images on screen.
Option B. a CRT screen defect which can usually be remedied by degaussing the screen.
Option C. the process used to form liquid crystals into a flat screen.
Correct Answer is. caused by the inability of some LCD screens to respond to fast moving images on screen.
Explanation. NIL.
http://www.fpc.fujitsu.com/www/penworld/technology.shtml?glossary

05.12. Electrostatic Sensitive Devices.

Question Number. 1. ESDS bags are sealed by.
Option A. ESDS labels.
Option B. zip locks.
Option C. twine (100% cotton).
Correct Answer is. twine (100% cotton).
Explanation. Boeing manual says 100% cotton twine. Other manuals say ESDS label. However, it could be considered that ESDS labels do not 'seal'.

Question Number. 2. What precautions are required when removing ESDS equipment?.
Option A. Wear a wrist strap connected to an approved ground point.
Option B. No special precautions are required.
Option C. Keep one hand on the airframe.
Correct Answer is. Wear a wrist strap connected to an approved ground point.
Explanation. NIL.

Question Number. 3. A flight deck CRT LRU is being replaced. What does the ESDS label indicate?.
Option A. Wrist straps should be worn.
Option B. Do not touch plug pins or leave them exposed.
Option C. Remove power before connecting.
Correct Answer is. Do not touch plug pins or leave them exposed.
Explanation. See Pallet's Micro Electronics In Aircraft Systems or CAAIPs 9-4 para.7.1.3.

Question Number. 4. During an EFIS screen fit.
Option A. dont touch terminals.
Option B. no tooling is required.
Option C. use bonding strap.
Correct Answer is. dont touch terminals.
Explanation. NIL.

Question Number. 5. With a relative humidity of 10% to 20%, if you walked over a carpet what electrostatic voltage value would you expect to see?.
Option A. 35,000 volts.
Option B. 6,000 volts.
Option C. 12,000 volts.
Correct Answer is. 35,000 volts.
Explanation. NIL.

Question Number. 6. Before fitting a Printed Circuit Board you should check the.
Option A. resistance between skin and strap end plug is less than 10 megohms.
Option B. resistance between skin and strap end plug is more than 1 megohms.
Option C. resistance between strap and strap end plug is less than 1 megohms.
Correct Answer is. resistance between strap and strap end plug is less than 1 megohms.
Explanation. CAAIP Leaflet 9-4 5.3.1.

Question Number. 7. The resistance of the wrist strap used as part of anti static precautions should be.
Option A. 0 - 200 ohm.
Option B. 20 megohm - 200 megohm.
Option C. 250 kilohm - 1.5 megohm.
Correct Answer is. 250 kilohm - 1.5 megohm.
Explanation. CAAIPs Leaflet 9-4 5.3.1.

Question Number. 8. When handling PCB's labelled ESDS, what precaution are taken?.
Option A. Do not touch its pins as copper contamination can occur.
Option B. Isolate electrical power before installing on Aircraft.
Option C. First earth with aircraft then to it.
Correct Answer is. Isolate electrical power before installing on Aircraft.
Explanation. Microelectronics in Aircraft Systems. Pallett. Page 219.

Question Number. 9. After attaching a wrist strap to your wrist (which is connected to aircraft ground), prior to removal of ESDS equipment, the resistance measured.
Option A. between your skin and the pin ground must be >1 megohms.
Option B. between the strap and the pin ground must be <1 megohms.
Option C. between the strap and the pin ground must be >1 Megohms.
Correct Answer is. between the strap and the pin ground must be >1 Megohms.
Explanation. Answer found in Boeing SWPM. 20-41-01 3(2) (e) Hold the red lead of the (test) meter between the forefinger and the thumb. The acceptable range is less than 10,000,000 ohms. Lower limit of range however seems to vary. This reference says >0.9 MΩ, but if anyone has a more definitive reference, please send it in.

Question Number. 10. Which of the following ESDS devices can withstand higher static electricity voltage?.
Option A. MOSFET.
Option B. SCR.
Option C. ECL.
Correct Answer is. SCR.
Explanation. NIL.

Question Number. 11. A wrist band must be worn when working with ESDS devices.

Option A. to dissipate and prevent static build-up on the operator.
Option B. to prevent the operator from getting an electric shock.
Option C. to dissipate static charge on the device.
Correct Answer is. to dissipate and prevent static build-up on the operator.
Explanation. NIL.

Question Number. 12. A humid atmosphere.
Option A. reduces static charge.
Option B. eliminates static charge.
Option C. has no effect on the level of charge.
Correct Answer is. reduces static charge.
Explanation. NIL.

Question Number. 13. Electrostatic discharge occurs when.
Option A. the ground lead on a wrist strap touches the skin.
Option B. materials are rubbed together or pulled apart.
Option C. materials of different potential are brought in close proximity to each other.
Correct Answer is. materials of different potential are brought in close proximity to each other.
Explanation. NIL.

Question Number. 14. Before removing an assembly from an aircraft, with regards to HIRF, you must first ensure that there is minimum current flow between.
Option A. the assembly and the aircraft.
Option B. you and the assembly.
Option C. you and the aircraft.
Correct Answer is. you and the assembly.
Explanation. NIL.

Question Number. 15. When removing a PC card from an ESDS assembly ensure a low current path between.
Option A. aircraft and ground.
Option B. you and the assembly.
Option C. you and the aircraft.
Correct Answer is. you and the aircraft.
Explanation. NIL.

Question Number. 1. An aircraft system that, should it fail due to a software error, would cause a significant reduction in safety margins may also cause.
Option A. no injuries to occupants.
Option B. injuries to some occupants.
Option C. the loss of the aircraft.
Correct Answer is. injuries to some occupants.
Explanation. DO-178/ED-12 or the old AWN 45 (no removed/replaced).

Question Number. 2. An aircraft system allocated a software level of C that, should it fail due to a software error, may cause.
Option A. injuries to some occupants.
Option B. injuries to a large proportion of occupants.
Option C. no injuries to occupants.
Correct Answer is. injuries to some occupants.
Explanation. DO-178/ED-12 or the old AWN 45 (no removed/replaced). Download a copy from the Tutorial Support forums.

Question Number. 3. An aircraft system allocated a Criticality Category of Hazardous has a Software Level of.
Option A. A.
Option B. B.
Option C. C.
Correct Answer is. B.
Explanation. DO-178/ED-12 or the old AWN 45 (no removed/replaced). Download a copy from the Tutorial Support forums.

Question Number. 4. An aircraft system that, should it fail due to a software error, would cause a slight increase in crew workload, has a software level of.
Option A. D.
Option B. B.
Option C. C.
Correct Answer is. D.
Explanation. DO-178/ED-12 or the old AWN 45 (no removed/replaced). Download a copy from the Tutorial Support forums.

Question Number. 5. An aircraft system with a software level of D, should it fail due to a software error, may cause the aircraft safety margin to be.
Option A. slightly decreased.
Option B. slightly increased.

Option C. significantly decreased.
Correct Answer is. slightly decreased.
Explanation. DO-178/ED-12 or the old AWN 45 (no removed/replaced). Download a copy from the Tutorial Support forums.

Question Number. 6. If due to a software error in an aircraft system that would cause injuries to some of the occupants, the system has a software criticality category of.
Option A. major effect.
Option B. hazardous effect.
Option C. minor effect.
Correct Answer is. major effect.
Explanation. DO-178/ED-12 or the old AWN 45 (no removed/replaced). Download a copy from the Tutorial Support forums.

Question Number. 7. An aircraft system that, should it fail due to a software error, would cause no injuries to occupants, has a criticality category of.
Option A. major effect.
Option B. minor effect.
Option C. hazardous effect.
Correct Answer is. minor effect.
Explanation. DO-178/ED-12 or the old AWN 45 (no removed/replaced). Download a copy from the Tutorial Support forums.

Question Number. 8. Requirements for software control can be found in.
Option A. JAR AWO.
Option B. AWN 43.
Option C. JAR OPS.
Correct Answer is. AWN 43.
Explanation. Old AWN 43 (Field Loadable Software) has been deleted at issue 133. Now see RTCA/EUROCAE document Do-178/ED-12.

Question Number. 9. Software can be modified by.
Option A. the manufacturer.
Option B. using the same rules as apply as to modifications to hardware.
Option C. licensed avionics engineers.
Correct Answer is. using the same rules as apply as to modifications to hardware
Explanation. NIL.

Question Number. 10. Who is responsible for producing the operational program of the FMS?.
Option A. The manufacturer.
Option B. The pilot.
Option C. The engineer.
Correct Answer is. The manufacturer.
Explanation. NIL.

Question Number. 11. Software documentation procedures are laid down in.
Option A. MOE.
Option B. JAA Ops.
Option C. AWN (45).
Correct Answer is. AWN (45).
Explanation. AWN 45 has been deleted at issue 133. Now see RTCA/EUROCAE document Do-178/ED-12.

Question Number. 12. Control of software is carried out by.
Option A. the aircraft manufacturers.
Option B. a licensed engineer.
Option C. the National Aviation Authority.
Correct Answer is. the National Aviation Authority.
Explanation. Old AWN 45.

Question Number. 13. What is the definition of level one software?.
Option A. Non-essential.
Option B. Essential.
Option C. Critical.
Correct Answer is. Critical.
Explanation. Now see RTCA/EUROCAE document Do-178/ED-12.

Question Number. 14. Who can sign for a software update?.
Option A. Design organization or the aircraft manufacturer.
Option B. Engineer.
Option C. Chief pilot.
Correct Answer is. Engineer.
Explanation. Old AWN 43. Now see RTCA/EUROCAE document Do-178/ED-12.

Question Number. 15. What is the effect of a level 1 software failure?.
Option A. Significant reduction in safety margins.

Option B. Large reduction in safety margins.
Option C. Loss of aircraft and / or fatalities.
Correct Answer is. Loss of aircraft and / or fatalities.
Explanation. Now see RTCA/EUROCAE document Do-178/ED-12.

Question Number. 16. Software changes come under the responsibility of.
Option A. the engineer.
Option B. the national aviation authority.
Option C. the aircraft constructor.
Correct Answer is. the aircraft constructor.
Explanation. AWN 45. Now see RTCA/EUROCAE document Do-178/ED-12.

Question Number. 17. Who can design new software?.
Option A. BCAR section A8 approved company.
Option B. BCAR section A1 approved company.
Option C. The CAA.
Correct Answer is. BCAR section A8 approved company.
Explanation. AWN45a para 3.1.3 (BCAR section A sub section A8). Now see RTCA/EUROCAE document Do-178/ED-12.

Question Number. 18. As far as a software product is concerned.
Option A. the 'Software Release' phase is the same as the 'Finished Product' phase.
Option B. the 'Validation' phase is done to the software rather than to the component.
Option C. the 'Verification' phase includes performance testing a programmed EPROM.
Correct Answer is. the 'Verification' phase includes performance testing a programmed EPROM. Now see RTCA/EUROCAE document Do-178/ED-12.

Question Number. 19. AWN 43 requires that.
Option A. the aircraft operator be responsible for software assessment.
Option B. the CAA be responsible for software assessment.
Option C. the aircraft constructors be responsible for software assessment.
Correct Answer is. the aircraft constructors be responsible for software assessment.
Explanation. Now see RTCA/EUROCAE document Do-178/ED-12.

Question Number. 20. Level 1 software failure.
Option A. is defined as essential and will reduce safety margins.
Option B. is defined as essential and may have a minor effect.

Option C. is defined as critical and can lead to loss of aircraft.
Correct Answer is. is defined as critical and can lead to loss of aircraft.
Explanation. Now see RTCA/EUROCAE document Do-178/ED-12.

Question Number. 21. Requirements for configuration management of software can be found in.
Option A. AWN 43.
Option B. JAR Ops (M).
Option C. ATA Chapter 46, Information Systems.
Correct Answer is. AWN 43.
Explanation. Now see RTCA/EUROCAE document Do-178/ED-12.

Question Number. 22. Where would you find the rules regarding upgrade of software?.
Option A. JAR OPS.
Option B. The aircraft manufacturer.
Option C. AWN 43.
Correct Answer is. AWN 43.
Explanation. Now see RTCA/EUROCAE document Do-178/ED-12.

05.14. Electromagnetic Environment.

Question Number. 1. In order to maintain HIRF protection, bonding checks between airframe and electrical components carrying voltages greater than 50 volts RMS or DC or main earth return should not exceed.
Option A. 0.05 ohm.
Option B. 1 ohm.
Option C. 1 megohm.
Correct Answer is. 1 ohm.
CAAIPs Leaflet 9-1 Table 1.

Question Number. 2. Ribbon cables effected by mutual impedance and current loop leakage should be protected by.
Option A. earthing each alternative conductor to separate point.
Option B. connecting all conductors to a common earth.
Option C. shielding each individual conductor.
Correct Answer is. earthing each alternative conductor to separate point.
Explanation. NIL.

Question Number. 3. To shield a fiber optic from EMI you must.

Option A. earth both transducer and couplings.
Option B. shield it with a braided shield.
Option C. use an opto-isolator.
Correct Answer is. use an opto-isolator.
Explanation. NIL.

Question Number. 4. Manufacturers of aircraft can ensure HIRF protection by.
Option A. advising operators of all points susceptible to deterioration due to corrosion, moisture ingress, flexing etc.
Option B. designing specific avionic areas that are shielded against HIRF.
Option C. ensuring all single wires are shielded with metal conduit.
Correct Answer is. designing specific avionic areas that are shielded against HIRF.
Explanation. Understanding HIRF By Gerald L. Fuller.

Question Number. 5. Which of the following could be a primary cause of HIRF protection failure?.
Option A. Broken or missing static wicks.
Option B. Corrosion on bonding leads.
Option C. Unserviceable radio filters.
Correct Answer is. Unserviceable radio filters.
Explanation. Understanding HIRF By Gerald L. Fuller.

Question Number. 6. Manufacturers of aircraft can ensure HIRF protection.
Option A. by designing specific avionic areas that are shielded against HIRF.
Option B. by ensuring all single wires are shielded with metal conduit.
Option C. by advising the operator of parts of the aircraft susceptible to degradation due to corrosion, moisture ingress, flexing etc.
Correct Answer is. by designing specific avionic areas that are shielded
Explanation. against HIRF. Understanding HIRF By Gerald L. Fuller.

Question Number.7. HIRF protection of LRUs is provided by.
Option A. internally shielded cables.
Option B. built in filters and overvoltage circuits.
Option C. built in filters only.
Correct Answer is. built in filters and overvoltage circuits.
Explanation. Understanding HIRF By Gerald L. Fuller.

Question Number. 8. To stop earth loops forming, you would.
Option A. earth both ends of the cable screen.

Option B. leave both ends of the cable screen open circuit.
Option C. earth only one end of the cable screen.
Correct Answer is. earth only one end of the cable screen.
Explanation. NIL.
http://www1.electusdistribution.com.au/images_uploaded/humloop.pdf

Question Number. 9. An aircraft may have been HIRF affected.
Option A. A bonding load check is required.
Option B. A static wick check is required.
Option C. Test all radio frequencies for interference.
Correct Answer is. A static wick check is required.
Explanation. Understanding HIRF By Gerald L. Fuller.

Question Number. 10. Testing of HIRF on aircraft systems is done.
Option A. by periodically listening for interference on all systems.
Option B. at and during production and testing (initial certification).
Option C. only after a report of radio interference.
Correct Answer is. at and during production and testing (initial certification).
Explanation. Understanding HIRF By Gerald L. Fuller.

Question Number. 11. When carrying out a bonding check on a surface protected by anodic film.
Option A. the film is conductive so no preparations are required.
Option B. the anodic film should be removed locally to ensure a good contact.
Option C. add a bonding factor to the result of the test to account for the resistance of the anodic film.
Correct Answer is. the anodic film should be removed locally to ensure a good contact.
Explanation. NIL.

Question Number. 12. When clamping cable looms containing co-axial cables.
Option A. avoid distortion to the co-axial cable to maintain the dielectric constant.
Option B. the clamps must be no more than 1 metre apart.
Option C. distortion of the outer sheath is allowed providing the inner cable is not affected.
Correct Answer is. avoid distortion to the co-axial cable to maintain the dielectric constant.
Explanation. NIL.

Question Number. 13. When incorporating an aerial cable it must be.
Option A. in the centre of the other wires.
Option B. outside the other wires for easy access.
Option C. positioned separately from the loom.
Correct Answer is. positioned separately from the loom.
Explanation. NIL.

Question Number. 14. When carrying out airframe bonding checks as part of a program of HIRF prevention the airframe bonding resistance should be less than.
Option A. 100 milliohms.
Option B. 1 ohm.
Option C. 50 milliohms.
Correct Answer is. 50 milliohms.
Explanation. CAAIP Leaflet 9-1.

Question Number. 15. Electromagnetic compatibility is achieved by.
Option A. shielding, screening, earthing, bonding and interference filters.
Option B. coating in a conductive paint.
Option C. enclosing the system with same frequency and strength of which screening is done.
Correct Answer is. shielding, screening, earthing, bonding and interference filters.
Explanation. NIL.

Question Number. 16. To reduce HIRF on radio equipment.
Option A. ensure all static wicks are in place.
Option B. periodically check bonding leads for condition.
Option C. transmit on all radio frequencies to determine which frequencies are causing the interference.
Correct Answer is. ensure all static wicks are in place.
Explanation. NIL.

Question Number. 17. For braided cables, the amount of braiding.
Option A. must conform to the requirement for the shielding to cover at least 50% of the surface of the cable.
Option B. keeps radiated power inside the emitting assembly or away from the susceptible circuit.
Option C. is a trade-off design feature.
Correct Answer is. keeps radiated power inside the emitting assembly or away from the susceptible circuit.

Explanation. NIL.

Question Number. 18. HIRF is acronym for.
Option A. Heavily Ionised Radio Frequencies.
Option B. High Intensity Radiated Field.
Option C. High Intensity Radio Frequencies.
Correct Answer is. High Intensity Radiated Field.
Explanation. NIL.

Question Number. 19. HF aerials are protected against lightning strike by.
Option A. current mode coupler.
Option B. bus terminal.
Option C. spark gap.
Correct Answer is. spark gap.
Explanation. NIL.

05.15. Typical Electronic/Digital Aircraft Systems .

Question Number. 1. An FMS system, besides controlling navigation, thrust and auto-nav, also provides.
Option A. GPWS warnings.
Option B. dedicated status and warnings.
Option C. take-off and landing warnings.
Correct Answer is. dedicated status and warnings.
Explanation. The FMS is not used for Take Off or Landing The GPWS warnings come from the GPWS Computer.

Question Number. 2. The minimum standards for aircraft instrumentation is set by.
Option A. CAA.
Option B. ICAO.
Option C. JAA.
Correct Answer is. JAA.
Explanation. NIL.

Question Number. 3. EADI sky and ground display is provided by.
Option A. raster scan.
Option B. stroke pulse.
Option C. synthetic TV signals.
Correct Answer is. raster scan.
Explanation. Pallett - Aircraft Instruments Page 302 Fig. 12.5.

Question Number. 4. HSI heading is valid if the heading flag is.
Option A. in view.
Option B. green.
Option C. out of view.
Correct Answer is. out of view.
Explanation. Warning flags 'in view' indicate failure. Normally the only color ed flag used is RED, indicating failure.

Question Number. 5. MFD is the abbreviation for.
Option A. Multi function display.
Option B. Mandatory flight display.
Option C. Master flight display.
Correct Answer is. Multi function display.
Explanation. NIL.

Question Number. 6. A TCAS uses the radar mile definition in its calculations, which is.
Option A. 12.36 microsecond.
Option B. 6.18 microsecond.
Option C. 24.72 microsecond.
Correct Answer is. 12.36 microsecond.
Explanation. NIL. http://www.atis.org/tg2k/_radar_mile.html

Question Number. 7. GPS navigation uses a constellation of satellites that is made up of.
Option A. 21 active and 3 spare.
Option B. 28 active and 7 spare.
Option C. 23 active and 5 spare.
Correct Answer is. 21 active and 3 spare.
Explanation. NIL.

Question Number. 8. An IRS is only certifed for alingment up to.
Option A. +88.45 and -88.45 degrees.
Option B. +78.25 and -78.25 degrees.
Option C. +60 and -60 degrees.
Correct Answer is. +78.25 and -78.25 degrees.
Explanation. NIL.

Question Number. 9. The command bars on an ADI relate to.
Option A. roll indications.
Option B. path being followed.
Option C. path required.
Correct Answer is. path required.
Explanation. Pallett - Aircraft Instruments Page 212.

Question Number. 10. ECAM has at its heart.
Option A. a multi function symbol generator.
Option B. a central maintenance computer.
Option C. ACARS.
Correct Answer is. a multi function symbol generator.
Explanation. NIL.

Question Number. 11. The recording medium in an FDR is.
Option A. copper foil coated with ferrite.
Option B. a high density floppy disc.
Option C. magnetic tape coated with ferrite.
Correct Answer is. magnetic tape coated with ferrite.
Explanation. NIL.

Question Number. 12. An FMS databank memory is updated.
Option A. every 365 days.
Option B. every 28 days.
Option C. every 32 days.
Correct Answer is. every 28 days.
Explanation. NIL.

Question Number. 13. What does the CADC feed?.
Option A. cabin pressure controller sensor / machmeter / altimeter.
Option B. Altimeter / FMS / secondary radar.
Option C. standby altimeter / machmeter.
Correct Answer is. cabin pressure controller sensor / machmeter / altimeter.
Explanation. Pallett - Aircraft Instruments Page 179 Fig. 7.12.

Question Number. 14. In a Flight Management System (FMS), data is input manually to the computing system through the.
Option A. Data Acquisition Unit.
Option B. Electronic Centralised Aircraft Monitoring control panel.

Option C. Control and Display Unit.
Correct Answer is. Control and Display Unit.
Explanation. NIL.

Question Number. 15. In a Global Positioning System (GPS), the number of satellites required to achieve a 3 dimensional fix is.
Option A. 2.
Option B. 3.
Option C. 4.
Correct Answer is. 4.
Explanation. NIL.

Question Number. 16. In a Global Positioning System (GPS), each satellite transmission identifies the satellite using a.
Option A. different channel frequency.
Option B. pseudo random code.
Option C. whisper shout method.
Correct Answer is. pseudo random code.
Explanation. NIL.

Question Number. 17. In a Global Positioning System (GPS) satellites below the Mask Angle are ignored as these may cause.
Option A. range errors.
Option B. clock errors.
Option C. ephemeris errors.
Correct Answer is. range errors.
Explanation. NIL.

Question Number. 18. Information required by a Flight Management System (FMS) to function correctly is indicated on the display by.
Option A. dashes.
Option B. a flashing cursor.
Option C. boxes.
Correct Answer is. boxes.
Explanation. NIL.

Question Number. 19. A flight data recorder can obtain information from aircraft instruments.
Option A. provided there is adequate damping.

Option B. provided there is adequate isolation.
Option C. by direct connection to the instruments.
Correct Answer is. provided there is adequate isolation.
Explanation. NIL.

Question Number. 20. The inputs and outputs of a CADC are.
Option A. pitot and static in; altitude, attitude, CAS and VS out.
Option B. pitot and static in; altitude, CAS, mach and VS out.
Option C. pitot in; static, altitude, mach, CAS and VS out.
Correct Answer is. pitot and static in; altitude, CAS, mach and VS out.
Explanation. NIL.

Question Number. 21. EICAS provides the following:.
Option A. Engine parameters and engine warnings only.
Option B. Engine parameters and system warnings only.
Option C. Engine parameters only.
Correct Answer is. Engine parameters and system warnings only.
Explanation. Pallett - Aircraft Instruments Page 179 Fig. 7.12.

Question Number. 22. A central maintenance computer provides.
Option A. ground and flight monitoring and testing on an on-board computer.
Option B. ground and BITE testing using a portable control panel.
Option C. display of system warnings and cautions.
Correct Answer is. ground and flight monitoring and testing on an on-board computer.
Explanation. NIL.

Question Number. 23. The rising runway is positioned from information derived from.
Option A. barometric height.
Option B. radio altimeter.
Option C. vertical speed.
Correct Answer is. radio altimeter.
Explanation. Boeing Maintenance Training notes for B757.

Question Number. 24. Where are the Digital Flight Data Recorder outputs supplied to?.
Option A. The recording unit.
Option B. There are no outputs.

Option C. Flight instruments.
Correct Answer is. There are no outputs.
Explanation. Information recorded in the DFDR is only accessable in the shop.

Question Number. 25. FMS failure and warnings are.
Option A. EFIS warnings only.
Option B. displayed on EICAS.
Option C. engine warnings only.
Correct Answer is. displayed on EICAS.
Explanation. FMS warnings are displayed on EICAS and EFIS, but the answers given are 'EICAS' or 'EFIS only' so for the purposes of this question the correct answer is EICAS.

Question Number. 26. Flight director command bars are moved to the correct position by.
Option A. calibration.
Option B. position feedback.
Option C. amplifier gain.
Correct Answer is. position feedback.
Explanation. NIL.

Question Number. 27. What information is required before completion of the alignment of an Inertial Navigation System?.
Option A. Aircraft present position.
Option B. Heading and attitude.
Option C. Aircraft present position and heading.
Correct Answer is. Aircraft present position.
Explanation. NIL.

Question Number. 28. IRS accelerometers are mounted.
Option A. 90° to each other.
Option B. 45° to each other.
Option C. 60° to each other.
Correct Answer is. 90° to each other.
Explanation. NIL.

Question Number. 29. An FMS navigation database is updated.
Option A. once a month.
Option B. every 28 days.

Option C. at the operators request.
Correct Answer is. every 28 days.
Explanation. NIL.

Question Number. 30. A single failure of a fly-by-wire system.
Option A. will reduce operational heights and speeds.
Option B. will limit the flight profile.
Option C. has no effect on aircraft operation.
Correct Answer is. has no effect on aircraft operation.
Explanation. Redundant FBW systems will continue to fly the aircraft.

Question Number. 31. Fly-by-wire load alleviation function in turbulent conditions will result in.
Option A. spoilers moving symmetrically upwards.
Option B. ailerons moving symmetrically upwards.
Option C. ailerons and spoilers moving symmetrically upwards.
Correct Answer is. ailerons and spoilers moving symmetrically upwards.
Explanation. NIL.

Question Number. 32. Fly-by-wire roll control is achieved by.
Option A. spoilers and ailerons.
Option B. ailerons.
Option C. spoilers.
Correct Answer is. spoilers and ailerons.
Explanation. Automatic Flight Control, Pallett and Coyle Page 296.

Question Number. 33. The movement of fly-by-wire control surfaces are.
Option A. hydraulically controlled and electrically actuated.
Option B. both electrically controlled and electrically actuated.
Option C. electrically controlled and hydraulically actuated.
Correct Answer is. electrically controlled and hydraulically actuated.
Explanation. NIL.

Question Number. 34. An FMS system, besides controlling navigation, thrust and auto-nav, also provides.
Option A. dedicated status warnings.
Option B. take-off and landing warnings.
Option C. GPWS warnings.
Correct Answer is. dedicated status warnings.

Explanation. NIL.

Question Number. 35. If an EFIS has 3 symbol generators. What is the purpose of the 3rd symbol generator?.
Option A. Comparison with No.1 symbol generator.
Option B. Parity function.
Option C. Standby.
Correct Answer is. Standby.
Explanation. NIL.

Question Number. 36. FMS operational program is updated every.
Option A. 90 days.
Option B. 28 days.
Option C. 7 days.
Correct Answer is. 28 days.
Explanation. NIL.

Question Number. 37. An FDR fitted to a helicopter begins recording.
Option A. when power is applied to the aircraft.
Option B. on take-off.
Option C. on engine start-up.
Correct Answer is. on engine start-up.
Explanation. See ANO Art 53 para.1.

Question Number. 38. The FMS databases consist of.
Option A. one navigation and one performance database.
Option B. one performance and two navigation databases.
Option C. two performance and one navigation database.
Correct Answer is. one performance and two navigation databases.
Explanation. Normally we consider the FMS as having 2 databases (1 navigational and 1 performance). (Jeppesen Avionics Fundamentals Page 385). However, the Navigational database is split in two. 1 is for Jeppesen data, uploaded on the ground, the other is for pilot input data (additional waypoints etc.). See http://www.b737.org.uk/fmc.htm for more.

Question Number. 39. The FMS can update the IRS position outputs by using information from either.
Option A. VOR and DME only.
Option B. GPS, DME, LOC and VOR.

Option C. DME and GPS only.
Correct Answer is. GPS, DME, LOC and VOR.
Explanation. NIL.

Question Number. 40. The accepted error from INS/IRS is.
Option A. 3 miles / hour + 3 miles.
Option B. 2 miles per hour + 3 miles.
Option C. 1 mile/hour+3 miles.
Correct Answer is. 3 miles / hour + 3 miles.
Explanation. NIL.

Question Number. 41. Before an IRS can complete the alignment sequence.
Option A. the current present position must be entered.
Option B. either the last or current position must be entered.
Option C. the shutdown present position must be entered.
Correct Answer is. the current present position must be entered.
Explanation. NIL.

Question Number. 42. What warnings can an FMS provide?.
Option A. Discrete warnings.
Option B. Spurious faults.
Option C. Ground faults only.
Correct Answer is. Discrete warnings.
Explanation. This means it can warn of inoperative equipment, but not when equipment is providing incorrect data.

Question Number. 43. Electronic Centralised Aircraft Monitoring System. **Option A.** performs in-flight and ground tests of aircraft systems by carrying out a BITE interrogation.
Option B. performs in-flight BITE interrogation only.
Option C. give red warnings and amber cautions to display system status.
Correct Answer is. give red warnings and amber cautions to display system status.
Explanation. NIL.

Question Number. 44. The control of the speed or rate that the flight director command bars move can be controlled by.
Option A. position feedback.
Option B. rate or velocity feedback.
Option C. amplifier gain.

Correct Answer is. rate or velocity feedback.
Explanation. NIL.

Question Number. 45. The Centralised Aircraft Monitoring System uses the maintenance mode of operation.
Option A. on the ground only.
Option B. in the air only.
Option C. either in the air or on the ground.
Correct Answer is. on the ground only.
Explanation. Aircraft Electricity and Electronics, Eismin, 5th Edition Page 359.

Question Number. 46. The third EFIS Symbol Generator is operated.
Option A. in an emergency.
Option B. with EICAS.
Option C. as a standby to the No1 and No2 system.
Correct Answer is. as a standby to the No1 and No2 system.
Explanation. NIL.

Question Number. 47. EFIS displays of the right hand and left hand displays are compared by comparators in the.
Option A. FMS.
Option B. EICAS.
Option C. Symbol Generators.
Correct Answer is. Symbol Generators.
Explanation. NIL.

Question Number. 48. What is the approximate earth rate?.
Option A. 10°/hour.
Option B. 5°/hour.
Option C. 15°/hour.
Correct Answer is. 15°/hour.
Explanation. Aircraft Instruments and Integrated Systems. Pallett Page 102.

Question Number. 49. An IRS has.
Option A. two or three accelerometers depending on the system.
Option B. three accelerometers.
Option C. two accelerometers.
Correct Answer is. three accelerometers.
Explanation. Jeppesen Avionics Fundamentals Page 137.

Question Number. 50. IRS Laser Ring Gyros provide.
Option A. rate of movement about an axis.
Option B. displacement about an axis.
Option C. both rate and displacement about an axis.
Correct Answer is. rate of movement about an axis.
Explanation. Jeppesen Avionics Fundamentals Page 137.

Question Number. 51. What are the outputs of a Digital ADC?.
Option A. TAS, MACH, Altitude and TAT.
Option B. TAS, MACH, Altitude, TAT and SAT.
Option C. TAS, MACH and Altitude.
Correct Answer is. TAS, MACH, Altitude, TAT and SAT.
Explanation. Both Static and Total Air Temperatures are outputs of a digital ADC.

Question Number. 52. Fly By Wire systems in the fully active mode, the actuators will.
Option A. both be active.
Option B. both be in damping mode, awaiting control inputs.
Option C. one in active mode, one in damping mode.
Correct Answer is. both be active.
Explanation. Ref to B777 and A330 manuals, the term active mode will always be associated with fully operational of redundancy of all actuators or servo controls. This means, each primary flight control surfaces' actuators (either 2 or 3 actuators configuration designed to provide fully-powered controls that suit the size and purpose of surfaces) are actually active on all phases. If any failure occurs, the failed actuator will then revert to 'damping' mode, becoming slave to remaining active actuators.

Question Number. 53. On a Fly By Wire system, what controls the stab trim?.
Option A. ELAC and SEC.
Option B. SEC.
Option C. ELAC.
Correct Answer is. ELAC and SEC.
Explanation. ELAC = Elevator Aileron Computer, SEC = Spoilers Elevator Computer and FAC = Flight Augmentation Computers (rudder).

Question Number. 54. The minimum requirement for a cockpit voice recorder to begin operating is.

Option A. on engine start-up.
Option B. on commencing the takeoff roll.
Option C. once established in the en-route climb.
Correct Answer is. on engine start-up.
Explanation. JAR Ops states that the CVR must begin when the aircraft is capable of moving under its own power.

Question Number. 55. Aircraft Communications Addressing and Reporting Systems is used to.
Option A. download aircraft status reports.
Option B. make telephone calls.
Option C. allow the pilot of an aircraft to talk to base.
Correct Answer is. download aircraft status reports.
Explanation. NIL.

Question Number. 56. B-RNAV system must be capable of.
Option A. holding six waypoints.
Option B. displaying distance and bearing to waypoint.
Option C. reversing the waypoints for.
Correct Answer is. displaying distance and bearing to waypoint.
Explanation. NIL.

Question Number. 57. The basic principle of radar is based upon.
Option A. the amount of power in the signal returned.
Option B. the time delay between outward and returning pulse.
Option C. ultrasonic wave propagation.
Correct Answer is. the time delay between outward and returning pulse.
Explanation. NIL.

Question Number. 58. What systems does the ADC feed?.
Option A. Altimeter / FMS / secondary radar.
Option B. Cabin pressure controller sensor / machmeter / Altimeter.
Option C. Standby altimeter/machmeter.
Correct Answer is. Cabin pressure controller sensor / machmeter / Altimeter.
Explanation. NIL.

Question Number. 59. Which systems does a modern ADC give information to?.
Option A. EFIS.
Option B. EICAS.

Option C. Flight control computer, Air Data Instrument, Engine systems.
Correct Answer is. Flight control computer, Air Data Instrument, Engine systems.

Explanation. NIL.

Question Number. 60. Where do the outputs from a DADC go?.
Option A. EHSI.
Option B. EADI.
Option C. IRMP: Inertial Reference Mode Panel.
Correct Answer is. EADI.
Explanation. Aircraft Instruments and Integrated Systems by EHJ Pallett page 179.

Question Number. 61. How many satellite signals are required to achieve precise 3D positioning?.
Option A. 4.
Option B. 5.
Option C. 6.
Correct Answer is. 4.
Explanation. NIL.

Question Number. 62. The minimum requirement for an aeroplane CVR is.
Option A. from power on.
Option B. from engine start.
Option C. from beginning of take off roll.
Correct Answer is. from engine start.
Explanation. JAR OPS Para 1.700 (c) OR answer c by CAP 393 Section I Para 53.

Question Number. 63. An Inertial Navigation System (INS/IRS) computes distance from acceleration by.
Option A. two successive integrations.
Option B. a simple integration.
Option C. a differentiation followed by an integration.
Correct Answer is. two successive integrations.
Explanation. NIL.

Question Number. 64. Before the aircraft is moved from the loading pier the pilot must.
Option A. insert the longitude and latitude of the first waypoint into the INS.
Option B. set the altitude to be fed into the INS.

Option C. insert the latitude and longitude of the pier into the IRS.
Correct Answer is. insert the latitude and longitude of the pier into the IRS.
Explanation. NIL.

Question Number. 65. An IRS has.
Option A. accelerometers and gyros fixed to a the airframe.
Option B. accelerometers fixed to the airframe and gyros on a stable platform.
Option C. accelerometers on a stable platform and gyros fixed to the airframe.
Correct Answer is. accelerometers and gyros fixed to a the airframe.
Explanation. NIL.

Question Number. 66. An IRS system requires data for wind computation from.
Option A. Doppler System.
Option B. satellites.
Option C. central Air Data Computer.
Correct Answer is. central Air Data Computer.
Explanation. NIL.

Question Number. 67. The FMS carries out a Rho/Theta navigation function, the purpose of this is to.
Option A. update the IRS system with an accurate position fix of latitude and longitude.
Option B. to update the VOR and DME systems with an accurate position fix.
Option C. to update the EMS with the new lateral flight profile for the flight plan.
Correct Answer is. update the IRS system with an accurate position fix of latitude and longitude.
Explanation. NIL.

Question Number. 68. The FMS is updated.
Option A. automatically by update data from the ACARS.
Option B. by an aircraft engineer updating the system either by a magnetic tape or floppy disc.
Option C. by the aircrew by reference to the Tech Log.
Correct Answer is. by an aircraft engineer updating the system either by a magnetic tape or floppy disc.
Explanation. NIL.

Question Number. 69. Pitch Control of a fly by wire system is achieved by.
Option A. stabilizer only.

Option B. elevators only.
Option C. stabilizer and elevator.
Correct Answer is. stabilizer and elevator.
Explanation. NIL.

Question Number. 70. In a fly by wire system, if the pilot control input is derived from a side stick controller:.
Option A. there is no control surface feedback to the side stick.
Option B. control surface feedback is fed to the side stick.
Option C. there will be only control surface feedback to the side stick after a computer failure.
Correct Answer is. there is no control surface feedback to the side stick.
Explanation. NIL.

Question Number. 71. A basic IRS platform has.
Option A. 3 accelerometers and 2 laser gyros.
Option B. 2 Accelerometers and 3 laser gyros.
Option C. 3 accelerometers and 3 laser gyros.
Correct Answer is. 3 accelerometers and 3 laser gyros.
Explanation. Jeppesen Avionics Fundamentals Page 137.

Question Number. 72. What must be entered into the IRS before the aircraft can be moved?.
Option A. Flight plan.
Option B. Present position.
Option C. Cruise height.
Correct Answer is. Present position.
Explanation. NIL.

Question Number. 73. The FMS Operational Database is.
Option A. updated once a month.
Option B. is fed with information on aircraft weight, cruise altitude and cost index before take off.
Option C. needs no update information.
Correct Answer is. is fed with information on aircraft weight, cruise altitude and cost index before take off.
Explanation. NIL.

Question Number. 74. Control surface feedback is fed back to.

Option A. the Flight Control Computer only.
Option B. the side stick controller only.
Option C. the Flight Control Computer and side stick controller.
Correct Answer is. the Flight Control Computer only.
Explanation. NIL.

Question Number. 75. The accelerometer output in an INS/IRS is.
Option A. integrated once to give distance.
Option B. integrated twice to give velocity.
Option C. integrated twice to give distance.
Correct Answer is. integrated twice to give distance.
Explanation. NIL.

Question Number. 76. An INS/IRS Battery Unit provides.
Option A. standby power only whilst in flight.
Option B. standby power when airborne and on the ground.
Option C. standby power only on the ground.
Correct Answer is. standby power when airborne and on the ground.
Explanation. Aircraft Instruments and Integrated Systems. Pallett Page 247 & 248.

Question Number. 77. If a fly by wire actuator loses hydraulic power the control surface will.
Option A. automatically move back to the neutral position.
Option B. remain rigid in the failure position.
Option C. remain in the failure position but may move due to aerodynamic pressure.
Correct Answer is. remain in the failure position but may move due to aerodynamic pressure.
Explanation. NIL.

Question Number. 78. IRS alignment.
Option A. takes up to 10 minutes and the present position can be entered at any time during alignment.
Option B. takes up to 10 minutes and present position must be entered before alignment.
Option C. takes up to 10 minutes and the previous flight shut down present position is used for the alignment.
Correct Answer is. takes up to 10 minutes and the present position can be entered at any time during alignment.
Explanation. NIL.

Question Number. 79. A fault light appears on the IRS Mode Selector Unit during the alignment sequence. The correct action is.
Option A. immediately switch off and select the standby system.
Option B. select HDG/STS on the Inertial System Display Unit (ISDU), observe the action code in the right alpha/numeric display.
Option C. refer to the warning display on the EICAS/ECAM system.
Correct Answer is. select HDG/STS on the Inertial System Display Unit (ISDU), observe the action code in the right alpha/numeric display.
Explanation. NIL.

Question Number. 80. A FMS has a total of how many Databases.
Option A. 2.
Option B. 4.
Option C. 1.
Correct Answer is. 2.
Explanation. NIL.

Question Number. 81. Fly by wire High Speed protection is.
Option A. to prevent tuck under.
Option B. to increase the pitch angle as speed increases.
Option C. to prevent high speed stall.
Correct Answer is. to prevent tuck under.
Explanation. NIL.

Question Number. 82. An IRS Laser gyro provides.
Option A. detection of the rate of movement about an aircraft axis.
Option B. detection of the earths gravitational force to establish true north.
Option C. detection of the earths rotation to establish true north.
Correct Answer is. detection of the rate of movement about an aircraft axis.
Explanation. Jeppesen Avionics Fundamentals Page 137.

Question Number. 83. The left and right cockpit displays.
Option A. are supplied from separate Symbol Generators at all times.
Option B. are supplied from the same Symbol Generator.
Option C. will only be supplied from the same symbol generator when all other symbol generators have failed.

Correct Answer is. will only be supplied from the same symbol generator when all other symbol generators have failed.
Explanation. NIL.

Question Number. 84. A single failure of a fly by wire control surface computer will.
Option A. cause the system to revert to an alternate law of operation.
Option B. not have any operational effect on the system.
Option C. cause the system to revert to a direct law of operation.
Correct Answer is. not have any operational effect on the system.
Explanation. NIL.

Question Number. 85. What are the outputs from digital clocks used for?.
Option A. Flight data acquisition unit, Flight management computer and Voice recorder.
Option B. VOR, ILS and DME.
Option C. Weather radar, TCAS and ACARS.
Correct Answer is. Flight data acquisition unit, Flight management computer and Voice recorder.
Explanation. Only these require real time reference.

Question Number. 86. A full operation system BITE check will carry out a internal system test that ensures the system meets design requirements and is operational.
Option A. but will not move the controls.
Option B. as well as checking full system and will move the controls to their stops.

Option C. as well as checking full system but will not move the controls to their stops.
Correct Answer is. as well as checking full system but will not move the controls to their stops.
Explanation. Digital Avionic Systems - Cary Spitzer. Page 109, Arinc report 604 guidance for design and use of built in test equipment states... 'BITE should exercise the hardware sufficiently to determine if it meets the performance requirements but should not drive it against mechanical stops.'.

Question Number. 87. If on a flight deck EFIS system all the displays were missing one bit of information. This is most likely to be.
Option A. the input sensor bus and display controller.
Option B. the symbol generator and display.

Option C. the display controller and symbol generator.
Correct Answer is. the display controller and symbol generator.
Explanation. By elimination, a fault in the display would be more general, and a fault with the sensor would still display, but an erroneous value.

Question Number. 88. A centralised monitoring computer system is used.
Option A. to test system during flight and for BITE test of systems on the ground using a carry on control unit.
Option B. to test systems in flight and on the ground using a centralised on board control unit.
Option C. testing systems on the ground only.
Correct Answer is. to test systems in flight and on the ground using a centralised on board control unit.
Explanation. Aircraft Electricity and Electronics Eismin 5th Edition Page 270.

Question Number. 89. In an EFIS display, the lines, scales, indicator and synoptic are generated by.
Option A. raster scan.
Option B. synoptic scan.
Option C. stroke pulse.
Correct Answer is. stroke pulse.
Explanation. 757 MM 34-22-00 page 40 (p) and 737 MM 34-22-00 page 47, 4(b).

Question Number. 90. The method of producing (white) lines for aircraft symbols, V/S scale etc. on an EADI is by.
Option A. raster scan.
Option B. trapezoidal input.
Option C. stroke pulse.
Correct Answer is. stroke pulse.
Explanation. MM 737-300/400/500, 34-22-00 page 47 4b or MM 757 34-22-00 page 40 (p). 'The special symbols, characters, letters, vectors and arcs are displayed using the stroke method. The EADI sky/ground ball or EHSI weather radar are displayed using the raster method.

Question Number. 91. In modern aircraft, the output from the clock is used.
Option A. to synchronise the signals on the control bus.
Option B. to provide a clock pulse for CRT.
Option C. to give GMT details to the flight recorder and other systems.
Correct Answer is. to give GMT details to the flight recorder and other systems.

Explanation. NIL.

Question Number. 92. As a minimum requirement, when must a cockpit voice recorder start recording?.
Option A. From the start of the aircraft take off run.
Option B. After take off when airborne.
Option C. On first engine start.
Correct Answer is. On first engine start.
Explanation. CAP 393 Section I Para 53, OR answer a by JAR OPS Para 1.700 ©.

Question Number. 93. The operational database of the FMS may have to be modified in flight.
Option A. It cannot be modified in flight.
Option B. by the pilot.
Option C. automatically by the DADC.
Correct Answer is. It cannot be modified in flight.
Explanation. NIL.

Question Number. 94. CADC outputs are.
Option A. altitude, vertical speed, IAS, mach no.
Option B. altitude, vertical speed, TAS, CAS, mach no, SAT, TAT.
Option C. altitude ,vertical speed, angle of attack, TAT, SAT.
Correct Answer is. altitude, vertical speed, TAS, CAS, mach no, SAT, TAT.
Explanation. Aircraft Instruments and Integrated Systems Pallett Page 162.

Question Number. 95. If one EICAS CRT fails.
Option A. the FMS CDU will display the failed CRT data.
Option B. the remaining CRT will display primary EICAS data.
Option C. the standby CRT will automatically take over.
Correct Answer is. the remaining CRT will display primary EICAS data.
Explanation. NIL.

Question Number. 96. Variations in light on EFIS displays are compensated for by.
Option A. An external light dependant resistor mounted on the flight deck compensating for all displays in a parallel-parallel format.
Option B. manual adjustment by flight crew on EFIS controller.
Option C. integrated light dependant resistors in the display compensating for each display individual.

Correct Answer is. An external light dependant resistor mounted on the flight deck compensating for all displays in a parallel-parallel format.
Explanation. Aircraft Instruments and Integrated Systems by EHJ Pallett pages 296 & 299.

Question Number. 97. A method used in modern aircraft for reporting in flight faults to an engineering and monitoring ground station is.
Option A. TCAS II.
Option B. ACARS.
Option C. TAWS.
Correct Answer is. ACARS.
Explanation. Aircraft Electricity and Electronics Eismin 5th Edition Page 299.

Question Number. 98. The self test function on an EFIS system can be tested.
Option A. on the ground only.
Option B. in the air only.
Option C. in the air and on the ground.
Correct Answer is. in the air and on the ground.
Explanation. NIL.

Question Number. 99. Each of the symbol generator outputs in an EFIS system can be.
Option A. displayed on each individual display.
Option B. only no. 2 can be displayed on the no.1.
Option C. can not be interchanged.
Correct Answer is. displayed on each individual display.
Explanation. NIL.

Question Number. 100. BITE tests are inhibited for ground use during.
Option A. forward motion.
Option B. gear retraction.
Option C. take-off.
Correct Answer is. take-off.
Explanation. NIL.

Question Number. 101. Modern aircraft with electronic displays would display information on airframe and engine on which system?.
Option A. Electronic centralised aircraft monitoring system (ECAM).
Option B. Flight management system.

Option C. EADI.
Correct Answer is. Electronic centralised aircraft monitoring system (ECAM).
Explanation. NIL.

Question Number. 102. The Flight data recorder starts recording.
Option A. after take off.
Option B. on aircraft roll out from stand.
Option C. after the first engine has started.
Correct Answer is. after the first engine has started.
Explanation. JAR OPS Subpart K 1.715 e.

Question Number. 103. Data to flight data recorder can be taken from a communal data bus if.
Option A. the power is within flight data recorder limits.
Option B. it goes directly to it.
Option C. source isolation has been considered.
Correct Answer is. source isolation has been considered.
Explanation. NIL.

Question Number. 104. A central fault display system should be available through.
Option A. a bite test.
Option B. a central bite test box with clear LED indications.
Option C. a easily accessible multifunction control display unit.
Correct Answer is. a easily accessible multifunction control display unit.
Explanation. NIL.

Question Number. 105. A flight data recorder should be capable of recording.
Option A. the last 25 hours.
Option B. the last 25 hours of aircraft flight.
Option C. the last 25 hours with engines running.
Correct Answer is. the last 25 hours with engines running.
Explanation. NIL.

Question Number. 106. BITE for ground use only is switched off.
Option A. on take-off.
Option B. when brakes are released.
Option C. when undercarriage up.
Correct Answer is. on take-off.
Explanation. NIL.

Question Number. 107. During normal functioning of an ECAM system the engine data shown on the Engine/Warning display comes from the.
Option A. EFIS channel of DMC3.
Option B. ECAM channel of DMC1.
Option C. ECAM channel of DMC3.
Correct Answer is. ECAM channel of DMC3.
Explanation. A330-200 31-50-00 pg4.

Question Number. 108. Using I.N.S. an aircraft flies.
Option A. rhumb line.
Option B. course directed by ground station.
Option C. great circle route.
Correct Answer is. great circle route.
Explanation. Jeppesen Avionics Fundamentals Page 132.

Question Number. 109. What warnings can an FMS provide?.
Option A. Ground faults only.
Option B. Discrete warnings.
Option C. Spurious faults.
Correct Answer is. Discrete warnings.
Explanation. NIL.

Question Number. 110. Aircraft heading (HDG) is.
Option A. the angle between True North and the longitudinal axis of the aircraft.
Option B. the angle between True North and the actual track.
Option C. the angle between True North and the desired track.
Correct Answer is. the angle between True North and the longitudinal axis of the aircraft.
Explanation. Aircraft Instruments and Integrated Systems EHJ Pallett Page 254.

Question Number. 111. For an IRS System to pass the Alignment System Performance Test the the latitude entered must be within given limits of the.
Option A. latitude computed by IRU.
Option B. entered present latitude and longitude must agree with the latitude and longitude at last power down.
Option C. the No 1 and No 2 must both have the same latitude and longitude present position entered.

Correct Answer is. the latitude entered must be within given limits of the latitude computed by IRU.
Explanation. Aircraft Instruments and Integrated Systems, Pallett pages 279-280.

Question Number. 112. Control Display Unit (CDU) selection of TKE (Track Angle Error), displays.
Option A. difference in degrees that the aircraft is to the right or left of the desired track.
Option B. distance perpendicular from the selected track.
Option C. difference in degrees from True North in a clockwise direction from the desired track.
Correct Answer is. difference in degrees that the aircraft is to the right or left of the desired track.
Explanation. Aircraft Instruments and Integrated Systems EHJ Pallett Page 256.

Question Number. 113. In the EICAS system, when is the maintenance mode available?.
Option A. Lower screen only - only available on the ground.
Option B. In flight.
Option C. On the upper and lower screens - only available on the ground.
Correct Answer is. Lower screen only - only available on the ground.
Explanation. B747 Maintenance Manual. Aircraft Instruments and Integrated Systems. Pallett Page 380.

Question Number. 114. On a modern aircraft when are BITE checks carried out?.
Option A. Continuously when system is in use.
Option B. After engine shut down.
Option C. Only when BITE selected.
Correct Answer is. Continuously when system is in use.
Explanation. Aircraft Electricity and Electronics, 5th edition, Eismin, Pages 152 and 268.

Question Number. 115. In an IN system, the purpose of the stable platform is to.
Option A. provide attitude reference.
Option B. prevent unwanted acceleration affecting the accelerometers.
Option C. stop the gyros from toppling.
Correct Answer is. prevent unwanted acceleration affecting the accelerometers.
Explanation. Aircraft Instruments and Integrated Systems EHJ Pallett Page 260.

Question Number. 116. An IN system requires data from the.
Option A. Doppler system.
Option B. airdata computer.
Option C. satellites.
Correct Answer is. airdata computer.
Explanation. Jeppesen Avionics Fundamentals Page 138.

Question Number. 117. TK (cross track) is the.
Option A. actual track across the earths surface.
Option B. angle in degrees that the aircraft track is left or right of desired track.
Option C. perpendicular distance from the desired track.
Correct Answer is. perpendicular distance from the desired track.
Explanation. Aircraft Instruments and Integrated Systems EHJ Pallett Page 256.

Question Number. 118. The output of an INS can be fed to the.
Option A. attitude indicators.
Option B. altimeters.
Option C. vertical speed indicators.
Correct Answer is. attitude indicators.
Explanation. Aircraft Instruments and Integrated Systems EHJ Pallett Page 247 fig 10.1. Jeppesen Avionics Fundamentals Page 137 & 138.

Question Number. 119. The three accelerometers on a strapdown system are mounted.
Option A. 90° to each other.
Option B. parallel to each other.
Option C. 120° apart.
Correct Answer is. 90° to each other.
Explanation. Jeppesen Avionics Fundamentals Page 135.

Question Number. 120. Gyro-compassing is the term used for.
Option A. self-alignment in the vertical.
Option B. use of the gyro-magnetic compass system to align the platform.
Option C. self-alignment in azimuth.
Correct Answer is. self-alignment in azimuth.
Explanation. Aircraft Instruments and Integrated Systems EHJ Pallett Page 280.

Question Number. 121. Electronic Centralized Aircraft Monitoring System operates to.
Option A. give red warnings and amber cautions to display system status.
Option B. perform in-flight BITE only.
Option C. perform in-flight and ground tests of aircraft systems by carrying out a BITE.
Correct Answer is. give red warnings and amber cautions to display system status.
Explanation. NIL.

Question Number. 122. The Centralized Aircraft Monitoring System uses the maintenance mode of operation.
Option A. on the ground only.
Option B. in the air only.
Option C. either ground or air.
Correct Answer is. on the ground only.
Explanation. NIL.

Question Number. 123. If part of a display is lost on a CRT, this could be due to.
Option A. an inoperative symbol generator or control panel.
Option B. an inoperative symbol generator or input sensor.
Option C. loss of power to the CRT.
Correct Answer is. an inoperative symbol generator or input sensor.
Explanation. NIL.

Question Number. 124. A cyclic test (watch dog) should be performed for ECAM.
Option A. via MCDU.
Option B. during power up.
Option C. during flight.
Correct Answer is. during flight.
Explanation. Aircraft Electricity and Electronics, Eismin, 5th Edition. Pg 154.

Question Number. 125. How does the symbol generator detect a program error?.
Option A. By looking at the even parity without error.
Option B. By looking at the odd parity without error.
Option C. By check sum bites for error detect.
Correct Answer is. By looking at the odd parity without error.
Explanation. NIL.

Question Number. 126. Relationship of CMCs to BITE systems is best described as.
Option A. CMCs replaced but is not related to the older BITE system.
Option B. CMCs monitors the individual BITE systems and presents data.
Option C. CMCs modifies and upgrades BITE systems.
Correct Answer is. CMCs monitors the individual BITE systems and presents data.
Explanation. NIL.

Question Number. 127. An IRU interface test is carried out.
Option A. in the air.
Option B. only on the ground.
Option C. on the ground or in the air.
Correct Answer is. only on the ground.
Explanation. NIL.

Question Number. 128. FMS system gives warning indications for.
Option A. take off and landings only.
Option B. any flight phase.
Option C. cruise.
Correct Answer is. cruise.
Explanation. NIL.

Question Number. 129. FMS CDU warnings are.
Option A. fail and MSG.
Option B. OFST and Fail.
Option C. MSG, fail and OFST.
Correct Answer is. MSG, fail and OFST.
Explanation. NIL.

Question Number. 130. CMC (central maintenance computer) works to.
Option A. perform in-flight bite and ground tests of aircraft systems, i.e. BITE.
Option B. give red warnings and amber cautions to display in accordance with system status.
Option C. perform in-flight bite only.
Correct Answer is. perform in-flight bite and ground tests of aircraft systems, i.e. BITE.
Explanation. NIL.

Question Number.131. BITE test carried out on input sensors and actuators performs.
Option A. validation of the information of the LRU.
Option B. a performance test of the system.
Option C. a test of the LRU.
Correct Answer is. a performance test of the system.
Explanation. NIL.

Question Number. 132. A BITE check for automatic performance and fault monitoring is carried out when?.
Option A. Power-up self test.
Option B. For in-flight monitoring.
Option C. To check the performance of the LRU.
Correct Answer is. Power-up self test.
Explanation. NIL.

Question Number. 133. In which of the following does TCAS II advise the pilot to make a maneouvre?.
Option A. RA.
Option B. TA.
Option C. either RA or TA.
Correct Answer is. RA.
Explanation. NIL.

Question Number. 134. What are the shapes of traffic shown on a TCAS display?.
Option A. White circles, red diamonds and amber squares.
Option B. White diamonds, red squares and amber circles.
Option C. White squares, red diamonds and amber circles.
Correct Answer is. White diamonds, red squares and amber circles.
Explanation. NIL.

Question Number. 135. If a display shows a red cross only, it is due to.
Option A. Symbol Generator failure.
Option B. CRT failure.
Option C. Altimeter failure.
Correct Answer is. Symbol Generator failure.
Explanation. NIL.

Question Number. 136. ACARS is an acronym for.

Option A. ARINC Communicating Addressing and Reporting System.
Option B. Airborne Communicating Addressing and Reporting System.
Option C. Aircraft Communicating Addressing and Reporting System.
Correct Answer is. Aircraft Communicating Addressing and Reporting System.
Explanation. NIL. http://www.acarsonline.co.uk/alabout.htm

Question Number. 137. When does the flight data recorder start recording ?.
Option A. Undercarriage up.
Option B. Parking brake released.
Option C. When the first engine starts.
Correct Answer is. When the first engine starts.
Explanation. NIL.

Question Number. 138. Brake temperature displayed on a flight deck CRT has.
Option A. a master warning light.
Option B. same color throughout.
Option C. different color for different temperatures.
Correct Answer is. different color for different temperatures.
Explanation. NIL.

Question Number. 139. When performing test on Electronic Displays using the Built In Test system.
Option A. CRT continues to display current data while the SGs and Display are internally tested.
Option B. SG injects a test signal into the display system and the word TEST appears on the screen.
Option C. displays cannot be tested it is only SG which are tested by BITE.
Correct Answer is. SG injects a test signal into the display system and the word TEST appears on the screen.
Explanation. NIL.

Question Number. 140. Heading reference required to establish initial heading during alignment sequence comes from.
Option A. FMS which gathers data from other Radio devices.
Option B. Magnetic compass installed on the airplane.
Option C. Earths Rotation.
Correct Answer is. Earths Rotation.
Explanation. NIL.

Question Number. 141. What is primary mode of navigation on a modern aeroplane?.
Option A. Both GPS and IRS.
Option B. Only IRS.
Option C. Inch precise GPS.
Correct Answer is. Only IRS.
Explanation. NIL.

Question Number. 142. In a flight director, how are small deviations corrected?.
Option A. Pilot input.
Option B. Instrument is calibrated at fitment to remove any possible error.
Option C. Instrument feedback.
Correct Answer is. Pilot input.
Explanation. NIL.

Question Number. 143. For a 3 dimensional fix in a Global Positioning System.
Option A. Minimum of 3 satellites must be in view.
Option B. Minimum of 2 satellites must be in view and altitude used to simulate a 3rd satellite.
Option C. Minimum of 4 satellites must be in view.
Correct Answer is. Minimum of 4 satellites must be in view.
Explanation. NIL.

Question Number. 144. In an aircraft equipped with TCAS II and EFIS.
Option A. RA pitch command is shown on the EHSI and TA/RA traffic on the EADI.
Option B. RA pitch command is shown on the VSI and TA/RA traffic on the EHSI.
Option C. RA pitch command is shown on the EADI and TA/RA traffic on the EHSI.
Correct Answer is. RA pitch command is shown on the EADI and TA/RA traffic on the EHSI.
Explanation. NIL.

Question Number. 145. The BITE indicator on a DFDR shows Yellow color. This indicates.
Option A.power is ON but DFDR is not recording data.
Option B. power is ON and DFDR is recording data.
Option C. power is OFF or DFDR is at Fault.
Correct Answer is. power is OFF or DFDR is at Fault.

Explanation. NIL.

Question Number. 146. In a typical 'Glass Cockpit' EICAS provides the following.
Option A. engine parameters and system warnings only.
Option B. engine parameters and engine warnings only.
Option C. engine warnings only.
Correct Answer is. engine parameters and system warnings only.
Explanation. NIL.

Question Number. 147. What is the minimum requirement for CVR to operate?.
Option A. BEFORE take-off.
Option B. BEFORE engine start.
Option C. at any time the manufacturer decides.
Correct Answer is. BEFORE take-off.
Explanation. Minimum requirement is AT first engine start (according to JAR OPS) which is BEFORE take-of.

Question Number. 148. ECAM system was adopted for.
Option A. Airbus A310.
Option B. both Boeing and Airbus aircraft.
Option C. Boeing 757 and 767 aircraft.
Correct Answer is. Airbus A310.
Explanation. NIL.

Question Number. 149. A modern electromagnetic Flight Data Recorder, for recording data, could use:.
Option A. a floppy disk.
Option B. a plastic tape coated in ferrite.
Option C. a copper oxide string.
Correct Answer is. a plastic tape coated in ferrite.
Explanation. NIL.

Question Number. 150. What is the minimum requirement for a CVR to start recording?.
Option A. When parking brake is released.
Option B. On commencement of flight.
Option C. When aircraft is capable of moving under its own power.
Correct Answer is. When aircraft is capable of moving under its own power.
Explanation. JAR Ops 1.700 para c.

Question Number. 151. As a minimum requirement when must a cockpit voice recorder start recording?.
Option A. Once airborne after take off.
Option B. Before engine start.
Option C. Once aircraft is ready to move under its own power.
Correct Answer is. Once aircraft is ready to move under its own power.
Explanation. JAR Ops 1.700 para c.

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Question Number. 1. 101012 + 110012 =.
Option A. 462.
Option B. 468.
Option C. 4610.
Correct Answer is. 4610.
Explanation. 101012 + 110012 = 1011102 = 4610.