

## TNEB EEE Model Question Paper 1

1. Internal resistance of ideal current source is
  - a) Zero
  - b) Infinite**
  - c) Finite
  - d) 100 ohms
2. Stability of a transmission line can be increased by
  - a) Shunt capacitor
  - b) Series capacitor
  - c) Shunt capacitor
  - d) Both 1 & 2**
3. Nodal analysis can be applied for
  - a) Planar networks
  - b) Non planar networks
  - c) Both planar and non planar networks**
  - d) Neither planar and non planar networks
4. A D-flip-flop is said to be transparent when
  - a) The output is LOW
  - b) The output is HIGH
  - c) The output follows clock
  - d) The output follow input**
5. If a pure inductor is connected across the ac source, the average power taken by the inductor
  - a) A few watt
  - b) 100 watt
  - c) Zero watt**
  - d) Maximum power
6. Bundled conductors in EHV transmission lines
  - a) Increase inductance
  - b) Increase capacitance
  - c) Decrease inductance**
  - d) Decrease capacitance
7. The alternative names for active power is/are
  - a) Real power
  - b) Average power
  - c) True power
  - d) All of the above**
8. What is the mechanical power developed by a DC series motor is maximum?
  - a) Back emf is equal to half the applied voltage**
  - b) Back emf is equal to applied voltage
  - c) Back emf is equal to zero
  - d) None of the above
9. Hysteresis loop represents the area of
  - a) Copper loss
  - b) Eddy current loss
  - c) Hysteresis loss**
  - d) Total iron losses
10. DC machine windings are
  - a) Full pitched**
  - b) Short pitched
  - c) Either of these
  - d) None of the above
11. In a lap winding dc machine number of conductors are 100 and number of parallel paths are 10. Find the average pitch
  - a) 10**
  - b) 100
  - c) 50
  - d) 1
12. India's largest thermal power station is located at
  - a) Kota
  - b) Sarni
  - c) Chandrapur**
  - d) Neyveli
13. What should be the minimum depth (in metre) of cable trench to dug for laying of 1.1kV?
  - a) 0.75**
  - b) 0.90
  - c) 1.05
  - d) 1.20
14. The filter that may not be realized by approximation of derivatives techniques are
  - 1) Band pass filters
  - 2) High pass filters
  - 3) Low pass filters
  - 4) Band reject filters

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## Paper 1

- a)1,2 and 3 are correct  
**b)2and4are correct**  
 c)2 and 3 are correct  
 d)All the four are correct
15. A transmission line has a reactance of 1 Pu is operating at  $V_s=V_r=1$ Pu. The generator is connected at source end which is delivering 0.5 Pu of active power. Find the load angle?  
 a) $35^{\circ}$  **b) $30^{\circ}$**   
 c) $45^{\circ}$  d) $60^{\circ}$
16. Under over excitation synchronous phase modifier works as  
**a)Shut capacitor** b)Series capacitor  
 c)Shunt capacitor d)Any of the above
17. For n bus power system size of Y bus matrix is  
 a) $(n-1)*(n-1)$  b) $(n-2)*(n-2)$   
**c) $n*n$**  d) $(n-1)(n-2)$
18. A20m antenna gives a certain uplink gain at frequencies of 4/6 GHz. For getting same gain in the 20/30 GHz band, antenna size required is meter  
 a)100 **b)4**  
 c)1 d)10
19. Sum of the elements of row I equal to shunt admittances connected to bus i. If this summation is zero, indicates there is no  
 a)Shunt admittance b)Mutual coupling  
**c)Both 1 & 2** d)None of the above
20. If sparsity of a bus 5 bus transmission line is 0.4. Find the number of transmission lines?  
 a)6 **b)5**  
 c)4 d)3
21. Inductor does not allow the sudden change of  
**a)Current** b)Voltage  
 c)Power d)None of the above
22. 2's complement of 10101011 is  
**a)01010101** b)00111100  
 c)10101011 d)10101100
23. Which among the following is not an advantage of an open loop system?  
 a)Simplicity in construction & design  
 b)Easy maintenance  
 c)Rare problems of stability  
**d)Requirement of system recalibration from time to time**
24. How is an output represented in the control systems?  
 a)r(t) **b)c(t)**  
 c)x(t) d)y(t)
25. Which addresses are related to the processes involved in an application layer of TCP/IP architecture?  
 a)Physical (link)Addresses  
 b)Logical (IP)addresses  
 c)Port addresses  
**d)Specific addresses**
26. Basically, poles of transfer function are the laplace transform variable values which causes the transfer function to become\_\_\_\_\_  
 a)Zero **b)Unity**

- c) **Infinite**                      d) Average value  
 27. Which type of node comprises incoming as well as outgoing branches?  
 a) Source node                      b) Sink node  
 c) **Chain node**                      d) Main node
28. On the basis of an output response, in to how many parts can the s-plane be divided?  
 a) 2                                      b) **3**  
 c) 4                                      d) 6
29. Dynamic equalizing circuit is useful  
 a) To limit  $di/dt$  of SCR  
 b) To limit  $dV/dt$  of SCR  
 c) For Voltage equalization  
 d) **Both B & C**
30. For Carrier Sense Multiple Access/ Collision Detection (CSMA/CD), we need a restriction on the  
 a) Collision Size                      b) Signal size  
 c) **Frame size**                      d) Station size
31. An SCR has cycle surge current rating of 3000 A for 50Hz supply. One cycle surge current will be  
 a) 1500A                                  b) 6000A  
 c) **2121.32A**                          d) 2131.43A
32. If holding current of a thyristor is 2 mA then latching current should be  
 a) 0.01A                                  b) 0.002A  
 c) 0.009A                                  d) **0.004A**
33. Which layer 4 protocol is used for a telnet connection?  
 a) IP                                      b) **TCP**
- c) TCP/IP                                  d) UDP  
 34. Power transistor are type of  
 a) BJT<sub>s</sub>                                  b) MOSFET<sub>s</sub>  
 c) IGBT<sub>s</sub>                                  d) **All of the above**
35. If the anode current is 800 A, then the amount of current required to turn off the GTO is about  
 a) 20A                                      b) 600A  
 c) 400A                                      d) **200A**
36. Which semi conductor device acts like a diode and two transistor?  
 a) UJT                                      b) Diac  
 c) **Triac**                                      d) SCR
37. Which quantity consists of a unit 1Kwh?  
 a) **Energy**                                  b) Time  
 c) Power                                      d) Charge
38. Which number system has a base of 16  
 a) Decimal                                  b) Octal  
 c) **Hexadecimal**                          d) None
39. In ward-Leonard system, the lower limit of the speed imposed by  
 a) Field resistance  
 b) Armature resistance  
 c) **Residual magnetism of the generator**  
 d) None of the above
40. A latch is \_\_\_\_ sensitive  
 a) Both level and edge                  b) Edge  
 c) **Level**                                      d) None
41. Which logic family provide minimum power dissipation  
 a) TTL                                      b) **CMOS**

- c)ECL d)JFET
42. Convert the binary number(1111000011110000) to hexadecimal number  
a)1010 b)**F0F0**  
c)7070 d)5050
43. Why generic array logic (GAL) device was invented?  
a)Mask programmable  
b)One time programmable  
c)**Reprogrammable**  
d)None of the above
44. Which of the following logic circuits is the fastest?  
a)RTL  
b)DTL  
c)**TTL**  
d)All have same speed
45. The Nyquist theorem for sampling  
a)Relates the conditions in time domain and frequency domain  
b)Helps in quantization  
c)Limits the bandwidth requirement  
d)Gives the spectrum of the signal  
a)1,2 and 3 are correct  
b) 1 and 2 are correct  
c)**1 and 3 are correct**  
d)All the four are correct
46. The cooley –Tukey algorithm of FFT is a  
a)**Divide and conquer algorithm**  
b)Divide and rule algorithm  
c)Split and rule algorithm  
d)Split and combine algorithm
47. The similarity between the fourier transform and the Z transform is that  
a)Both convert frequency spectrum domain to discrete time domain  
b)**Both convert discrete tie domain to frequency spectrum domain**  
c)Both convert analog signal to digital signal  
d)Both convert digital signal to analog signal
48. The region of convergence of  $x/(1+2x+x^2)$  is  
a)0 b)**1**  
c)Negative d)Positive
49. The direct form II for realization involves  
1)The realization of transfer function in to two parts  
2)Realization after fraction  
3)Product of two transfer functions  
4)Addition of two transfer functions  
a)1.2 and 3 are correct  
b)**1 and 3 are correct**  
c)3 and 4 are correct  
d)All the four are correct
50. Which among the following is a disadvantage of modern control theory?  
a)Implementation of optimal design  
b)Transfer function can also be defined for different initial conditions  
c)Analysis of all systems take place  
d)**Necessity of computational work**

51. State space analysis is applicable even if the initial conditions are \_\_\_\_

- a)Zero **b)Non zero**  
 c)Equal d)Not equal

52. How does the crosstalk generated due to the electromagnetic interference between two copper wires placed in vicinity get reduced?

- a)By twisting the copper wire**  
 b)By using the repeaters  
 c)By using amplifiers  
 d)All of the above

53. Spread time is defined as the interval during which a)Anode voltage drops from 10% of its initial value to zero

- b)Anode current rises from 90% to its final value**  
 c)Both a and b  
 d)Anode current rises from 10% to 90% of its final value

54. What is/are the major roles of Data Link Layer(DLL) in an OSI model?

- a)Detection & correction of transmission errors  
 b)Provision of data flow control to prevent DTE from overburdening  
 c)Identification of various devices on the network  
 d)Generation of a frame for easy data transfer

- a)A,B,C,D** b)Only C  
 c)Only D d)None of the above

55. In a transmitter \_\_\_\_ oscillator is used

- a)Hartley b)RC phase shift

- c)Wien – bridge **d)Crystal**

56. Over modulation (amplitude) occurs when signal amplitude is \_\_\_\_ carrier amplitude

- a)Equal to **b)Greater than**  
 c)Less than d)None of the above

57. Which among the following is provided by and optical receiver for the regeneration of data signal with minimum error?

- a)Photo –Diode  
 b)Signal processing Circuits  
**c)Linear Circuitry**  
 d)None of the above

58. The speech signal is obtained after

- a)Analog to digital conversion  
**b)Digital to analog conversion**  
 c)Modulation  
 d)Quantization

59. In an optical fiber, the concept of Numerical aperture is applicable in describing the ability of \_\_\_\_

- a)Light collection** b)Light Scattering  
 c)Light Dispersion d)Light Polarization

60. Which among the following is regarded as an inelastic scattering of a photon?

- a)Kerr effect **b)Raman effect**  
 c)Hall effect d)Miller effect

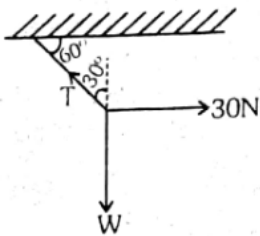
61. Three points  $(x_r, y_r)$   $r = 1, 2, 3$  are collinear if and only if the rank of the matrix

$$\begin{bmatrix} x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \\ x_3 & y_3 & 1 \end{bmatrix} \text{ is}$$

- 1) 3 **2) less than 3**



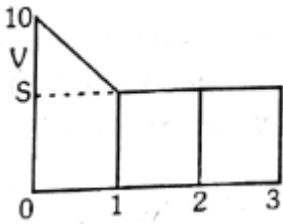
80. Particular integral for  $(D^2 - 3D^2 + 4D - 2)y = e^x$   
 1)  $xe^x$                                   2)  $2xe^x$   
 3)  $3xe^x$                                   4) 0
81. 9. An object is moving with a velocity  $v = 5 + 2t^2$   $\text{ms}^{-1}$  for 't' seconds. Find the average acceleration for the first 5s and the acceleration of the object at  $t = 3$ s  
 1)  $5 \text{ ms}^{-2}$ ,  $6 \text{ ms}^{-2}$                                   2)  **$10 \text{ ms}^{-2}$ ,  $15 \text{ ms}^{-2}$**   
 3)  $7 \text{ ms}^{-2}$ ,  $9 \text{ ms}^{-2}$                                   4)  $12 \text{ ms}^{-2}$ ,  $20 \text{ ms}^{-2}$
82. The shown in figure, the tension in the horizontal cord in 30N. The weight 'w' and tension in the string OA in Newton's are



- 1)  $30\sqrt{3}$ , 30                                  2)  **$30\sqrt{3}$ , 60**  
 3)  $60\sqrt{3}$ , 60                                  4) none of the above
83. A solid can be resist of the following stresses.  
 1) Tensil                                  2) Shear  
 3) Compressive                                  4) **All of the above**
84. When a pressure of  $20.7 \text{ MN/m}^2$  is applied to 100 litres of a liquid its volume decreases by 1 litre. Find the bulk modulus of the liquid and identify this liquid  
 1)  $2 \text{ GN/m}^2$                                   2)  $2.007 \text{ GN/m}^2$   
 3)  **$2.07 \text{ GN/m}^2$**                                   4) None of the above
85. \_\_\_\_\_ is a phenomenon by which a liquid rises into a thin glass tube above or below its general level.  
 1) Adhesion                                  2) Capillary  
 3) Surface tension                                  4) **Cohesion**
86. The height of the free surface above any point is known as  
 1) **static head**  
 2) intensity of pressure  
 3) either of the above  
 4) none of the above

87. Information involved in any operation performed by the CPU needs to be addressed such information is called the  
 1) **Operand**                                  2) Operation  
 3) Address                                  4) none
88. Operand is in a memory location whose address is in the memory location specified in the instruction  
 1) **Memory Indirect Mode**  
 2) Relative Mode  
 3) Indexed Mode  
 4) Memory Direct Mode
89. The resistance of a straight conductor does not depend on its  
 1) **shape of cross-section**  
 2) length  
 3) temperature  
 4) material
90. Current density (J) = .....  
 1)  $\frac{q}{tA}$                                   2)  $\frac{1}{A}$   
 3) **Both (1) and (2)**                                  4) Neither(1) nor (2)
91. The resistance of a conductor with a diameter of 2mm is 20 ohms. If the diameter is doubled with length remaining the same, the new resistance, becomes  
 1) 10 ohms                                  2) 40 ohms  
 3) **5 ohms**                                  4) 30 ohms
92. A 20m length of wire 1.5 mm in diameter has a resistance of  $2.5\Omega$ . What is the resistance of a 35m length of wire 3mm in diameter made of the same material?  
 1)  $10.94\Omega$                                   2)  **$1.094\Omega$**   
 3)  $0.547 \Omega$                                   4)  $2.184\Omega$
93. Materials which show zero resistance are called  
 1) **super conductors**  
 2) electrolytic conductors  
 3) dielectrics  
 4) semi conductors  
 Joule's heating effect is zero.

94. If the temperature of a conductor is decreased below its critical temperature  $T_c$ , the value of critical magnetic field  $H_c$  will
- 1) decrease
  - 2) **increase**
  - 3) remain constant
  - 4) may increase (or) decrease
95. Dielectric loss in ferrites is
- 1) very high
  - 2) **very low**
  - 3) zero
  - 4) none of these
96. The given figure shows the variation of force in an elementary system which undergoes a process during which the plunger position changes from 0 to 3m. If the internal energy of the system at the end of the process is 2.53 higher then the heat absorbed during the process is



- 1) 15J
- 2) **20J**

- 3) 5J
  - 4) 30J
97. A diesel engine theoretically operates on
- 1) constant volume cycle
  - 2) **constant pressure cycle**
  - 3) constant temperature cycle
  - 4) constant entropy cycle
98. In all reversible process, entropy of the system
- 1) **increases**
  - 2) decreases
  - 3) remains the same
  - 4) none of the above
99. The time duration for which a sound persists even after the source of sound is cut off is called
- 1) **Reverberation time**
  - 2) Standard reverberation time
  - 3) Decibel
  - 4) bel
100. The ratio of velocity of sound in air at 4 atmosphere pressure and that at one 1 atmosphere pressure would be
- 1) **1:1**
  - 2) 4:1
  - 3) 1:4
  - 4) 3:1

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