

TEST - 2015

EC	COURSE	DAY : SUNDAY
	ELECTRONICS & COMMUNICATION	TIME : 10.00 A.M. TO 1.00 P.M.
MAXIMUM MARKS	TOTAL DURATION	MAXIMUM TIME FOR ANSWERING
180	200 MINUTES	180 MINUTES

MENTION YOUR DIPLOMA CET NUMBER					QUESTION BOOKLET DETAILS	
					VERSION CODE	SERIAL NUMBER
					A - 4	114176

DOs :

1. Check whether the Diploma CET No. has been entered and shaded in the respective circles on the OMR answer sheet.
2. This Question Booklet is issued to you by the invigilator after the 2nd Bell i.e., after 09.50 a.m.
3. The Serial Number of this question booklet should be entered on the OMR answer sheet and the respective circles should also be shaded completely.
4. The Version Code of this question booklet should be entered on the OMR answer sheet and the respective circles should also be shaded completely.
5. compulsorily sign at the bottom portion of the OMR answer sheet in the space provided.

DON'Ts:

1. **THE TIMING AND MARKS PRINTED ON THE OMR ANSWER SHEET SHOULD NOT BE DAMAGED / MUTILATED / SPOILED.**
2. **The 3rd Bell rings at 10.00 a.m., till then;**
 - Do not remove the paper seal of this question booklet.
 - Do not look inside this question booklet.
 - Do not start answering on the OMR answer sheet.

IMPORTANT INSTRUCTIONS TO CANDIDATES

1. This question booklet contains 180 (items) questions and each question will have one statement and four answers. (Four different options / responses.)
2. After the 3rd Bell is rung at 10.00 a.m. remove the paper seal of this question booklet and check that this booklet does not have any unprinted or torn or missing pages or items etc., if so, get it replaced by a complete test booklet. Read each item and start answering on the OMR answer sheet.
3. During the subsequent 180 minutes:
 - Read each question (item) carefully
 - Choose one correct answer from out of the four available responses (options / choices) given under each question / item. In case you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose only one response for each item.
 - **Completed darken / shade the relevant circle with a BLUE OR BLACK INK BALL POINT PEN against the question number on the OMR answer sheet.**

Correct Method of shading the circle on the OMR answer sheet is as shown below:

① ● ③ ④

4. Use the space provided on each page of the question booklet for Rough Work. Do not use the OMR answer sheet for the same
5. After the last Bells is rung at 1.00 p.m. stop marking on the OMR answer sheet and affix your left hand thumb impression on the OMR answer sheet as per the instructions.
6. Hand over the **OMR ANSWER SHEET** to the room invigilator as it is.
7. After separating the top sheet, the invigilator will return the bottom sheet replica (Candidate's copy) to you to carry home for self-evaluation.
8. Preserve the replica of the OMR answer sheet for a minimum period of **ONE year**.

SEAL

PART - A
APPLIED SCIENCE

1. In the spectrum of scattered light the lines corresponding to wavelength greater than that of incident light are called
1. Stokes lines
 2. Antistokes lines
 3. Fluorescent lines
 4. Incident lines
2. Resolving power of telescope is given by
1. $\frac{1.22\lambda}{d}$
 2. $\frac{1.22\lambda}{d}$
 3. $\frac{1.22d}{\lambda}$
 4. $\frac{\lambda}{1.22d}$
3. To observe diffraction pattern the obstacle should be
1. Very big
 2. Dark
 3. Absent
 4. Comparable with the wavelength of light
4. When double refraction occurs, extraordinary ray and ordinary rays will have vibrations in the planes _____ to one another
1. Parallel
 2. Independent
 3. Perpendicular
 4. At 45°
5. Maxwell's electromagnetic theory could explain
1. Photo electric effect
 2. Interference of light
 3. Compton effect
 4. Black body radiation
6. The contrast between bright and dark bands of an interference pattern is
1. Low
 2. High
 3. No change
 4. Gradually decreases
7. A non-electrolyte solution is
1. Sugar solution
 2. Salt solution
 3. Water
 4. Copper sulphate solution

Space For Rough Work

8. In alkalies the concentration of OH^- ions is
1. More than 10^{-7} g ions / litre
 2. Less than 10^{-7} g ions / litre
 3. Equal to 10^{-7} g ions / litre
 4. More than 10^7 g ions / litre
9. An example of derived unit is
1. Meter
 2. Second
 3. Netwon
 4. Candela
10. The prefix used for 10^{-15} is
1. Femto
 2. Pico
 3. Peta
 4. Nano
11. An example of dimensionless constant is
1. Strain
 2. Efficiency
 3. Force
 4. Pi
12. A main scale is divided into half mm and having a Vernier containing 10 divisions has a least count of _____cm.
1. 0.05
 2. 0.005
 3. 0.02
 4. 0.025
13. According to Newton's second law of motion $F = Kma$. The value of K is
1. 0.1
 2. 0
 3. 10
 4. 1
14. The velocity of a freely falling body is maximum
1. At the beginning
 2. Just before it touches ground
 3. Exactly half way
 4. After it touches ground
15. Wet clothes are dried in washing machine by the property of
1. Inertia of rest
 2. Inertia of direction
 3. Inertia of motion
 4. Inertia of time
16. A force of 1.2×10^{-2} N acts for 3 seconds on a body of mass 0.04kg at rest. The velocity gained by the body is
1. 0.9 m/s
 2. 9 m/s
 3. 0.09 m/s
 4. 9.2 m/s

Space For Rough Work

17. An example of vector quantity is
1. Volume
 2. Energy
 3. Density
 4. Force
18. Handle of the door is fixed away from the end where it is fixed with hinges to
1. Increase the moment of force
 2. Decrease the moment of force
 3. Keep the door firm
 4. Lock it easily
19. Resultant of two equal forces perpendicular to each other acts at an angle _____ to first force
1. 90°
 2. 180°
 3. 30°
 4. 45°
20. The resultant of two forces acting on a body cannot be
1. Greater than first force
 2. Zero
 3. Lesser than first force
 4. Lesser than the difference between two forces
21. Towing of a boat by two forces is an illustration of
1. Lami's theorem
 2. Law of triangle of forces
 3. Law of parallelogram of forces
 4. Law of polygon of forces
22. Shock absorber is an example for
1. Compressive stress
 2. Tensile stress
 3. Shear stress
 4. Shear strain
23. Factor of safety of a structure is
1. Within 2
 2. Equal to zero
 3. Vary between 5 and 10
 4. More than 10
24. In case of liquids as the temperature increases, the viscosity of liquid decreases due to
1. Increase in the rate of diffusion of gases
 2. Decrease in the rate of diffusion of gases
 3. Increase in the potential energy of molecules
 4. Increase in the kinetic energy of molecules

Space For Rough Work

25. One Pascal is equal to
- 10 dynes/cm²
 - 1 dyne / cm²
 - 100 dynes / cm²
 - 0.1 dyne / cm²
26. To calm down turbulent sea, sailors use oil to
- Decrease surface tension
 - Increase surface tension
 - Decrease viscosity
 - Increase cohesive force
27. The thrust on the bottom of the container having a base area of 20 m² filled with water to a height of 3 m is _____ (given $g = 10 \text{ m/s}^2$)
- $6 \times 10^5 \text{ N}$
 - $6 \times 10^4 \text{ N}$
 - $6 \times 10^3 \text{ N}$
 - $6 \times 10^2 \text{ N}$
28. Amount of heat required to raise the temperature of 1 kg of water through 1°C is
- One calorie
 - One joule
 - One kilo-calorie
 - One kilojoule
29. Absolute scale of temperature has its zero at
- 0°C
 - 100°C
 - 273°C
 - 273°C
30. In case of an ideal gas, the value of pressure or volume co-efficient is
- $\frac{1}{273}$
 - $-\frac{1}{273}$
 - 273
 - 273
31. The distance travelled by the disturbance per unit time in a given direction is
- Wave amplitude
 - Wave velocity
 - Wave frequency
 - Wavelength
32. The speed of the transverse wave along the stretched string is given by
- $V = \sqrt{\frac{T}{m}}$
 - $V = \sqrt{\frac{m}{T}}$
 - $V = \sqrt{\frac{1}{T}}$
 - $V = \frac{\sqrt{m}}{T}$

Space For Rough Work

33. Absorption co-efficient of sound wave is given by _____. Where E_m is energy absorbed by the given medium E_{ow} is the energy absorbed by open window.
1. $a = \frac{E_m}{E_{ow}}$
 2. $a = \frac{E_{ow}}{E_m}$
 3. $a = E_m \times E_{ow}$
 4. $a = E_m + E_{ow}$
34. The rich quality of a musical note depends on
1. Fundamental frequency
 2. Loudness
 3. Larger number of over tones
 4. Pitch
35. Waxing and waning are the characteristics of
1. Periodic motion
 2. Oscillations
 3. Beats
 4. Frequency
36. Velocity of sound in air varies
1. Inversely as the square root of the density of the medium
 2. Directly as the square root of the density of the medium
 3. Directly as the density of medium
 4. Inversely as the density of medium
37. The vibrations of a body of decreasing amplitude are called
1. Undamped free vibrations
 2. Damped free vibrations
 3. Resonant vibrations
 4. Forced vibrations
38. Another name for field emission is
1. Cold cathode emission
 2. Thermionic emission
 3. Photoelectric emission
 4. Secondary emission
39. In case of photoelectric emission, the rate of emission of electron is
1. Independent of frequency of radiation
 2. Dependent on frequency of radiation
 3. Dependent on wavelength of incident radiation
 4. Independent of intensity of radiation
40. Emission of radiation from radioactive element is
1. Slow
 2. Fast
 3. Spontaneous
 4. Very slow

Space For Rough Work

PART - B
APPLIED MATHEMATICS

41. $\int_{-1}^1 (2x+1)(5-x) dx$ is

1. 10

2. $\frac{26}{3}$

3. $\frac{-26}{3}$

4. $\frac{11}{3}$

42. $\int_0^{\pi/4} \tan^2 x \sec^2 x dx$ is

1. $\frac{1}{3}$

2. $\frac{4}{3}$

3. $\frac{1}{2}$

4. $\frac{-1}{3}$

43. The RMS value of $y^2 = x^2 - 2x$ over the interval $[1, 3]$ is

1. $\sqrt{\frac{5}{3}}$

2. $\sqrt{\frac{2}{3}}$

3. $\frac{1}{3}$

4. $\frac{1}{\sqrt{3}}$

44. The differential equation of $y^3 = 5ax$ by eliminating arbitrary constant a is

1. $\frac{dy}{dx} - \frac{y}{3x} = 0$

2. $\frac{dy}{dx} + \frac{y}{3x} = 0$

3. $\frac{dy}{dx} - \frac{3y}{x} = 0$

4. $\frac{dy}{dx} - \frac{5y}{3x} = 0$

45. The integrating factor of the differential equation $x \frac{dy}{dx} - (1-x)y = x^3$ is

1. $\frac{e^x}{x}$

2. xe^x

3. $e^{\frac{x^2-2x}{2}}$

4. $e^{\frac{2x-x^2}{2}}$

Space For Rough Work

46. If $\begin{vmatrix} 2x+1 & -5x \\ 1 & 3 \end{vmatrix} = 0$, then x is

1. $\frac{3}{11}$

2. $\frac{-3}{11}$

3. $\frac{11}{3}$

4. $-\frac{11}{3}$

47. For the simultaneous linear equations $2x + y + z = 1$, $x + y + 2z = 0$ and $3x + 2y - z = 2$, the value of Δx is

1. 3

2. -11

3. -7

4. -3

48. If $A = \begin{bmatrix} 2 & 3 \\ 5 & 4 \end{bmatrix}$, $B = \begin{bmatrix} -1 & 7 \\ -4 & 1 \end{bmatrix}$ then $(A+B)^T$ is

1. $\begin{bmatrix} 1 & 1 \\ 10 & 5 \end{bmatrix}$

2. $\begin{bmatrix} 1 & 10 \\ 1 & 5 \end{bmatrix}$

3. $\begin{bmatrix} -1 & 10 \\ -1 & 5 \end{bmatrix}$

4. $\begin{bmatrix} -1 & -1 \\ 10 & 5 \end{bmatrix}$

49. If $A = \begin{bmatrix} 1 & -3 \\ -5 & 7 \end{bmatrix}$, then $\text{adj } A$ is

1. $\begin{bmatrix} 1 & -5 \\ -3 & 7 \end{bmatrix}$

2. $\begin{bmatrix} 7 & -5 \\ -3 & 1 \end{bmatrix}$

3. $\begin{bmatrix} -1 & -5 \\ -3 & -7 \end{bmatrix}$

4. $\begin{bmatrix} 7 & 3 \\ 5 & 1 \end{bmatrix}$

50. The cofactor of 0 in $A = \begin{bmatrix} 3 & -2 & 5 \\ 1 & 6 & 0 \\ 2 & 7 & -4 \end{bmatrix}$ is

1. -25

2. 25

3. -17

4. 0

Space For Rough Work

51. If $(\sqrt{3}+1)^3 = 10+6\sqrt{3}$, then the value of $(\sqrt{3}+1)^3 - (\sqrt{3}-1)^3$ is
1. $12\sqrt{3}$ 2. 0 3. 20 4. $20+\sqrt{3}$
52. The middle term in the expansion of $\left(x^3 + \frac{1}{x^2}\right)^6$
1. $10x^3$ 2. $20x^3$ 3. $\frac{20}{x^3}$ 4. 20
53. If $\vec{a} = i + 3j - 2k$ and $\vec{b} = 2i - j + 3k$, then $\vec{a} \cdot \vec{b}$ is
1. -5 2. 11 3. 7 4. -7
54. The work done by the force $2i - j + 6k$ when it displaces the particle from (5, 3, -2) to (7, -4, 8) is
1. 72 2. 48 3. -71 4. 71
55. The sine of the angle between the vectors $\vec{a} = i + j + k$ and $\vec{b} = 2i - 3j - 4k$ is
1. $\sqrt{\frac{62}{87}}$ 2. $\sqrt{\frac{87}{62}}$ 3. $\frac{-5}{\sqrt{87}}$ 4. $\sqrt{\frac{10}{63}}$
56. If $\cos \theta = \frac{5}{13}$ and θ is acute angle, then the value of $3 \cos \theta - 2 \sin \theta$ is
1. $\frac{9}{13}$ 2. 3 3. $\frac{-9}{13}$ 4. -3

Space For Rough Work

57. If $x \sin 30^\circ - \sec 30^\circ \tan 30^\circ = \tan^2 60^\circ$, then the value of x is

1. $\frac{22}{3}$ 2. $\frac{-22}{3}$ 3. $\frac{11}{6}$ 4. $\frac{3}{22}$

58. The value of $\sin 225^\circ + \cos(-135^\circ)$ is

1. $\sqrt{2}$ 2. $-\sqrt{2}$ 3. $\frac{1}{\sqrt{2}}$ 4. $\frac{-1}{\sqrt{2}}$

59. The simplified value of $\frac{\sin(180^\circ - A) \cot(90^\circ - A) \cos(360^\circ - A)}{\tan(180^\circ + A) \tan(90^\circ + A) \sin(-A)}$ is

1. $\sin A$ 2. $-\sin A$ 3. 1 4. $\operatorname{cosec} A$

60. The simplified value of $\frac{\sin 2A}{1 + \cos 2A}$ is

1. $2 \tan A$ 2. $\sin A$ 3. $\cot A$ 4. $\tan A$

61. If $\tan A = \frac{3}{4}$ and $\tan B = \frac{1}{7}$, then the value of $(A+B)$ is

1. $\frac{\pi}{6}$ 2. $\frac{25}{23}$ 3. $\frac{\pi}{4}$ 4. $\frac{23}{25}$

62. The value of $\cos 20^\circ + \cos 100^\circ + \cos 140^\circ$ is

1. 0 2. $\cos 50^\circ$ 3. $\frac{1}{2}$ 4. $\sin 50^\circ$

Space For Rough Work

63. The value of $\cos^{-1}[\tan 135^\circ]$ is
1. 0°
 2. 180°
 3. 45°
 4. 90°
64. The centroid of the triangle formed by the vertices $(-10, 6)$, $(2, -2)$ and $(2, 5)$ is
1. $(-2, 3)$
 2. $(2, 3)$
 3. $\left(-3, \frac{9}{2}\right)$
 4. $(-6, 9)$
65. A point $(-4, 3)$ divides the line AB externally in the ratio of $1 : 2$. Given $A(-1, -3)$ then the point B is
1. $(6, -3)$
 2. $(-10, 15)$
 3. $(2, 9)$
 4. $(2, -9)$
66. The area of triangle formed by the point, $(3, -1)$, $(2, 0)$ and $(K, 4)$ is 10 Sq. Units, then the value of K is
1. 12
 2. 7
 3. -22
 4. 22
67. The slope of the line joining the points $(-2, 3)$ and $(4, -6)$ is
1. $\frac{3}{2}$
 2. $\frac{-3}{2}$
 3. $\frac{2}{3}$
 4. $\frac{-2}{3}$
68. The equation of straight line passing through $(4, -1)$ and having equal intercepts is
1. $x + y - 1 = 0$
 2. $x + y - 5 = 0$
 3. $x + y - 3 = 0$
 4. $x + y + 3 = 0$
69. The equation of the line passing through $(5, -2)$ and parallel to the line $3x + 2y + 7 = 0$ is
1. $3x + 2y - 11 = 0$
 2. $3x - 2y + 11 = 0$
 3. $3x - 2y - 19 = 0$
 4. $2x - 3y - 16 = 0$

Space For Rough Work

70. The value of $\lim_{x \rightarrow -2} \frac{x+2}{x^5+32}$ is

1. $\frac{1}{80}$

2. 80

3. $-\frac{1}{80}$

4. -80

71. The value of $\lim_{x \rightarrow 0} \frac{2x - \tan 3x}{\sin 2x + 3x^2}$ is

1. $-\frac{1}{5}$

2. 0

3. $\frac{1}{2}$

4. $-\frac{1}{2}$

72. If $y = e^{x \log x}$, then $\frac{dy}{dx}$ at $x=1$ is

1. e^x

2. e

3. 1

4. 0

73. If $y = \tan^{-1} \sqrt{\frac{1+\cos x}{1-\cos x}}$, then $\frac{dy}{dx}$ is

1. 2

2. -2

3. $-\frac{1}{2}$

4. $\frac{1}{2}$

74. If $\sqrt{x^3} + \sqrt{y^3} = \sqrt{a^3}$, then $\frac{dy}{dx}$ is

1. $\sqrt{\frac{x}{y}}$

2. $-\sqrt{\frac{x}{y}}$

3. $\sqrt{\frac{y}{x}}$

4. $-\sqrt{\frac{y}{x}}$

75. The second derivative of $y = \log(\sec x - \tan x)$ is

1. $-\sec x \tan x$

2. $\sec x \tan x$

3. $-\sec x$

4. $\sec x$

Space For Rough Work

76. Water flows into the cylindrical tank of radius 7mt at the rate of 294 cubic mt/sec, then the rate of height of water rising in the tank is

1. $\frac{\pi}{6} \text{ mt/sec}$

2. $\frac{6}{\pi} \text{ mt/sec}$

3. 14406 mt/sec

4. $\frac{21}{\pi} \text{ mt/sec}$

77. The maximum value of the function $y = x + \frac{1}{x}$ is

1. 0

2. 2

3. 1

4. -2

78. The value of $\int \tan^2 x \, dx$ is

1. $\tan x - x + c$

2. $x - \tan x + c$

3. $(\sec^2 x)^2 + c$

4. $-\cot x - x + c$

79. The value of $\int \frac{\cos x}{1 + \sin x} \, dx$ is

1. $\log(\sec^2 x + \sec x \tan x) + c$

2. $\log(\sin x) + c$

3. $\log(1 + \sin x) + c$

4. $\frac{(1 + \sin x)^2}{2} + c$

80. $\int \sin^2 x \sin 2x \, dx$ is

1. $\frac{\sin^2 x}{2} + c$

2. $\frac{\sin^4 x}{2} + c$

3. $\sin^2 x + c$

4. $\frac{-\sin^4 x}{2} + c$

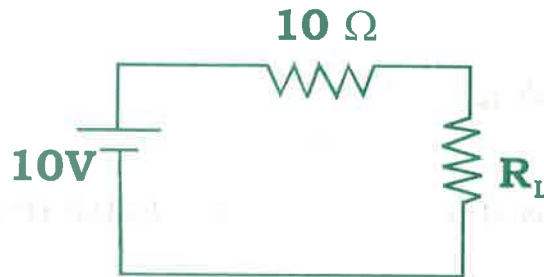
Space For Rough Work

PART -C
ELECTRONICS & COMMUNICATION

81. Voltage regulators use
1. Positive feed back
 2. No feed back
 3. Either positive or negative feed back
 4. Negative feed back

82. The clamper circuit is used to
1. Introduce a D.C. level to A.C. signal
 2. Supress variation in amplitude of input signal
 3. obtain an output which is integral of the input signal
 4. produce differential of input signal

83. The maximum power transfered to the load R_L in the following circuit is



1. 2.5 watts 2. 1 watt 3. 25 w 4. 10 w

84. In a series, resonant circuit, the impedance at resonance is

1. $Z = R$ 2. $Z = \frac{L}{CR}$ 3. $Z = \frac{CR}{L}$ 4. $Z = \frac{R}{L}$

85. A tuned circuit is resonant at 50 KHz its Q is 100. The band width is

1. 50 Hz 2. 5 MHz 3. 500 Hz 4. 5 KHz

Space For Rough Work

86. In a communication system, noise is most likely to affect the signal
1. at the transmitter
 2. In the channel
 3. In the information source
 4. at the destination
87. The maximum power of AM wave under distortionless condition is
1. P_c
 2. $2 P_c/3$
 3. $P_c/3$
 4. $3/2 P_c$
88. In an FM system, what is the modulation index, if the audio frequency is 1 KHZ and the AF voltage is 2.4 V the deviation is 4.8 KHZ
1. 3.8
 2. 2
 3. 1
 4. 4.8
89. Pulse width modulation Involves
1. varying duration of message signal according to width of pulse train
 2. varying width of pulses according to instantaneous variations of message signal
 3. Performing duration modification of message signal and then multiplying the result with pulse train
 4. Performing width modification of pulse train with message and then subjecting the result to width modulation.
90. If a higher scale ammeter is used to measure too low current, then the measurement would have low.
1. Precision
 2. Accuracy
 3. Resolution
 4. All of the above
91. The PMMC meter can measure
1. Only AC quantities
 2. Only DC quantities
 3. Both ac and dc quantities
 4. Only frequency quantities
92. A dynamometer type wattmeter responds to the
1. Average value of active power
 2. Average value of reactive power
 3. Peak value of active power
 4. Peak value of reactive power

Space For Rough Work

93. In wein bridge
1. Balanced conditions are independent of Frequency
 2. Balanced conditions are dependent on Frequency
 3. Capacitance is measured in terms of standard induction
 4. Frequency is measured in terms of resistance and capacitance values
94. The Lissajous pattern appearing on the screen of a CRT, when two sinusoidal voltages of equal frequencies, which are in phase with each other, are applied to the horizontal and vertical plates is
1. A straight line
 2. A circle
 3. An ellipse
 4. A parabola
95. Frequency spectrum of waveform can be determined using
1. Wave analyzer
 2. Q - Meter
 3. LCR bridge
 4. Wein-bridge oscillator
96. To measure surface temperature one can use,
1. Strain guage
 2. Diaphragm
 3. RTD
 4. Thermocouple
97. In an LVDT, the output quantity
1. Is algebraically summed to zero
 2. Is difference of 2 currents flowing to the two secondaries
 3. Depends upon its rating
 4. depend upon its size
98. Electronic counters are used for measuring
1. Linear velocity
 2. Angular velocity
 3. Acceleration
 4. Pressure
99. Piezoelectric crystal produces an EMF
1. When external Mechanical forces applied
 2. When external magnetic field applied
 3. When radiations are applied
 4. When junction of two crystals are heated

Space For Rough Work

100. PSEN in 8051 is used to access
1. Internal ROM
 2. External ROM
 3. Timer
 4. Counter
101. SWAP instruction of 8051 works with Register
1. B
 2. A
 3. R0
 4. R
102. In Mode 2, the timers of 8051 are used as
1. 13 bit timer
 2. 8 bit auto reload
 3. 16 bit timer
 4. two 8 bit timers
103. In 8051, the content of Register A is 85, after the execution of Instruction SWAP A, the contents of A register is
1. 13
 2. 96
 3. 58
 4. 31
104. When 8051 is powered up the stack pointer is initialized to location
1. 08 H
 2. 07 H
 3. 1 FH
 4. 2 FH
105. When 8051 receives 8 bit data and places in SBUF register, which flag will set
1. RI
 2. SM 2
 3. TB 8
 4. REN
106. In SCON Register bit 6 and bit 7 specifies
1. Serial port mode
 2. Transmit Interrupt
 3. Receive Interrupt
 4. Enable Receiver
107. Physical address is done in which layer of O S I model
1. Network layer
 2. data link layer
 3. physical layer
 4. Transport layer
108. In which switching there is no allocation of resources for data transfer
1. Pocket switching
 2. Message switching
 3. Circuit switching
 4. Data switching

Space For Rough Work

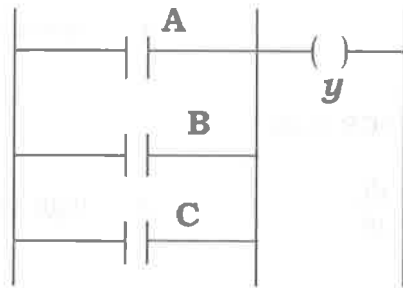
109. A bandwidth of a LAN can be increased by
1. Routers
 2. Switches
 3. Bridges
 4. Gateways
110. Following device transforms the telephone network message to internet message
1. Bridges
 2. Gate ways
 3. Switch
 4. Repeater
111. T D M is a,
1. Digital Technique
 2. Analag Technique
 3. Hybrid Technique
 4. Discrete Technique
112. In Ring Topology which of the following is false statement
1. Undirection Traffic
 2. Break in the ring can disable entire network
 3. Easy to Install
 4. Robust
113. Combination of multiple Topology is called
1. Hybrid topology
 2. Mesh Topology
 3. Mixed Topology
 4. Combination topology
114. Dotted decimal notion of IPV4 is in the format
1. 1111 . 1011 . 1101
 2. 40 . 30 . 4 C . 1 A
 3. 128 . 11 . 13 . 14
 4. 120 . 110 . 80
115. The biggest disadvantage of PCM is
1. Its inability to handle analog signal
 2. the high error rate which is quartizing noise reduces
 3. Its incompatability with TDM
 4. the large band width required for it

Space For Rough Work

116. The Shannon - Hartley law
- describes signaling rates
 - defines Band width
 - refers to distortion
 - refers to Noise
117. The Snubber – circuit protect SCR from
- $\frac{di}{dt}$
 - $\frac{dv}{dt}$
 - high voltage
 - High current
118. Free - wheeling diode is used in _____ kind of load
- Inductive load
 - Capacitive load
 - Resistive load
 - Magnetic load
119. Inverter is a circuit which converts
- AC to AC
 - DC to AC
 - DC to DC
 - AC to DC
120. Type - B chopper is also called as
- first quadrant
 - Second quadrant
 - Third quadrant
 - Fourth quadrant
121. R - triggering network is used to trigger SCR from
- 45° to 90°
 - 0 to 90°
 - 90° to 135°
 - 0 to 180°
122. Low power factor Implies _____ lines losses
- Higher
 - Lower
 - Equal
 - Lower than or Equal
123. Electrical signal converted into physical condition by
- Actuators
 - Sensor
 - Rungs
 - Timer
124. Identify the analog input to PLC
- Solenoid
 - Toggle Switch
 - Level Transmitter
 - Motor Starter

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125. What is the Boolean Expression for the given ladder diagram, $y =$



1. $y = A + B + C$ 2. $y = A B C$ 3. $y = (A + B) C$ 4. $y = (A \cdot C) + B$

126. The Maximum Size of each 8086 memory segment is

1. 64 MB 2. 64 KB 3. 64 GB 4. 64 bytes

127. The size of the Interrupt Vector table of 8086 is

1. 2 K 2. 1 K 3. 4 K 4. 8 K

128. Data definition and storage allocation directive used to define a byte type variable

1. DW 2. DB 3. DT 4. DD

129. Using cascade mode in 8259 we can connect up to _____ interrupts

1. 8 2. 16 3. 24 4. 64

130. Modem control unit is available in

1. 8253 2. 8257 3. 8259 4. 8251

131. The register which acts as a Judge in 8259 is

1. IRR 2. IMR 3. ISR 4. Priority Resolver

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132. Medical Instruments performance factor does not depends upon
1. Isolation
 2. Hysteresis
 3. Signal to Noise ratio
 4. Robust
133. Typical value of Action Potential will be
1. + 20 *mv*
 2. - 20 *mv*
 3. + 25 *mv*
 4. - 25 *mv*
134. The Normal P Q R S T wave is replaced by train of pulses indicates
1. Ventricular fibrillation
 2. Myocardial Infarcation
 3. Bundle Block
 4. AV Block
135. E E G is not used to analyse one of the following
1. Sleep disssorder
 2. Brain Death
 3. Epilepsy
 4. Arrhythmia
136. In External Defibrillator electrodes used
1. Paddle shape
 2. Micro elctrode
 3. Needle electrode
 4. Suction cup electrode
137. Wave length of X - Ray are _____ than the visible light
1. Shorter
 2. Greater
 3. Equal
 4. Greater than or Equal to
138. To get high quality Image modern MRI system uses _____ Magnets
1. Semiconducting
 2. Super conducting
 3. Soft conducting
 4. Insulating
139. The data to be measured, quantised and transmitted in Digital Telemetry by
1. PAM
 2. PWM
 3. PCM
 4. PPM

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140. SI unit of Specific resistance is
1. ohm
 2. ohm/mt
 3. ohm-mt
 4. ohm/amps
141. When three resistors of values $10\ \Omega$, $100\ \Omega$ and $1K\ \Omega$ are connected in series the effective resistance is
1. $1.1K\ \Omega$
 2. $1.11K\ \Omega$
 3. $11.1K\ \Omega$
 4. $0.111K\ \Omega$
142. Three resistance of $10\ \Omega$, $20\ \Omega$, $30\ \Omega$ are connected in series, across a supply of 50 V. The voltage drop across $30\ \Omega$ resistance is
1. 10 V
 2. 20 V
 3. 50 V
 4. 30 V
143. Power in an AC circuit is given by
1. $VI \cos \theta$
 2. $\frac{VI}{4} \cos \theta$
 3. $VI \sin \theta$
 4. $V^2 I^2 \cos \theta$
144. Wire wound resistors are used when the power dissipation is
1. Low
 2. High
 3. Medium
 4. Very low
145. The voltage induced in the Secondary winding of a transformer is
1. $4.44\phi_m f N_2$ volts
 2. $44.4\phi_m f N_2$ volts
 3. $\phi_m f N_2$ volts
 4. $4.44\phi_m N_2$ volts
146. If more current is required, the cells may be joined in
1. Series
 2. Parallel
 3. Series - Parallel
 4. In any pattern

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147. The energy gap in a semiconductor
1. Increases with temperature
 2. Does not change with temperature
 3. Decreases with temperature
 4. is Zero
148. For a Reverse biased P - N junction, the current through the junction increases abruptly at
1. Breakdown voltage
 2. 0 V
 3. 0.2 e V
 4. 0.7 V
149. The common base D.C current gain of a transistor is 0.96. If the emitter current is 10 mA, the value of base current is
1. 0.4 mA
 2. 9.6 mA
 3. 0.96 mA
 4. 9.04 mA
150. A PIN diode is frequently used as a
1. Voltage Regulator
 2. Peak detector
 3. Harmonic generation
 4. Switching diode for very high frequencies
151. FET's are
1. Voltage controlled devices with high input impedance
 2. Current controlled device with low input impedance
 3. Voltage controlled devices with low input impedance
 4. Current controlled device with high input impedance
152. Depletion MOSFET can operate in
1. Depletion mode only
 2. Enhancement mode only
 3. Both depletion and enhancement mode
 4. Cutoff region when $V_{gs} = 0V$
153. The unique character of LASER light is
1. Coherent
 2. Monochromatic
 3. Collimated
 4. All of the above

Space For Rough Work

154. What is the binary equivalent of the octal number 17.26
1. 001111.010110 2. 10111.101100 3. 110100.101110 4. 111010.010111
155. The flipflop used to avoid race around condition is
1. J - K flipflop 2. S - R flipflop 3. J - K Master slave 4. T - flipflop
156. If five flip flops are cascaded they can count upto an equivalent
1. 10 2. 25 3. 31 4. 20
157. The number of clock pulses required to get the output in a 4 bit SIPO shift register is
1. 1 2. 5 3. 4 4. 2
158. A circuit which selects one out of many inputs is called as
1. Decoder 2. Multiplexer 3. Demultiplexer 4. Encoder
159. Propagation delay time of a standard TTL is
1. 20 ns 2. 10ns 3. 5 ns 4. 15 ns
160. How many address bits are required for 2 KB memory location
1. 5 2. 8 3. 13 4. 11
161. The resolution of a 4 bit R - 2R DAC is
1. 15 2. $\frac{1}{16}$ 3. 16 4. $\frac{1}{15}$
162. The maximum conversion time required for 8 bit counter type ADC driven by 1 MHz clock is
1. 255 μs 2. 1 μs 3. 8 μs 4. 64 μs

Space For Rough Work

163. The programmable logic device having programmable AND - array at the input and a programmable OR - array at the output is called

1. P L A
2. P A L
3. P G A
4. ASIC

164. To detect errors in program in single step _____ is called

1. Debugger
2. Macro Assemble
3. Locator
4. Linker

165. A Microprocessor is called an n - bit microprocessor depending on

1. Register length
2. Size of Internal data Bus
3. Size of External data Bus
4. No. of I/o devices connected

166. The total time required to execute an Instruction is given by

1. Instruction cylce + Execute cycle
2. Instruction Cycle + Fetch cycle
3. Fetch Cycle + Execute cycle
4. Read cycle + write cycle

167. '\\ ' indicate which escape sequence

1. back slash
2. back space
3. carriage return
4. New live

168. If a variable is declared as char Z how much memory space is reserved under name Z ?

1. 2 byte
2. 4 byte
3. 1 byte
4. 6 byte

169. Write the order of precedence

1. binary additive
2. equality operator
3. bitwise OR operator
4. Logical OR Operator
1. 1, 2, 3, 4
2. 1, 2, 4, 3
3. 4, 3, 2, 1
4. 3, 4, 2, 1

170. What is the output of the following C code

```
int x, y, z; y = 7; x = y -- ; y = -- x; z = -- y;
```

The value of x, y, z are

1. 6, 5, 4
2. 7, 6, 5
3. 6, 6, 4
4. 7, 7, 6

Space For Rough Work

171. Identify the false statement in 'C'

1. While loop is executed only when condition is satisfied
2. While loop is executed atleast once
3. Do - While loop is executed atleast once
4. For - loop is used when the number of iteration is pre-determined

172. What is the out put of the code

```
for (i =0; i < 11; i ++ ) { if ((i == 4) || (i == 7)) continue; print f ("the value of i is %d\n", i);}
```

1. 0 to 10 numbers are printed
2. 0 to 11 numbers are printed
3. 4 and 7 numbers are printed
4. 0 to 10 numbers are printed except 4 & 7

173. Identify the false statement with respect to array

1. Array is a data structure which can stores the value of same data type
2. Array is a data structure which can store different data type
3. Maximum number of data stored in an array is size -1
4. The array elements are stored in consecutive memory locations

174. What is the value of C[1][1] in the following expression

```
int C[2][3] = { {1, 2, 3 },  
                {4, 5, },  
                { 6, 7, 8, 9, }  
                };
```

- | | | | |
|-------|------|------|------|
| 1. 4. | 2. 1 | 3. 5 | 4. 6 |
|-------|------|------|------|

175. The ripple factor of a bridge rectifier is

- | | | | |
|---------|---------|----------|----------|
| 1. 0.48 | 2. 1.21 | 3. 0.048 | 4. 0.121 |
|---------|---------|----------|----------|

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176. The positive part of the output signal in a transistor circuit starts clipping, If Q - point of the circuit moves
1. Towards the saturation point
 2. Towards the cutoff point
 3. Towards the centre of the load line
 4. In between centre and saturation point on the load line
177. Which of the following amplifier class suffers mainly from the problem of cross – over distortion
1. Class – A
 2. Pushpull Class B
 3. Class AB
 4. Class C
178. A RC low pass circuit can also possibly be
1. An integrator circuit
 2. A differentiator circuit
 3. Either a differentiator or an integrator circuit
 4. A rectifier circuit
179. In an Ideal op-amp, the voltage gain for the common mode signal is
1. 0.5
 2. ∞
 3. 2.0
 4. 0
180. The primary advantage of a crystal oscillator is that
1. It can oscillate at any frequency
 2. It gives a high output voltage
 3. Its frequency of oscillation remains almost constant
 4. It operates on a very low dc supply voltage

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SEAL