

Q1. If A is a symmetric matrix, then $A^t =$

- a) A
 b) $|A|$
 c) 0
 d) Diagonal matrix

Q2. What is the Laplace transform of the first derivative of a function, $y(t)$ with respect to t :

- a) $sy(0) - Y(s)$
 b) $sY(s) - y(0)$
 c) $s^2Y(s) - sy(0) - y'(0)$
 d) $s^2Y(s) - sy'(0) - y(0)$

Q3. What does the sum, $\sum_{n=1}^m (e^{\frac{2\pi i}{m}})^n$ is equal to:

- a) e
 b) e^π
 c) 0
 d) 1

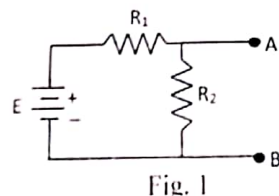
Q4. Rank of the matrix $\begin{bmatrix} 0 & 0 & 3 \\ 9 & 3 & 5 \\ 3 & 1 & 1 \end{bmatrix}$

- a) 0
 b) 1
 c) 2
 d) 3

Q5. Series resonant circuit is sometimes known as:

- a) Rejecter circuit
 b) Acceptor circuit
 c) Inductive circuit
 d) Capacitive circuit

Q6. The expression of Norton's current (I_N) in the circuit shown in Fig. 1 is:



- a) E/R_1
 b) E/R_2
 c) $E / (\frac{R_2}{R_1+R_2})$
 d) $E / (\frac{R_1}{R_1+R_2})$

Q.7 Kirchhoff's voltage law is a restatement of

- a) Conservation of energy
 b) Conservation of momentum
 c) Conservation of angular momentum
 d) Conservation of charge

Q.8 How many types of dependent or controlled sources are there ?

- a) 1
 b) 2
 c) 3
 d) 4

Q.9 A 2cm long coil has 10 turns and carries a current of 750mA. The magnetising force of the coil is

- a) 225 AT/m
 b) 675 AT/m
 c) 450 AT/m
 d) 375 AT/m

Q.10 Find the equivalent resistance at node A in Fig. 2

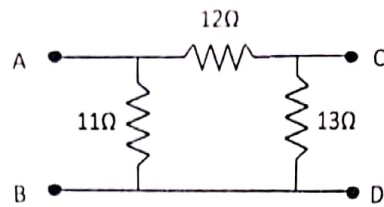


Fig. 2

- a) 1.66Ω b) 2.66Ω c) 3.66Ω d) 3.36Ω

Q.11 Find the divergence of vector $xa_x + ya_y + za_z$

- a) 0 b) 1 c) 2 d) 3

Q.12 The mutual inductance between two unity-coupled coils of 9 H & 4 H is

- a) 36 H b) 13 H c) 2.2 H d) 6 H

Q.13 Find the mobility of the electrons when the drift velocity is 23 units and electric field is 11 unit.

- a) 0.48 b) 2.1 c) 253 d) 0.9

Q.14 In free space, the Poisson equation becomes

- a) Maxwell Equation b) Ampere Equation
c) Laplace Equation d) Steady State Equation

Q.15 Which block of the discrete time systems requires memory in order to store the previous input ?

- a) Adder b) Signal Multiplier c) Unit Delay d) Unit Advance

Q.16 Recursive systems are basically characterized by the dependency of its output on

- a) Present Input b) Past Input c) Previous Outputs d) All of these

Q.17 The internal conductance of ideal voltage source is

- a) Infinite b) Equal to Internal Resistance
c) Zero d) Equal to External Resistance

Q.18 The form factor of a sine wave is

- a) $\frac{\pi}{\sqrt{2}}$ b) $\frac{\pi}{2\sqrt{2}}$ c) $\frac{\sqrt{2}}{\pi}$ d) $\frac{2\sqrt{2}}{\pi}$

Q.19 A Buchholz relay can be installed on

- a) Auto Transformer b) Air Cooled Transformer
c) Welding Transformer d) Oil Cooled Transformer

Q.20 In an induction motor, what is the ratio of rotor copper loss and rotor input?

- a) $1/s$ b) s c) (1-s) d) Any one

Q.21 The full load Cu loss of a transformer is 1600 W. At half load, the Cu loss will be

- a) 6400 W b) 1600 W c) 800 W d) 400 W

Q.22 The size of a transformer core will depend on

- a) Frequency b) Area of the core c) Number of turns d) (a and b)
- Q.23 If a 4 pole, 50 Hz, 3- Phase Induction motor runs at 1440 rpm, the value of slip is
a) 0.04% b) 3.3% c) 4% d) 6%
- Q.24 In 3-Phase Synchronous motor, if one of the phase is short circuited the motor will
a) Run as before b) Overheated and eventually burn
c) Not started d) Burn
- Q.25 India's largest thermal power station is located at
a) Kota b) Sarni c) Chandrapur d) Neyveli
- Q.26 If fault current is 2000A, the relay setting is 50% and CT ratio is 400:5, then plug setting multiplier will be
a) 10 b) 15 c) 25 d) 50
- Q.27 In force-voltage analogy, velocity is analogous to
a) Current b) Charge c) Inductance d) Capacitance
- Q.28 Control system are normally designed to be
a) Over damped b) Under damped c) Un damped d) Critically damped
- Q.29 Which of the following is not an integrating instrument
a) Ampere-hour meter b) Watt-hour meter
c) Voltmeter d) All of the above
- Q.30 A moving iron instrument can be used for
a) D.C only b) A.C only c) D.C and A.C d) Any of these
- Q.31 Mutual inductance can be measured by using
a) Anderson bridge b) Maxwell's bridge c) Wein bridge d) Heaviside bridge
- Q.32 Copper shading is provided in energy meter to
a) Bring flux exactly in quadrature with applied voltage
b) To count the rotation
c) To increase the speed of aluminium disc
d) To balance the system from vibration
- Q.33 In a CB amplifier the maximum efficiency is
a) 99 % b) 85 % c) 50 % d) 25 %
- Q.34 The cascade amplifier is a multistage configuration of
a) CC - CB b) CE - CB c) CB - CC d) CE - CC
- Q.35 A latch is sensitive
a) Edge b) Level c) Level and Edge d) None

Q.36 In the toggle mode of a JK flip-flop

- a) $J=0, K=0$ b) $J=1, K=1$ c) $J=0, K=1$ d) $J=1, K=0$

Q.37 Stack is also known as

- a) FIFO memory b) Flash memory c) LIFO memory d) LILO memory

Q.38 A step up chopper has input voltage 110 V and output voltage 150 V. The value of duty cycle is

- a) 0.32 b) 0.67 c) 0.45 d) 0.27

Q.39 If holding current of a Thyristor is 2 mA then latching current should be

- a) 0.01 A b) 0.002 A c) 0.009 A d) 0.004 A

Q.40 To protect a Thyristor from high di/dt conditions. is used.

- a) Fuse b) Snubber circuits
c) Inductor d) Voltage clamping device

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Q.1 (a)	Q.2 (b)	Q.3 (c)	Q.4 (c)	Q.5 (b)
Q.6 (a)	Q.7 (a)	Q.8 (d)	Q.9 (d)	Q.10 (c)
Q.11 (d)	Q.12 (d)	Q.13 (b)	Q.14 (c)	Q.15 (c)
Q.16 (d)	Q.17 (a)	Q.18 (b)	Q.19 (d)	Q.20 (b)
Q.21 (d)	Q.22 (d)	Q.23 (c)	Q.24 (b)	Q.25 (c)
Q.26 (a)	Q.27 (a)	Q.28 (b)	Q.29 (c)	Q.30 (c)
Q.31 (d)	Q.32 (a)	Q.33 (d)	Q.34 (b)	Q.35 (b)
Q.36 (b)	Q.37 (c)	Q.38 (d)	Q.39 (d)	Q.40 (c)