



PART (02) AC

Choose the correct Answer (30 Questions)

1- Which electrical circuit will have no current?

- (a) A short circuit (b) **An open circuit** (c) A complete circuit (d) A closed circuit

2- The units of reactance are ohms (Ω).

- (a) **True** (b) False

3- Most familiar dc generators in Egypt are

- (a) **Solar cell stations** (b) Nuclear stations (c) wind energy stations

4- If two equal-value capacitors are connected in series, what is their total capacitance??

- (a) Twice the value of one capacitor
(b) The same as the value of either capacitor
(c) The value of one capacitor times the value of the other
(d) **Half the value of either capacitor**

5- The voltage lags the current by $\pi/2$ in_____

- a) Purely resistive circuit
b) Purely inductive circuit
c) Purely capacitive circuit
d) Mixed inductive and capacitive circuit

6- An open inductor has_____

- a) zero resistance and zero inductance
b) infinite resistance and infinite inductance
c) infinite resistance and zero inductance
d) zero resistance and infinite inductance

7- The reactance of capacitors increases as:

- (a) Applied voltage increases (b) **AC frequency decreases**
(c) Applied voltage decreases (d) AC frequency increases

8- In case of Inductive circuit, Frequency is _____Proportional to the inductance (L) or inductive reactance (XL).

- (a) **Directly** (b) Inversely (c) No Effect

9- The ratio between power in (watt) and power in (VA) is _____

- a) Load factor (b) **power factor** (c) impedance factor

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- 10- In FM radio, we hear the station purely when _____
(a) $X_L = 0$ (b) $X_C = 0$ (c) $X_L = X_C$ (d) $P = 0$
- 11- In inductive circuit, when Inductance (L) or inductive reactance (XL) increases, the circuit current decreases, but the circuit power factor _____?
(a) Increases (b) decreases (c) Remain Same
- 12- The DC value of a sinusoidal alternating signal is -----for a full cycle.
(a) Maximum (b) finite value (c) zero (d) infinite
- 13- FM radio circuit is formed from two basic components. These are:
(a) resistors and diodes (b) dc source and diodes
(c) Ac source and diodes (d) inductors and capacitors
- 14- A series RLC circuit has a phase angle_____
a) Leading b) lagging c) unity d) both a and b
- 15- What is considered as the most important value of a sine wave?
a) RMS value b) Peak value c) Average value d) instantaneous value
- 16- Calculate the angular frequency ω of a signal that has a cyclic frequency of 20 Hz.
(a) 3.18 rad/s (b) 31.8 rad/s (c) 126 rad/s (d) 168 rad/s
- 17- If the duty cycle of pulse is 33.33% , so ____
(a) $T_{on} = T_{off}$ (b) $T_{on} = 2 T_{off}$ (c) $T_{off} = 2 T_{on}$ (d) $T_{on} = 3 T_{off}$
- 18- The average value of a triangular or sawtooth wave is_____times its peak value
a) 0.577 b)0.5 c) 0.318 d) 0.637
- 19- RMS current value is____times of its maximum value
a) 0.707 b)1.414 c)0.5 d)0.632
- 20- A sine wave with a frequency of 12 kHz is changing at a faster rate than a sine wave with a frequency of
(a) 20 kHz (b) 15,000 Hz (c) 10,000 Hz (d) 1.25 MHz
- 21- When a sine wave has a frequency of 60 Hz, in 10s it goes through
(a) 6 cycles (b) 10 cycles (c) 1/16 cycle (d) 600 cycles

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22- At what frequency will an inductor of 5mH have the same reactance as a capacitor of 0.1 μ F

- a) 7.12 KHz b) 7.12 MHz c) 7.12 Hz d) 7.12MHz

23- An AC series circuit is composed of a resistance of 20 Ω , inductive reactance of 40 Ω and a capacitive reactance of 15 Ω . If a current of 1Ampere is flowing. What is the applied voltage

- a) 320V b) 32V c) 220V d) 22V

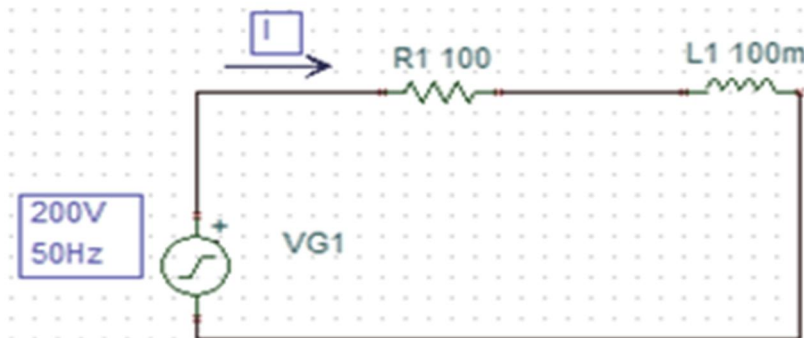
24- A 22 μ F capacitor has a charge of 250 μ C stored on it. What is the voltage across the capacitor?

- (a) 0.88v (b) 5.5 V (c) 11.4V (d) 15.5V

25- If Current and Voltage are 90 Degree Out of Phase, Then The Power is_

- a) Infinite b) maximum c) minimum d) zero

26- For the circuit given below, the Magnitude of total impedance is---- Ω



- (a) 90 (b) 104.8 (c) 100 (d) 200

27- In problem 26, the Magnitude of the coil current is_____

- (a) 1.809 A (b) 1.908 A (c) 5A (d) 1.89 A

28- In problem 26, the approximate value of reactance is_____ Ω

- (a) 31 (b) 32 (c) 100 (d) 0.628

29- In problem 26, the Power factor is_____

- (a) 0.945 (b) 0.954 (c) 0.229 (d) 1

30- In problem 26, the power consumed is—

- (a) 400 Watts (b) 1274 Watts (c) 381 Watts (d) 361 Watts