OBJECTIVE TYPE QUESTIONS FOR PRACTICAL EXAMINATION
Subject: Fundamental of Elelectrical Engg. (EE-111)

1. Resistance is measured in

A. henries

B. ohms

C. hertz

D. watts

2. Which of the following is not an electrical quantity?

A. voltage

B. current

C. distance

D. power

3. Voltage is measured in

A. volts

B. farads

C. watts

D. ohms

4. Current is measured in

A. watts

B. volts

C. henries

D. amperes

5. The formula to find *I* when the values of *V* and *R* are known is

A. $I = VR$

B. $I = R/V$

C. $V = IR$

D. $I = V/R$

6. When there is 12 mA of current through a 1.2 k Ω resistor, the voltage across the resistor is

A. 14.4 V

B. 1.4 V

C. 100 V

D. 10 V

7. When a fourth resistor is connected in series with three resistors, the total resistance

A. increases by one-fourth

B. increases

C. decreases

D. remains the same

8. Two 6 V batteries are connected series aiding across two 1.2 k Ω resistors in series. Current through each resistor is

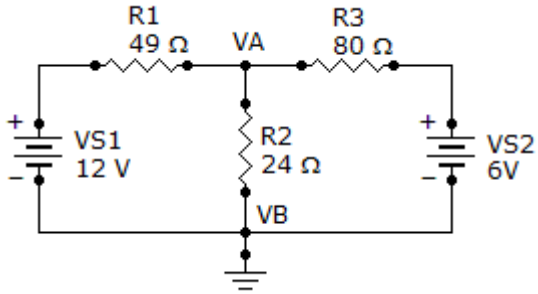
A. 5 mA

B. 10 mA

C. 0 A

D. 2.5 mA

9. Find the node voltage V_A.



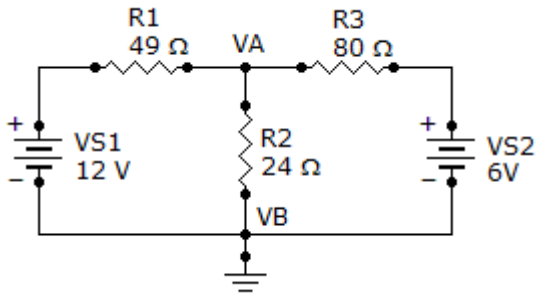
A. 6 V

B. 12 V

C. 4.25 V

D. 3 V

10. What is the current through R_2?



A. 177 mA

B. 250 mA

C. 500 mA

D. 125 mA

11. The branch current method uses

A. Kirchhoff's voltage and current laws

B. Thevenin's theorem and Ohm's law

C. Kirchhoff's current law and Ohm's law

D. the superposition theorem and Thevenin's theorem

12. If the rms voltage drop across a 15 k Ω resistor is 16 V, the peak current through the resistor is

A. 15 mA

B. 1.5 mA

C. 10 mA

D. 1 mA

13. How many degrees are there in π/3 rad?

A. 6°

B. 60°

C. 180°

D. 27°

14. The average value of a 12 V peak sine wave over one complete cycle is

A. 0 V

B. 1.27 V

C. 7.64 V

D. 6.37 V

15. A phasor represents

A. the magnitude and a quantity direction

B. the width of a quantity

C. the phase angle

D. the magnitude of a quantity

16. A 2 mH, a 3.3 mH, and a 0.2 mH inductor are connected in series. The total inductance is

A. 55 mH

B. less than 0.2 mH

C. less than 5.5 mH

D. 5.5 mH

17. A sine wave voltage is applied across an inductor. When the frequency of the voltage is decreased, the current

A. is increased

B. is decreased

C. does not change

D. momentarily goes to zero

18. When the current through an inductor decreases, the amount of energy stored in the electromagnetic field

A. increases

B. decreases

C. remains the same

D. doubles

19. In a series *RC* circuit, 12 $V_{(rms)}$ is measured across the resistor and 15 $V_{(rms)}$ is measured across the capacitor. The rms source voltage is

A. 3 V

B. 27 V

C. 19.2 V

D. 1.9 V

20. A 10 Ω resistor, a 90 mH coil, and a 0.015 μF capacitor are in series across an ac source. The impedance magnitude at 1,200 Hz below f_r is

A. 1,616 Ω

B. 161 Ω

C. 3,387 Ω

D. 1,771 Ω

21. The impedance at the resonant frequency of a series *RLC* circuit with L = 20 mH, C = 0.02 μF, and R_W = 90 Ω is

A. 0 Ω

B. 90 Ω

C. 20 kΩ

D. 40 kΩ

22. A certain series *RLC* circuit with a 200 Hz, 15 V ac source has the following values: R = 12 Ω, C = 80 μF, and L = 10 mH. The total impedance, expressed in polar form, is

A. $12.28 \angle 12.34°$ Ω

B. $12.57 \angle 12.34°$ Ω

C. $9.95 \angle 12.34°$ Ω

D. $12.62 \angle 12.34°$ Ω

23. The two basic components of a Thevenin equivalent ac circuit are

A. the equivalent voltage source and the equivalent series impedance

B. the equivalent voltage source and the equivalent series resistance

C. the equivalent voltage source and the equivalent parallel impedance

D. the equivalent voltage source and the equivalent parallel resistance

24. In applying the superposition theorem,

A. the sources are considered one at a time with all others replaced by their internal impedance

B. all sources are considered independently

C. all sources are considered simultaneously

D. the sources are considered one at a time with all others replaced by their internal resistance

25. In a three-phase system, the voltages are separated by

A. 45°

B. 90°

C. 120°

D. 180°

26. In a certain three-wire Y-connected generator, the phase voltages are 2 kV. The magnitudes of the line voltages are

A. 2,000 V

B. 6,000 V

C. 666 V

D. 3,464 V

27. In a Y-connected circuit, between each line voltage and the nearest phase voltage, there is a phase angle of

A. 0°

B. 30°

C. 60°

D. 120°

28. The unit of electrical charge is the

A. volt

B. ampere

C. joule

D. coulomb

29. A multimeter measures

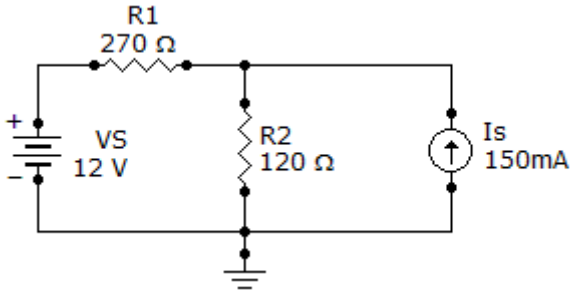
A. current

B. voltage

C. resistance

D. current, voltage, and resistance

30. Find the current through R_2 of the given circuit.



A. 30.7 mA

B. 104 mA

C. 74 mA

D. 134 mA

31. The induced voltage across a coil with 250 turns that is located in a magnetic field that is changing at a rate of 8 Wb/s is

A. 1,000 V

B. 2,000 V

C. 31.25 V

D. 3,125 V

32. What is the flux density when the flux is 5.5 μWb and the cross-sectional area is 6×10^{-3} m^2?

A. 91.7 μT

B. 917 μT

C. 91 T

D. 9.7 T

33. The unit for reluctance is

A. tesla

B. At/Wb

C. At/m

D. Wb

34. The unit for permeability is

A. Wb/At × m

B. At/m

C. At/Wb

D. Wb

35. The ability of a material to remain magnetized after removal of the magnetizing force is known as

A. permeability

B. reluctance

C. hysteresis

D. retentivity

36. The direction of a magnetic field within a magnet is

A. from south to north

B. from north to south

C. back to front

D. front to back

37. The voltage induced across a certain coil is 200 mV. A 120 Ω resistor is connected to the

coil terminals. The induced current is

A. 1.7 mA

B. 16 mA

C. 12 mA

D. 120 mA

38. A certain transformer has 400 turns in the primary winding and 2,000 turns in the secondary winding. The turns ratio is

A. 0.2

B. 0.4

C. 5

D. 25

39. The mutual inductance when $k = 0.65$, $L_1 = 2$ μH, and $L_2 = 5$ μH is

A. 2 mH

B. 2 μH

C. 4 μH

D. 8 μH

40. A transformer

A. changes ac to dc

B. changes dc to ac

C. steps up or down dc voltages

D. steps up or down ac voltages

41. When a 6 V battery is connected across the primary of a transformer with a turns ratio of 8, the secondary voltage is

A. 0 V

B. 6 V

C. 48 V

D. 0.75 V

42. A 1.5 kΩ resistor and a coil with a 2.2 kΩ inductive reactance are in series across an 18 V ac source. The power factor is

A. 564

B. 0.564

C. 6.76

D. 55.7

43. When the frequency is decreased, the impedance of a parallel *RL* circuit

A. increases

B. decreases

C. remains constant

D. is not a factor

44. If a load is purely inductive and the reactive power is 12 VAR, the apparent power is

A. 0 VA

B. 12 VA

C. 6 VA

D. 24 VA

45. When converting 7,000 nA to microamperes, the result is

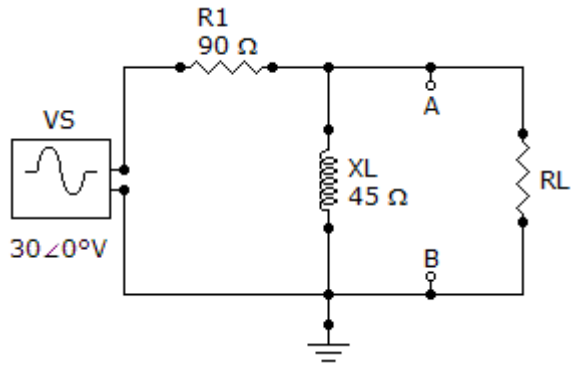
A. 0.007 µA

B. 0.7 µA

C. 700 µA

D. 7 µA

46. Determine V_{TH} when R_1 is 180 Ω and X_L is 90 Ω.



A. 135∠63.4° V

B. 13.5∠63.4° V

C. 12.2∠0° V

D. 122∠0° V

47. If two currents are in the same direction at any instant of time in a given branch of a circuit, the net current at that instant

A. is zero

B. is the sum of the two currents

C. is the difference between the two currents

D. cannot be determined

48. Three 10 k Ω resistors are connected in series. A 20 k Ω resistor is connected in parallel across one of the 10 k Ω resistors. The voltage source is 24 V. The total current in the circuit is

A. 900 μA

B. 9 mA

C. 90 mA

D. 800 μA

49. An 18 V source has an internal resistance of 70 Ω. If a load resistance of 33 Ω is connected to the voltage source, the load power, P_L, is

A. 0 W

B. 1 W

C. 175 mW

D. 18 mW

50. An electric heater draws 3.5 A from a 110 V source. The resistance of the heating element is approximately

A. 385 Ω

B. 38.5 Ω

C. 3.1 Ω

D. 31 Ω

Answer Keys

S.No.	Ans	S.No.	Ans
1	B	26	D
2	C	27	C
3	A	28	D
4	D	29	D
5	C	30	D
6	A	31	B
7	B	32	B
8	A	33	B
9	C	34	A
10	A	35	D
11	A	36	A
12	B	37	A
13	B	38	C
14	A	39	B
15	A	40	D
16	D	41	A
17	A	42	B
18	B	43	B
19	C	44	B
20	A	45	D
21	B	46	B
22	A	47	B
23	A	48	A
24	A	49	B
25	C	50	D