Electrical Engineering

1. Einstein relation is referred between
1. The diffusion constant and the mobility
2. The conduction and diffusion currents
3. The conduction and diffusion voltages
4. None of the above

2. In a piezoelectric crystal oscillator, the oscillation or tuning frequency is linearly proportional to the
1. Mass of the crystal
2. Square root of the Mass of the crystal
3. Square of the Mass of the crystal
4. Inverse of the Square root of the Mass of the crystal

3. Which of the following are piezoelectric substances?

1.BariumTitanate
2.Lead Titanate
3.Lead Zirconate
4.Cadmium Suplhate

1. 1, 2 and 4
2. 1, 3 and 4
3. 1, 2 and 3
4. 2, 3 and 4

4. Consider the following statements:
1.Fermi level in a *p*-type semiconductor lies close to the top of the valence bond.

2.The forbidden energy in Germanium at 0°K is exactly 0.75 eV.

3.When a *p-n* junction is reverse biased, then electrons and holes move away from the junction.

Which of these statements are correct?
1. 1, 2 and 3
2. 1 and 2 only

3. 2 and 3 only
4. 1 and 3 only

5. For a fully transposed transmission line
1. positive negative and zero sequence impedances are equal
2. positive and negative sequence impedances are equal
3. zero and positive sequence impedances are equal
4. negative and zero sequence impedances are equal

6. The unit of magnetic flux density is
1. Gauss
2. Tesla
3. Bohr
4. Wber/sec

7. A battery charger can drive a current of 5 A into a 1Ω resistance connected at its output terminals. If it is able to charge an ideal 2 V battery at 7 A rate, then Thevenin's equivalent will be
1. 7.5 V in series with 0.5 Ω
2. 12.5 V in series with 1.5 Ω
3. 7.5 V in parallel with 0.5 Ω
4. 12.5 V in parallel with 1.5 Ω

8. The output power of a filter is 100 mW, when the signal frequency is 5 kHz. When the frequency is increased to 25 kHz, the output power falls to 50 mW. What is the dB change in power?
1. – 3 dB
2. – 5 dB
3. – 7 dB
4. – 2 dB

9. In any network the current will be seen to be consisting of a forced current and a natural current. A forced current is

1. A steady-state current with external source but a natural current is a transient current in a closed circuit with no external source

2. A transient current with external source but a natural current is a steady-state current in a closed circuit with no external source

3. A steady-state current in a closed circuit without external source, while a natural current is a transient current with an external source

4. A transient current in a closed circuit without external source, while a natural current is a steady-state current with an external source

10. A coil of resistance 10 Ω and inductance 0.8 H is connected to a 200 V dc supply. The initial rate of change of current is

1. 16 A/s

2. 160 A/s

3. 250 A/s

4. 4000 A/s

11. Three equal impedances are first connected in delta across a 3-phase balanced supply. If the same impedances are connected in star across the same supply then,

1. Phase current will be one-third

2. Line current will be one-third

3. Power consumed will be one-third

4. Phase current will remain the same

12. The electric field lines and equipotential lines

1. Are parallel to each other

2. Are one and the same

3. Cut each other orthogonally

4. Can be inclined to each other at any angle

13. In a digital voltmeter, the oscillator frequency is 400 kHz. A ramp voltage to be measured by this voltmeter falls from 8V to 0V in 20 ms. The number of pulses counted by the counter is

1. 8000

2. 4000

3. 3200

4. 1600

14. While using a frequency counter for measuring frequency, two modes of measurement are possible, (i) Period mode (ii) Frequency mode. There is a 'cross-over frequency' below which the period mode is preferred. Assuming the crystal oscillator frequency to be 4 MHz the cross-over frequency is given by

1. 8 MHz

2. 2 MHz

3. 2 kHz

4. 1 kHz

15. Which of the following instrument will be used to measure a small current of very high frequency?

1. Electrodynamic ammeter

2. Moving coil galvanometer

3. Thermocouple type instrument

4. Induction type instrument

16. In a digital data acquisition system, a scanner multiplexer

1. Scans the printed diagram and converts it into digital data

2. Accepts multiple digital inputs and output any one of them with select lines

3. Accepts multiple analog inputs and sequentially connects them to an ADC

4. Checks the correct functioning of the

modules one by one

17. The number of bits of A/D convertor required to convert an analog input in the range of 0-5 volt to an accuracy of 10 mV is

1. 8
2. 9
3. 10
4. 16

18. The drift velocity of electron in silicon

1. Is proportional to electric field for all values of electric field
2. Is independent of electric field
3. Increases at lower values and decreases at higher values of electric field
4. Increases linearly with electric field at low values and gradually saturates at higher values of electric field

19. Three devices A, B and C have to be connected to an 8085 microprocessor. Device A has highest priority and device C has the lowest priority. In this context, which of the following is correct assignment of interrupt inputs?

1. A uses TRAP, B uses RST 5.5 and C uses RST 6.5
2. A uses RST 7.5, B uses RST 6.5 and C uses RST 5.5
3. A uses RST 5.5, B uses RST 6.5 and C uses RST 7.5
4. A uses RST 5.5, B uses RST 6.5 and C uses TRAP

20. Which of the following data transfers is *not* possible in microprocessor?

1. Memory to accumulator
2. Accumulator to memory
3. Memory to memory
4. I/O device to accumulator

21. If the memory chip size is 1024 × 4, the number of memory chips required to design 8 k memory is

1. 8
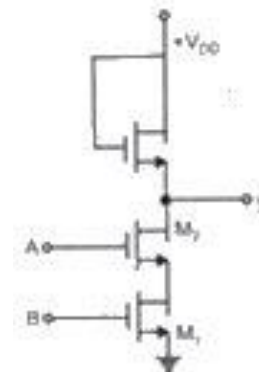2. 256
3. 16
4. 32

22. The number of one's present in the binary representation of $15 \times 265 + 5 \times 16 + 3$ are

1. 8
2. 9
3. 10
4. 11

23. The right side of a state equation represents

1. Next state of flip-flop
2. Present state of flip-flop
3. Present state condition that makes the next state equal to 1
4. None of the above

24. The circuit shown in the figure is

1. OR gate
2. NOR gate
3. NAND gate

4. AND gate

25. A potential barrier of 0.50 V exists across a p-n junction. If the depletion region is 5.0×10^7 m wide, what is the intensity of the electric field in this region?

1. 1.0×10^6 V/m
2. 2.5×10^{-7} V/m
3. 2.5×10^7 V/m
4. 2.5×10^8 V/m

26. In a trans conductance, the device output

1. Voltage depends upon the input voltage
2. Voltage depends upon the input current
3. Current depends upon the input voltage
4. Current depends upon the input current

27. If the drift velocity of holes under a field gradient of 200 V/m is 100m/s, their mobility in SI units is

1. 0.5
2. 0.05
3. 50
4. 500

28. Given
N(E)   : Density of states
f(E)   : Probability that a quantum state with energy
E is occupied by an electron
E_c : Energy level of the conduction band

The expression $\int_{E_c}^{\infty} N(E)f(E)dE$ gives

1. Minimum number of electrons in conduction band
2. Concentration of electrons in conduction band
3. Energy of electron concentration in conduction band
4. Conductivity of electrons in conduction band

29. Hall effect is useful for the measurement of a semiconductor's

1. Mobility, carrier concentration and temperature
2. Type (n-type or p-type), conductivity and temperature
3. Type (n-type or p-type), mobility and carrier concentration
4. Mobility, conductivity and temperature

30. A freewheeling diode in a phase-controlled rectifier

1. Improves the line power factor
2. Is responsible for additional reactive power
3. Prevents inverse operation
4. Is responsible for additional harmonics

31. The regions of operation of a MOSFET to work as a linear resistor and linear amplifier are:

1. Cut-off and saturation respectively
2. Triode and Cut-off respectively
3. Triode and saturation respectively
4. Saturation and triode respectively

32. In a BJT, $I_{CO} = I_{CBO} = 2$ μA. Given α = 0.99, the value of I_{CEO} is:

1. 2 **μA**
2. 99 **μA**
3. 198 **μA**
4. 200 **μA**

33. The 6V Zener diode shown in figure has zero Zener resistance and a knee current of 5 mA. The minimum value of R, so that the voltage across it does not fall below 6V is:

TS Southern Junior Lineman Exam
Model Paper 10
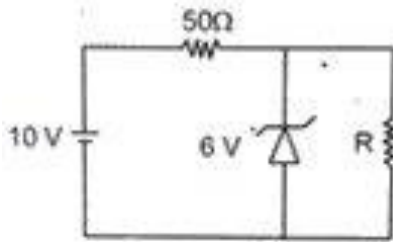
1. 1.2 kΩ
2. 80 Ω
3. 50 Ω
4. Zero

34. The following statements refer to an n channel FET operated in the active region:

1.The gate voltage V_{GS} reverse biases the junction

2.The drain voltage V_{DD} is negative with respect to the source

3.The current in the n channel is due to electrons

4.Increasing the reverse bias V_{GS} increases the cross section for conduction

Which of these statements are correct?

1. 1 and 2
2. 1 and 3
3. 2 and 3
4. 3 and 4

35. In a synchronous machine the rotor speed becomes more than the synchronous speed during hunting, the damping bars develop:
1. Synchronous motor torque
2. Dc motor torque
3. Induction motor torque
4. Induction generator torque

36. A signal may have frequency components which lie in the range of 0.001 Hz to 10 Hz. Which one of the following types of couplings should be chosen in a multistage amplifier designed to amplify the signal?
1. RC coupling
2. Direct coupling
3. Transformer coupling
4. Double tuned coupling

37. For distortion less transmission through LTI system phase of H(w) is
1. Constant
2. One
3. Zero
4. Linearly dependent on w

38. Unit step response of the system described by the equation Y(n)+y(n-1)=x(n) is

1. $\dfrac{z^2}{(z+1)(z-1)}$
2. $\dfrac{z}{(z+1)(z-1)}$
3. $\dfrac{z+1}{z-1}$
4. $\dfrac{z(z-1)}{(z+1)}$

39. The Fourier Transform of unit step sequence is

1. $\pi\delta(\Omega)$
2. $\dfrac{1}{1-e^{-j\Omega}}$
3. $\pi\delta(\Omega)+\dfrac{1}{1-e^{-j\Omega}}$
4. $1-e^{-j\Omega}$

https://thejobjunction.in/

40. If output of a linear system for step input is t^2e^{-2t}, then the transfer function os

1. $\dfrac{s}{(s+1)^2}$

2. $\dfrac{2s}{(s+1)^3}$

3. $\dfrac{s}{s^2(s+1)}$

4. $\dfrac{1}{(s+1)^3}$

41. If response of LTI continuous time system to unit step input is $(\frac{1}{2} - \frac{1}{2} e^{-2t})$, then impulse response of the system is

1. $\left(\frac{1}{2} - \frac{1}{2} e^{-2t}\right)$

2. e^{-2t}

3. $(1 - e^{-2t})$

4. Constant

42. A signal $x_1(t)$ and $x_2(t)$ constitute the real and imaginary parts respectively of a complex valued signal x(t). What form of waveform does x(t) possess?

1. Real symmetric

2. Complex symmetric

3. Asymmetric

4. conjugate symmetric

43. The unit impulse response of a system is given as c(t) = - 4e^{-t} + 6e^{-2t}
The step response of the same system for t $\geq$0 is

1. $-3e^{-2t} - 4e^{-t} + 1$

2. $-3e^{-2t} + 4e^{-t} - 1$

3. $-3e^{-2t} - 4e^{-t} - 1$

4. $-3e^{-2t} + 4e^{-t} + 1$

44. The current is given by

$$I(s) = \frac{(s+2)(s+4)}{s(s+1)(s+\alpha)}$$

If the steady-state current at t = is 12 A, then the value of and initial value of current will be

1. 1.5 and 1A

2. 0.66 and 1 A

3. 0.33 and 0.5 A

4. 0.25 and 0.5 A

45. A second-order control system exhibits 100% overshoot. Its damping coefficient is

1. Greater than 1

2. Less than 1

3. Equal to 0

4. Equal to 1

46. system has the following transfer function: $G(s)= \dfrac{1}{S^2+0.1s+1}$
If step input is applied to this system, then its setting time within 5% tolerance band will be

1. 60 sec

2. 40 sec

3. 20 sec

4. 10 sec

47. Match List-I and List-II and select the correct answer using the code given below the lists:

List-I	List-II
A. $s^2 + 18s + 64$	1. Under damped
B. $s^2 + 25$	2. Critically damped
C. $s^2 + 12s + 36$	3. Undamped
D. $s^2 + 8s + 25$	4. Overdamped

codes;

	A	B	C	D
1.	1	2	3	4

2. 4   2   3   1

3. 1   3   2   4

4. 4   3   2   1

48. Match List-I and List-II and select the correct answer using the code given below the lists:

List-I	List-II
(Condition)	(Damping constant ξ)
A.Undamped	1. 0.5
B.Under damped	2. 2.0
C.Critically damped	3. 0.0
D.Overdamped	4. 1.0

	A	**B**	**C**	**D**
1.	3	4	1	2
2.	2	4	1	3
3.	3	1	4	2
4.	2	1	4	3

49. The most essential condition for parallel operation of two 1-φ transformers is that they should have the same:

1. kVA rating

2. percentage impedance

3. polarity

4. voltage ratio

50. Two single-phase 100 kVA transformers, each having different leakage impedances are connected in parallel. When a load of, 150kVA at 0.8 power factor lagging is applied:

1. Both transformers will operate at power factor more than 0.8 lagging

2. Both transformers will operate at power factor less than 0.8 lagging

3. One of the transformers will operate at power factor more than 0.8 lagging and other will operate at power factor less than 0.8 lagging

4. Both transformers will operate at identical power Factors

51. A triangular mmf wave is produced in the air-gap of an electric machine. Such a wave is produced by:

1. Stator of an induction machine

2. Rotor of a synchronous machine

3. Stator of a dc machine

4. Rotor of a dc machine

52. At 1200 rpm, the induced emf of a dc machine is 200V. For an armature current of 15 A the electromagnetic torque produced would be:

1. 23.8 N-m

2. 238 N-m

3. 2000 N-m

4. 3000 N-m

53. A 4-pole lap wound dc generator has a developed power of P watt and volatge E volt. Two adjacent brushes of the machine are removed as they are worn out. If the machine operates with the remaining brushes, the developed voltage and power that can be obtained from the machine are :

1. E and P

2. E/2 and P/2

3. E and P/4

4. E and P/2

54. A 6-pole dc armature has simplex lap-connected 720 conductors, 3 turns per coil and 4 coil-sides per slot. Determine the number of slots in the armature and state whether equalizers can be employed or not.

1. 60 slots and Not possible

2. 30 slots and possible

3. 60 slots and possible

4. 30 slots and Not possible

55. The main objectives of load frequency control in a power system are:

1.To bring the steady state error to zero after load change

2.To maintain the net tie-line flow

3.To maintain voltages on all buses

4.To economize the cost of generation

1. 1 and 2

2. 2 and 3

3. 3 and 4

4. 1, 2, 3 and 4

56. The current of a single phase load drawn from a 3-phase system has:

1. Zero sequence component of current as zero

2. Negative sequence component of current more than positive sequence component

3. Positive, negative and zero sequence component equal

4. Negative sequence component of current less than positive sequence component

57. The 'Equal area criterion' for the determination of transient stability of the synchronous machine connected to an infinite bus:

1. Ignore lines as well as synchronous machine resistances and shunt capacitances

2. Assumes accelerating power acting on the rotor as constant

3. Ignores the effect of voltage regulator and governor but considers the inherent damping present in the machine

4. Takes into consideration the possibility of machine loosing synchronism after it has survived during the first swing

58. If the inertia constant H = 8 MJ/MVA for a 50 MVA generator, the stored energy is:

1. 50 MJ

2. 8 MJ

3. 400 MJ

4. 6.25 MJ

Solution: 3

59. Match List-I and List-II and select the correct answer using the code given below the lists:

	List-I		List-II
A.	Mho relay	1.	
B.	Plane impedance relay	2.	
C.	Directional relay	3.	
D.	Angle impedance relay	4.	

	A	B	C	D
1.	3	2	1	4
2.	4	1	2	3
3.	3	1	2	4
4.	4	2	1	3

60. In an HVDC system:

1. Both generation and distribution are dc

2. Generation is ac and distribution is dc

3. Generation is dc and distribution is a

4. Both generation and distribution are ac

61. The device used for switching in a switched mode power supply is

1. Diode

2. Thyristor

3. GTO

4. MOSFET

62. A thyristor has internal power dissipation of 20W and is operated at an ambient temperature of 20°C. If thermal resistance is 1.6°C/W, the junction temperature is:

1. 114°C

2. 164°C

3. 94°C

4. 84°C

63. The mesh current method

1. works with both planner and non planar circuits

2. uses Kirchhoff's voltage law

which of the above is/are correct?

1. 1 only

2. 2 only

3. Both 1 and 2

4. Neither 1 nor **2**

64. When gain K of the open loop transfer function of order greater than unity is varied from zero to infinity, the closed loop system.

1. may become unstable

2. stability may improve

3. stability may not be affected

4. will become highly stable

65. Consider the following statement

1. Adding a zero to the G(s)H(s) tends to push root locus to the left.

2. Adding a pole to the G(s)H(s) tends to push root locus to the right.

3. Complementary root locus (CRL) refers to root loci with positive K.

4. Adding a zero to the forward path transfer function reduces the maximum overshoot of the system.

Which of the above statements are correct?

1. 1,2 and 3 only

2. 3 and 4 only

3. 1, 2 and 4 only

4. 1, 2, 3 and 4

General Knowledge

66. Who among the following Governor Generals formed the Triple Alliance against Tippu Sultan

1. Warren Hastings

2. Lord Cornwallis

3. Lord Wellwesley

4. Lord William Benticnk

67. With reference to Pondicherry consider the following statements
1. the first European power to occupy Pondicherry were the Portuguese
2. The second European power tooccupy Pondicherry were the French
3. The English never occupied Pondicherry
Which of the statements given above is/are correct

1. 1 only

2. 2 and 3

3. 3 only

4. 1,2 and 3

68. Which style of painting was used by early Renaissance artists?

1. Gothic

2. Catholic

3. Graeco-Roman

4. None of these

69. India is the seventh largest country in the world and it covers a total area of approximately:

1. 2700000 sq. km

2. 3000000 sq. km

3. 3200000 sq. km

4. 3600000 sq. km

70. Doldrums are belts of low atmospheric pressure obtained in the region adjoining the equator to a distance of:

1. 5 degree latitude towards the north only

2. 5 degree latitude towards the south only

3. 5 degree latitude towards north and south

4. 10 degree latitude towards north and south

71. Which of the following taxes is a progressive tax

1. sales tax

2. custom tax

3. excise tax

4. income tax

72. Consider the following statements
1. The Parliament of Russia is called Federal Assembly.

2. The Council of the Federation in the Russian Parliament is the lower house.

3. The name of the upper house in the Russian Parliament is State Duma.

Which of the statements(s) given above

is/are correct?

1. 1, 2 and 3

2. 1 and 2

3. 2 and 3

4. Only 1

73. Munneru River flows through which district of Telangana ?

1. Karimnagar

2. Adilabad

3. Khammam

4. Medak

74. In which district of Telangana the Amrabad Tiger Reserve is located ?
1. Karimnagar

2. Mahaboobnagar

3. Adilabad

4. Khammam

75. The Gun Park in Hyderabad is built to commemorate

1. The peasants who lost their lives in the Telangana Armed stuggle.

2. The students who lost their lives during the 1969 Telangana Movement.

3. The soldiers who lost their lives during the 1857 revolt.

4. The nationalists who died during the Quit India Movement.

76. According to Newton's corpuscular theory, the speed of light is

1. same in all the medium

2. lesser in rarer medium

3. lesser in denser medium

4. independent of the medium

77. The carbon-carbon bond length in benzene is

1. in between C_2H_6 and C_2H_4

2. same as in C_2H_4

3. in between C_2H_6 and C_2H_2

4. in between C_2H_4 and C_2H_2

78. Stoma opens, when

1. guard cells swell due to an increase in their water potential

2. guard cells swell by endosmosis duie to influx of hydrogen ions (protons)

3. guard cells swell by endosmosis due to efflux of potassium ions

4. guard cell sell due to a decrease in their water potential

79. PoojaJatyan is associated with which sports who scripted history by becoming the first Indian to win a silver in an individual event ?

1. Para Archery

2. Para Shooting

3. Para Badminton

4. Para Table Tennis

80. In the second edition of Most Trusted Brands of India, which of the following was recognized as one of the Most Trusted Brands of India 2022 in March 2022 ?

1. 3rd Eye Techno Solutions

2. Cyforce

3. Pelorus

4. Pyramis Cyber

Model paper 10 key

Electrical Engineering

1.1, 2.4, 3.3, 4.1, 5.2, 6.2, 7.2, 8.1, 9.1, 10.3, 11.1, 12.3, 13.1, 14.2, 15.3, 16.2, 17.2, 18.3, 19.2, 20.3, 21.3, 22.1, 23.3, 24.3, 25.1, 26.3, 27.1, 28.2, 29.3, 30.3, 31.3, 32.4, 33.2, 34.2, 35.4, 36.2, 37.4, 38.1, 39.3, 40.2, 41.2, 42.4, 43.2, 44.2, 45.3, 46.1, 47.4, 48.3, 49.3, 50.3, 51.4, 52.1, 53.4, 54.3, 55.1, 56.3, 57.1, 58.3, 59.2, 60.2, 61.4, 62.4, 63.2, 64.1, 65.3

General Knowledge

66.2, 67.3, 68.3, 69.3, 70.3, 71.4, 72.4, 73.3, 74.2, 75.2, 76.2, 77.1, 78.4, 79.1, 80.2

CLICK HERE TO JOIN OUR TELEGRAM CHANNEL

CLICK HERE TO SUBSCRIBE TO OUR YOUTUBE CHANNEL

CLICK HERE TO FOLLOW OUR FACEBOOK UPDATES

CLICK HERE TO FOLLOW OUR INSTAGRAM UPDATES

CLICK HERE TO FOLLOW OUR TWITTER UPDATES

https://thejobjunction.in/

JOB JUNCTION