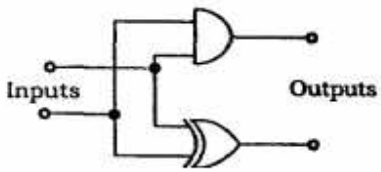
This test consists of 40 electrical questions, Solve each and every question while analyzing them

1. Match List-I with List-II and select the correct answer using the code given below the list:
List –I (Logic Circuit/function)
A. D flip-flop
B. T flip-flop
C. Exclusive
D. Half –adder
List II (Circuit realization)

1.



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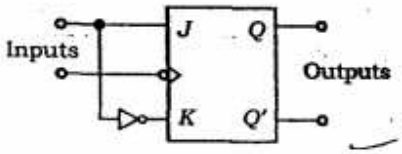

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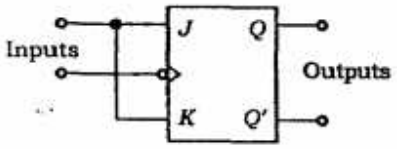

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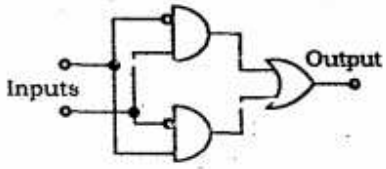
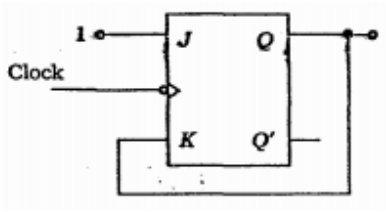


Code: a. A-1,B-4,C-3,D- 2 b. A-2,B- 3,C- 4,D- 1 c. A-1,B- 3,C-4,D-2
d. A-2,B-4,C-3,D-1

2. In the circuit given in the below figure, Q =0 initially. What shall be the subsequent states of Q when clock pulses are given?



a. 1, 0,1,0, …
b. 0, 0, 0, 0…
c. 1, 1, 1, 1, …
d. 0, 1, 0, 1, …

3. A J-K flip-flop can be made form an S-R flip-flop by using two additional
a. NAND gates
b. OR gates
c. NOT gates
d. NOR gates

4. Three devices P, Q and R have to be connected to an 8085 microprocessor. Device P has the highest priority and device R has the lowest priority. In this context, which of the following is the correct assignment of interrupt inputs?
a. P uses TRAP, Q uses RST 5.5 and R uses RST 6.5
b. P uses RST 5.5, Q uses RST 6.5 and R uses RST 7.5
c. P uses RST 7.5, Q uses RST 6.5 and R uses RST 55
d. P uses RST 5.5, Q uses RST 6.5 and R uses TRAP

5. The content of the program counter of an Intel 8085A microprocessor specifies which one of the following?
a. The address of the instruction being executed
b. The address of the instruction executed earlier
c. The address of the next instruction to be executed
d. The number of instructions executed so far

6. Match List-I with List-II and select the correct answer using the code given below the lists:
List-I (Semiconductor technology)
A. TTL
B. ECL
C. NMOS
D. CMOS
List II (Characteristic)
1. Maximum power consumption
2. Highest packing density
3. Least power consumption
4. Saturated logic
Code:

a. A-1,B- 4,C-2,D-3
b. A-4,B-1,C-2,D-3
c. A-1,B- 4,C-3,D-2
d. A-4,B-1,C-3,D-2

7. In an Intel 8085 A, what is the content of the instruction register (IR)?
a. Op-code for the instruction being executed
b. Operand for the instruction being executed
c. Op-code for the instruction to be executed next
d. Operand for the instruction to be executed next

8. For a single-phase a.c. to d.c. controlled rectifier to operate in regenerative m ode, which of the following conditions should be satisfied?
a. Half –controlled bridge, alpha < 90°, source of e.m.f. in load
b. Half-controlled bridge, alpha > 90°, source of e.m.f. in load
c. Full-controlled bridge, alpha > 90°, source of e.m.f. in load
d. Full-controlled bridge, alpha < 90°, source of e.m.f. in load

9. For a step-down d.c. chopper operating with discontinuous load current, what is the expression for the load voltage? (K is duty ratio of chopper)
a. $V_0 = V_{d.c} \times K$
b. $V_0 = V_{d.c} / K$
c. $V_0 = V_{d.c} / (1\text{-}K)$
d. $V_0 = V_{d.c} (1\text{-}K)$

10. The maximum junction-temperature of a transistor is 150 °C and the ambient temperature is 25 °C. If the total thermal impedance is 1 °C/W, what is the maximum power dissipation?
a. 1/175 W
b. 175 W
c. 125 W g
d. 1/125 W

11. Consider the following statements about analog communication and multiplexing:
1. Noise problem for analog communication has the greatest effect on TDM system.
2. Noise problem for analog communication has the least effect on SDM system.
Which of the statements given above is/are correct?
a. 1 only
b. 2 only
c. Both 1 and 2
d. Neither 1 nor 2

12. Consider the following statements:
1. An active satellite is one carrying a receiver, a transmitter and power supplies.
2. A passive satellite is simply a metalized sphere reflecting radio signals back to the earth.

Which of the statements given above is/are correct?

a. 1 only
b. 2 only
c. Both 1 and 2
d. Neither 1 nor 2

13. If the ASCII character H is sent and the character I is received, what type of error is represented?

a. Single bit
b. Multiple-bit
c. Burst
d. Recoverable

14. With the increase in the transmission bandwidth, received signal-power in AMand FM will, respectively

a. Increase, increase
b. Remain same , increase
c. Increase, remain same
d. Remain same, remain same

15. For an AM signal, the bandwidth is 10 kHz and the highest frequency component present is 750 kHz. What is the carrier frequency used for this AM signal?

a. 675 kHz
b. 700 kHz
c. 705 kHz
d. 710 kHz

16. What is the main object of trellis coding?

a. To narrow the bandwidth
b. To simplify modulation
c. To increase the data rate
d. To reduce the error rate

17. A 3 phase squirrel-cage induction motor is started by means of a star/delta switch. What is the starting current of the motor?

a. 3 times the current with direct on line starting
b. $\frac{1}{3}$ times the current with direct on line starting
c. $\frac{1}{\sqrt{3}}$ times the current with direct on line starting
d. $\sqrt{3}$ times the current with direct on line starting

18. Sludge formation in transformer oil is due to which one of the following?

a. Ingress of dust particles and moisture in the oil.
b. Appearance of small fragments of paper, varnish, cotton and other organic materials in the oil
c. Chemical reaction of transformer oil with the insulating materials
d. Oxidation of transformer oil

19. A single-phase transformer rated for 220/440 V, 50 Hz. This frequency operation at rated voltage results in which one of the following?

a. Increases of both eddy-current and hysteresis losses
b. Reduction of both eddy-current and hysteresis losses
c. Reduction of hysteresis loss and increase in eddy-current loss
d. Increase of hysteresis loss and no change in the eddy-current loss

20. What is the load at which maximum efficiency occurs in case of a 100 kVA transformer with iron loss of 1 kW and full–load copper loss of 2 kW?

a. 100 kVA
b. 70.7 kVA
c. 50.5 kVA
d. 25.2 kVA

21. Cores of large power transformers are made form which one of the following?

a. Hot-rolled steel
b. Cold-rolled non-grain oriented steel
c. Cold-rolled grain oriented steel
d. Ferrite

22. A transformer has a percentage resistance of 2% and percentage reactance of 4%. What are its regulations at power factor 0.8 leading, respectively?

a. 4% and – 0.8%
b. 3.2% and – 1.6%
c. 1.6% and – 3.2 %
d. 4.8% and – 0.6%

23. The daily energy produced in a thermal power station is 720 MWh at a load factor of 0.6. What is the maximum demand of the station?

a. 50 MW
b. 30 MW
c. 72
d. 720 MW

24. Consider the following statements regarding the nuclear power plans:

1. A thermal rector needs a moderator material
2. In a nuclear reactor, multiplication factor is kept almost equal to one.
3. Nuclear power plants are used as peak load plants only.

Which of the statement given above are correct?
a. 1, 2 and 3
b. 1 and 2 only
c. 2 and 3
d. 1 and 3 only

25. The full-load copper loss and iron loss of a transformer are 6400 W and 5000 W, respectively. What are the above copper loss and iron loss, respectively at halfload?
a. 3200 W, 2500W
b. 3200 W, 5000W
c. 1600 W, 1250 W
d. 1600 W, 5000 W

26. In a 3 phase, 5 kV, 5 MVA systems, what is the base impedance?
a. 5 ohms
b. 50 ohms
c. 500 ohms
d. 0.5ohm

27. Match list-I with list-II and select the correct answer using the code given below the lists:
List-I
A. Transient stability improvement
B. Economic dispatch
C. Load frequency control
D. Dynamic stability
List-II
1. Incremental transmission loss
2. Area control error
3. Power system stabilizers
4. Turbine fast valuing
Code:

	A	B	C	D
a.	2	3	4	1
b.	4	1	2	3
c.	2	1	4	3

28. Consider the following statements:
1. Equivalent- T circuit of a long line is preferred to equivalent – p circuit.
2. The nature of reactive power compensation is different for peak load and off-peak load conditions.
3. Ferranti effect is significant only on medium and long lines.
Which of the statements given above are correct?
a. 1 and 2 only
b. 1 and 3 only

c. 2 and 3 only
d. 1, 2 and 3

29. For an extra-high voltage overhead transmission line, four conductors are used per phase (in a bundle) at the corners of a square of sides meter. The GMR (geometric mean radius) of each conductor is r_m meter. What is the GMR of the bundle conductor?

a. $(r^1_m \times s^2 \times \sqrt{2s})^{1/4}$

b. $\left(r_m^{'} \times s^3\right)^{1/4}$

c. $\left(r_m^{'} \times 3s^3\right)^{1/4}$

d. $\left[r_m^{'} \times \left(\sqrt{2s}\right)^3\right]^{1/4}$

30. When is the Ferranti effect on long overhead lines experienced?
a. The line is lightly loaded
b. The line is heavily loaded
c. The line is fully loaded
d. The power factor is unity

31. What is the surge impedance loading of a lossless 400 kV, 3-phase, 50Hz overhead line of average of surge impedance of 400 ohms?

a. 400 MW

b. $400\sqrt{3}$ MW

c. $400/\sqrt{3}$ MW

d. 400 kW

32. Mho relay is usually employed for the protection of
a. Short lines only
b. Medium lines only
c. Long lines only
d. Any line

33. A large d.c. motor is required to control the speed of blower from a 3-phase a.c. source. What is the most suitable a.c. to d.c. converter?
a. 3-phase fully controlled bridge converter
b. 3-phase fully controlled bridge converter with free wheeling diode
c. 3-phase half-controlled bridge converter
d. A pair of 3-phase converter in sequence control

34. A single-phase full-bridge inverter is connected to a load of 2.4 ohms . The d.c. input voltage is 48 V. What is the r.m.s. output at fundamental frequency?

a. $\frac{4\times 48}{\sqrt{2\pi}}V$

b. $\frac{2\times 48}{\sqrt{2\pi}}V$

c. $\frac{4\times 48}{\pi}V$

d. $\frac{2\times 48}{\pi}V$

35. A buck regulator has an input voltage of 12 V and the required output voltage is 5 V. What is the duty cycle of the regulator?

a. 5/12
b. 12/5
c. 5/2
d. 6

36. If the excitation of a 3-phase alternator operating on infinite bus bars is changed, which one of the following shall alter?

a. Active power of machine
b. Reactive power of machine
c. Terminal voltage of machine
d. Frequency of machine

37. When are eddy-current losses in a transformer reduced?

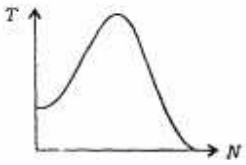
a. If laminations are thick
b. If the number of turns in primary winding is reduced
c. If the number of turns in secondary winding is reduced
d. If laminations are thin

38. Why is a centrifugal switch used in a single-phase induction motor?

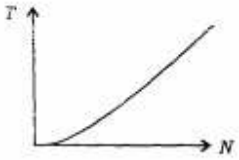
a. To protect the motor from overloading
b. To improve the starting performance of the motor
c. To cut off the starting winding at an appropriate instant
d. To cut in the capacitor during running conditions

39. Which one of the following curves represents the speed-torque characteristic of a d.c. series motor?

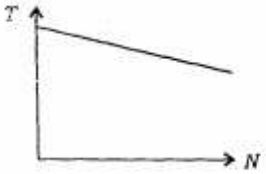
a.



b.



c.



d.

40. Consider the following statements:
1. Wien bridge oscillator is suitable for generating1 kHz.
2. Colpitts oscillator is suitable for generating 1 MHz.
Which of the statements given above is/are correct?
a. 1 only
b. 2 only
c. Both 1 and 2
d. Neither 1 nor 2