

88/2014

Maximum : 100 marks

Time : 1 hour and 15 minutes

1. LED is made of :
(A) Silicon (B) Germanium
(C) Gallium Arsenide (D) Selenium
2. The resonant frequency of a parallel tuned circuit is :
(A) $f_r = \frac{1}{2\pi RC}$ (B) $f_r = \frac{1}{2\pi fC}$
(C) $f_r = \frac{2\pi fL}{R}$ (D) $f_r = \frac{1}{2\pi\sqrt{LC}}$
3. In an ideal Op-amp, Output impedance (Z_{out}) will be :
(A) ∞ (B) 0Ω
(C) $10^5\Omega$ (D) None of the above
4. The Collector-base junction of a transistor is always :
(A) Forward biased (B) Reverse biased
(C) Unbiased (D) None of the above
5. Colour coding of 4.7Ω resistor is :
(A) Orange, Yellow, violet (B) Yellow, Violet, Gold
(C) Yellow, Violet, Silver (D) Yellow, Violet, Brown
6. Zener diode is used as :
(A) Rectifier (B) Inverter
(C) Regulator (D) Isolator
7. The IF for FM receivers is :
(A) 455 KHz (B) 144 MHz
(C) 10.7 MHz (D) 98.7 MHz

8. Percentage of voltage regulation is equal to :

(A) $\frac{V_{NL} - V_{FL}}{V_{FL}} \times 100$

(B) $\frac{V_{FL} - V_{NL}}{V_{FL}} \times 100$

(C) $\frac{V_{NL} - V_{FL}}{V_{NL}} \times 100$

(D) None of the above

9. A JFET is also called as :

(A) Bipolar transistor

(B) Unipolar transistor

(C) Unijunction transistor

(D) Non-polar transistor

10. SCR has _____ pn junctions.

(A) 1

(B) 2

(C) 3

(D) 4

11. Ripple factor of FW rectifier is :

(A) 1.21

(B) 0.48

(C) 0.99

(D) 0.6

12. Primary colours using in colour Television are :

(A) Red, Green, Yellow

(B) Red, Green, Blue

(C) Red, Blue, Violet

(D) Red, Blue, Orange

13. The purpose of Limiter Stage in FM receivers is :

(A) to limit the frequency variations in the FM signals

(B) to give a boost to the high frequency signals

(C) to limit the amplitude variations in the FM signal

(D) all of the above

14. Oscillators use :

(A) Degenerative feedback

(B) No feedback

(C) Regenerative feedback

(D) None of the above

15. In transistor BC 147, first letter 'B' indicates that it is :

(A) Used for audio frequency applications

(B) Used for high frequency applications

(C) A germanium NPN transistor

(D) Made of Silicon

16. The most popular commercial Op-Amp IC is:
- (A) IC 555 (B) IC 708
(C) IC 709 (D) IC 741
17. NPN transistors are preferred to PNP transistors for :
- (A) Easy use in +Ve supply rail
(B) A wide range of operating temperature
(C) Higher switching speed
(D) None of the above
18. Which one of the following is a signal diode?
- (A) IN 4001 (B) BY 126
(C) OA 79 (D) BZ 148
19. The deflection of electron beam in a picture tube is achieved by :
- (A) Electro mechanical means (B) Electrostatic means
(C) Electromagnetic means (D) None of the above
20. Indicate the false statement :
- (A) The Op-Amp can amplify both ac and dc
(B) The ALU and CU of a computer system are jointly known as the central processing unit
(C) The AND gate gives an output when all its inputs are present
(D) A NOR gate will have an output of 1 only when all its inputs are 1
21. The colour system using in India for TV transmission is :
- (A) SECAM (B) MESECAM
(C) NTSC (D) PAL
22. Field frequency in PAL colour system :
- (A) 50 Hz (B) 15625 Hz
(C) 60 Hz (D) None of the above
23. The first developed storage type of camera tube :
- (A) Image orthicon (B) Plumbicon
(C) Iconoscope (D) Vidicon

24. The most popular audio oscillator :
(A) Colpitt's Oscillator (B) Hartley Oscillator
(C) R-C phase shift Oscillator (D) Wein-bridge Oscillator
25. The operation of thermocouple is based on :
(A) Faraday's Laws (B) Seebeck effect
(C) Thomson effect (D) None of the above
26. Usual heater voltage of picture tube :
(A) 12 V (B) 9 V
(C) 6.3 V (D) 9.5 V
27. Quiescent power is the power dissipation of a transistor :
(A) With signal input (B) With no signal input
(C) Under full load (D) None of these
28. Varactor diodes are used in :
(A) Switching circuits (B) Power Supply rectifier
(C) Tuning circuits (D) All of the above
29. Types of diodes using in seven segment displays?
(A) Zener (B) LED
(C) Laser (D) PIN Diode
30. IC 7912 provides an output of :
(A) 12 V (B) 9 V
(C) -12 V (D) None of the above
31. Value of current amplification factor α lies in the range of :
(A) 0.99 to 0.999 (B) 99 to 999
(C) 20 to 2000 (D) 9.99 to 9999
32. Indicate the false statement :
(A) $\alpha = \frac{\beta}{1 - \beta}$ (B) $\beta = \frac{\alpha}{1 - \alpha}$
(C) $\alpha = \frac{1 - \beta}{\beta}$ (D) $I_E = I_B + I_C$

33. In class AB power amplifiers, Q point is :
(A) at the origin of the characteristic
(B) in the middle of active region
(C) at the cut-in point of the characteristic
(D) beyond the origin of the characteristic
34. The number of parasitic element in yagi antenna is :
(A) 1 (B) 2
(C) 3 (D) 4
35. Geo-stationary satellites are placed in equatorial orbits at a height of approximately :
(A) 1500 KM (B) 3600 KM
(C) 2000 KM (D) None
36. The image frequency of a station of frequency of 1500 kHz is :
(A) 1045 KHz (B) 1955 KHz
(C) 2410 KHz (D) 2000 KHz
37. Which is the correct statement concerning a parallel circuit?
(A) Total resistance will be smaller than the smallest resistor
(B) Total resistance will decrease when one of the resistance is removed
(C) Total voltage drop is the same as the total resistance
(D) Total amperage remains the same, regardless of the resistance
38. Schottky diode is also known as :
(A) Peltier diode (B) Shockley diode
(C) PIN diode (D) Hot carrier diode
39. If a 1 MHz carrier is amplitude modulated with a 5 KHz Audio signal, the upper side frequency is :
(A) 900 KHz (B) 1005 KHz
(C) 10005 KHz (D) None of these
40. Transistor is _____ device.
(A) Bipolar (B) Unipolar
(C) Constant current (D) Constant voltage

41. 1000 PF is equal to :
- (A) 0.01 nF (B) 0.0001 μ F
(C) 0.1 nF (D) 1 nF
42. 223 on a capacitor represents :
- (A) 22 nF (B) 0.022 μ F
(C) 22000 pf (D) All of the above
43. Which test equipment can be used to determine the signal frequency and wave shape?
- (A) Multimeter (B) Frequency Counter
(C) Signal Generator (D) Oscilloscope
44. An IC has two rows of parallel pins. The device is referred to :
- (A) QFP (B) DIP
(C) SIL (D) ZIF
45. The colour subcarrier frequency in the NTSC system is :
- (A) 3.579545 MHz (B) 4.43361875 MHz
(C) 1.5 MHz (D) 4.57945 MHz
46. The VHF portion of radio spectrum is in between :
- (A) 300 & 3,000 MHz (B) 30 & 300 MHz
(C) 4000 MHz & 1 GHz (D) 530 & 1650 KHz
47. 'Hue' indicates :
- (A) Colour Intensity (B) Brightness
(C) Dominant wavelength of a colour (D) Luminance
48. Video bandwidth in PALM, colour Television system :
- (A) 5 MHz (B) 5.5 MHz
(C) 6 MHz (D) 4.2 MHz
49. The first task of DOS operating system after loading into the memory is to use the file called :
- (A) SYSTEM.INI (B) AUTOEXEC.BAT
(C) CONFIG.SYS (D) HIMEM.SYS

50. The register in the 8085A is used to keep track of the memory address of the next op-code to be run is the :
- (A) Instruction Pointer (B) Accumulator
(C) Program counter (D) Stack pointer
51. When subtract 10_2 from 11_2 , the result is :
- (A) 1_2 (B) 1_{10}
(C) 1_8 (D) All of the above
52. The binary equivalent of decimal number 0.0625 is :
- (A) 1001110001 (B) 0.1001110001
(C) 0.0110001110 (D) 0.0001
53. The purpose of shadow mask in colour picture tube :
- (A) to reduce X-ray emission
(B) to ensure that electron beam hits only the correctly coloured phosphor dots and does not illuminate more than one dot
(C) to increase screen brightness
(D) None of the above
54. The input impedance of a crystal loudspeaker is :
- (A) resistive (B) inductive
(C) capacitive (D) none of the above
55. Which type of power amplifier is biased for operation at less than 180° of the cycle?
- (A) Class A (B) Class B
(C) Class C (D) Class D
56. For Class B operation amplifiers the Q-point is set at :
- (A) Saturation (B) Cut-off
(C) Active region (D) None of these
57. Negative feedback in amplifiers :
- (A) improves the signal to noise ratio at the input
(B) improves the signal to noise ratio at the output
(C) does not affect the signal to noise ratio at the output
(D) does not affect the signal to noise ratio at the input

58. Three terminals of IGBT are :
(A) Collector, Base, Emitter (B) Drain, Source, Gate
(C) Anode, Cathode, Gate (D) Collector, Emitter, Gate
59. An ideal voltage source has :
(A) Very high internal resistance (B) Infinite internal resistance
(C) Very low internal impedance (D) Zero internal impedance
60. A complete program that converts the entire program into machine language at one time is :
(A) Interpreter (B) Simulator
(C) Commander (D) Compiler
61. 1 gigabyte is equal to :
(A) 1024 bytes (B) 1024 kilobytes
(C) 1024 Megabytes (D) 1024 gigabyte
62. The word length of a computer is measured in :
(A) Bytes (B) Millimeter
(C) Meters (D) Bits
63. CD-ROM :
(A) Is a semiconductor memory (B) Memory register
(C) Magnetic memory (D) None of the above
64. A name or number used to identify a storage location in microprocessors is called :
(A) Byte (B) Bit
(C) Address (D) None of the above
65. Microprocessors can be used to make :
(A) Calculators (B) Digital system
(C) Computer (D) All of the above
66. The language that the computer can understand and execute is called :
(A) System program (B) Application language
(C) Machine language (D) All of the above
67. Medium wave travels as :
(A) Space waves (B) Surface waves
(C) Sky waves (D) None of the above

68. UJT relaxation oscillator circuit produces a saw tooth wave form :
 (A) At B1 terminal (B) At B2 terminal
 (C) Across the capacitor (D) None of these
69. Voltage regulation of commercial power supplies have :
 (A) 2% (B) 10%
 (C) 15% (D) Within 1%
70. TRIAC is :
 (A) A four terminal device (B) Like a bidirectional SCR
 (C) Have 3 layers (D) Have 2 junctions
71. Multivibrator having one quasi-stable state :
 (A) Astable Multivibrator (B) Schmitt trigger
 (C) Monostable multivibrator (D) Bistable multivibrator
72. The relation between frequency of an AC signal (f) and Time period (T) is :
 (A) $f = \frac{1}{2}T$ (B) $f = \frac{1}{T}$
 (C) $f = T^2$ (D) $f = 2T$
73. Function of NOT gate :
 (A) Universal gate (B) Invert input signal
 (C) Block a signal (D) None of the above
74. The value of degenerative feedback fraction is always :
 (A) Less than 1 (B) Equal to 1
 (C) More than 1 (D) None of the above
75. For a transistor amplifier, when we give 10 V as input voltage, it draws 2 mA current. What is its input impedance?
 (A) 5 k Ω (B) 20 k Ω
 (C) 0.2 k Ω (D) 10 k Ω
76. Intrinsic stand off ratio (η) of a UJT :
 (A) $\frac{RB_1 + RB_2}{RB_1}$ (B) $RB_1 + RB_2$
 (C) $\frac{RB_1}{RB_1 + RB_2}$ (D) $\frac{RB_1 + RB_2}{RB_2}$

77. Active components in an IC :

- (A) Resistors
- (B) Inductors
- (C) Transistors and Diodes
- (D) Capacitors

78. MOSFET can operate :

- (A) Positive gate voltage only
- (B) Negative gate voltage only
- (C) Positive as well as negative voltage
- (D) None of the above

79. An amplifier has a voltage gain of 150 and $\beta = 110$. Calculate the power gain :

- (A) 25400
- (B) 16500
- (C) 260
- (D) 165

80. Thermal runaway happens when :

- (A) Transistor is not biased
- (B) High junction capacitance
- (C) Reverse bias of emitter
- (D) None of these

81. Who said "when the white came here they had the Bible and we had the land; now we have the Bible and they have the land"?

- (A) Desmond Tutu
- (B) Nelson Mandela
- (C) Jacob Sumo
- (D) Martin Luther

82. The birth place of Ayyankali :

- (A) Chempazanthi
- (B) Kumarapuram
- (C) Venganoor
- (D) Aruvippuram

83. The 193rd member of UNO :

- (A) Monaco
- (B) South Sudan
- (C) Syria
- (D) South Korea

84. The book "Meinkampf" written by :

- (A) Hitler
- (B) Mussolini
- (C) Napoleon
- (D) Stalin

85. Which state in India borders Afghanistan?
- (A) Sikkim
(B) Jammu and Kashmir (Pakistan occupied)
(C) Arunachal Pradesh
(D) Nagaland
86. How many members can be nominated by the President of India to Rajya Sabha?
- (A) 2
(B) 12
(C) 13
(D) 15
87. Special Protection Group (SPG) was established by the Govt. of India in the year :
- (A) 1982
(B) 1983
(C) 1984
(D) 1985
88. "World Water Day" is celebrated by the United Nations on :
- (A) March 22
(B) May 18
(C) May 19
(D) June 8
89. Which State in India ranks second in the area of forests?
- (A) Madhya Pradesh
(B) Arunachal Pradesh
(C) Karnataka
(D) Uttar Pradesh
90. Who is popularly known as "Socrates of Maharashtra"?
- (A) Bipin Chandra Pal
(B) Lala Lajpat Rai
(C) Gopal Krishna Gokhale
(D) Tilak
91. Lead Bank scheme was accepted by the RBI in the year :
- (A) 1968
(B) 1969
(C) 1970
(D) 1971
92. Financial Emergency is declared under Article :
- (A) 352
(B) 356
(C) 360
(D) 370
93. Who is the governor of RBI?
- (A) Reghuram Rajan
(B) Bimal Jalal
(C) C. Rengarajan
(D) Amit Desai

94. Which amendment is known as "Mini Constitution"?
- (A) 42nd (B) 44th
(C) 73rd (D) 74th
95. Who is the Chairman of National Development Council?
- (A) President of India (B) Finance Minister
(C) Prime Minister (D) Finance Secretary
96. Income Tax and Property tax are examples of :
- (A) Direct tax (B) Indirect tax
(C) Service tax (D) Entertainment tax
97. Right to property is now :
- (A) Fundamental Right (B) Civil Right
(C) Economic Right (D) Legal Right
98. National Knowledge Commission launched in the year :
- (A) 2003 (B) 2004
(C) 2005 (D) 2006
99. Who won the Indira Gandhi National Award for National Integration for the year 2012?
- (A) Aruna Asaf Ali (B) M.S. Subbulakshmi
(C) M.S. Swaminathan (D) A.P.J. Abdul kalam
100. National Youth Day is celebrated as the birth anniversary of :
- (A) Swami Vivekanand (B) Subhash Chandrabose
(C) Lala Lajpat Rai (D) Bibin Chandra Pal