SEMESTER : I

1. Which machine converts mechanical energy into electrical energy?
   a) Battery   b) generator   c) heater   d) iron box
   Ans: generator

2. What is the unit of current?
   a) Ampere   b) volt   c) ohm   d) watt
   Ans: ampere

3. What is the unit of resistance?
   a) Ampere   b) volt   c) ohm   d) watt
   Ans: ohm

4. What is the flow of electrons in any conductor?
   a) Voltage   b) current   c) resistance   d) power
   Ans: current

5. Which property of a substance is opposing the flow of electric current?
   a) Current   b) voltage   c) resistance   d) EMF
   Ans: resistance

6. Which is very good conductor?
   a) Copper   b) cast iron   c) wrought iron   d) steel
   Ans: copper

7. Whicih is mineral insulator?
   a) Glass   b) quartz   c) mica   d) porcelain
   Ans: mica

8. What is the total resistance if three resistances 3 ohms, 9 ohms and 5 ohms are connected in series?
   a) 11 ohms   b) 7 ohms   c) 17 ohms   d) 1/17 ohms
   Ans: R1 = 3 Ohms; R2 = 9 Ohms; R3 = 5 Ohms;
   R = R1 + R2 + R3 = 3 + 9 + 5 **= 17 Ohms**   (Series connection)

9. What is the total resistance if two resistances of 4 ohms and 6 ohms are connected in parallel?
   a) 2.4/10   b) 24/10   c) 10/24   d) 10/2.4
   Ans: R1 = 4 Ohms;   R2 = 6 Ohms;
   (Parellel connection) $\frac{1}{R} = \frac{1}{R1} + \frac{1}{R2} = \frac{1}{4} + \frac{1}{6} = \frac{10}{24}$;
   R = $\frac{24}{10}$ **= 2.4 Ohms**

10. What is the total resistance if three resistances of 4 ohms, 6 ohms and 8 ohms respectively are connected in parallel?

    a) 24   b) 13   c) 24/13   d) 13/24

    Ans: R1 = 4 OHMS, R2 = 6 OHMS, R3 = 8 OHMS;

    $$\frac{1}{R} = \frac{1}{R1} + \frac{1}{R2} + \frac{1}{R3} = \frac{1}{4} + \frac{1}{6} + \frac{1}{8} = \frac{6+4+3}{24} = \frac{13}{24}$$

    R = 24/13 Ohms

11. Which is same in series connection of resistors in circuit?

    a) Current   b) voltage   c) resistance   d) power

    Ans: current

12. Which law states that at constant temperature the current passing through a closed circuit is directly proportional to the potential difference and inversely proportional to the resistance?

    a) Ohms law   b) lenz law   c) newtons law   d) hookes law

    Ans: ohms law

13. What is the resistance? I = 11.5 Amps, V = 380 Volts, R = ... Ohms?

    a) 13 ohms   b) 23 ohms   c) 33 ohms   d) 43 ohms

    Ans: $R = \frac{V}{I} = \frac{380}{11.5} =$ **33 ohms**

14. What is the current? R = 50 Ohms, V = 220 Volts, I = ...Amps

    a) 4.1 amps   b) 4.2 amps   c) 4.3 amps   d) 4.4 amps

    Ans: $I = \frac{V}{R} = \frac{220}{50} =$ **4.4 ohms**

15. What is the voltage? R = 250 Ohms, I = 0.44 Amps, V = ...Volts

    a) 100 ohms   b) 105 volts   c) 108 volts   d) 110 volts

    Ans: V = I x R = 0.44 x 250 = **110 volts**

16. Which statement is correct according to ohm's law?

    a) $I = \frac{1}{V}$ b) I = R   c) $I = \frac{V}{R}$ d) $I = \frac{R}{V}$

    Ans: $I = \frac{V}{R}$

17. What is the filament resistance if a 6 volt bulb draws a current of 0.5 amps?

    a) 12 Ω   b) 10 Ω   c) 3 Ω   d) 1.2 Ω

    Ans: $R = \frac{V}{I} = \frac{6}{0.5} =$ **12 Ω**

18. How much watt second in 1 watt hour?

    a) 1000 watt sec   b) 2000 watt sec   c) 3600 watt sec   d) 4000 watt sec

    Ans: 3600 watt sec

19. What is the power if an emf of one volt causes a current flow of 1 ampere?
    a) 1 watt   b) 1 kilowatt   c) 1 HP   d) 1 kilowatt hour
    Ans: 1 watt

20. Which is equal to electric power?
    a) R^2I watts   b) I^2R Watts   c) $\frac{R2}{I}$ watts   d) $\frac{I2}{R}$ watts
    Ans: I^2R Watts

21. How much power does it consume if an electric heater draws a current of 10 amps at 200 volts?
    a) 2000 watts   b) 2010 watts   c) 2020 watts   d) 2030 watts
    Ans: I = 10 amps;   V = 200 Volts;
              P = V x I = 200 x 10 = **2000 Watts**

22. What is the resistance of an electric iron if the rating of electric iron is 220V and 500 watts?
    a) 94.8 ohms   b) 95.8 ohms   c) 96.8 ohms   d) 97.8 ohms
    Ans: V = 220V;   P = 500 Watts;
              R = V^2/P = 220^2/500 = **96.8 OHMS**

23. What is the voltage of the immersion heater? P = 500 Watts; I = 2.27 amps; V = ... volts?
    a)200.3 volts   b) 210.3 volts   c) 220.3 volts   d) 230.3 volts
         Ans: V = $\frac{P}{I}$ = $\frac{500}{2.27}$ = 220.26 = **220.3 volts**

24. What is the unit of intensity of magnetic field?
    a) Wb/m   b) m/wb   c) Hertz   d) Coloumb
       Ans: wb/m

25. Which law states about electromagnetic induction?
    a) Ohm's law   b) hooke's law   c) lenz's law   d) Faraday's law
       Ans: Faraday's law

26. What is the formula for induced emf?
    a) B^2L sinꝊvolts   b) BL sinꝊvolts   c) BLV sinꝊ volts   d) B^2V sinꝊvolts
       Ans: BLV sinꝊ volts

27. What does EMF stands for?
    a) Electronic magnetic force   b) Electro motive force
    c) Electromagnetic force   d) Electromated force
    Ans: electro motive force

28. Which is the example for statically inducted emf?
    a) Generator   b) motor   c) transformer   d) refrigerator
       Ans: transformer

29. Which is the example of dynamically induced Emf?
    a) Motor   b) generator   c) car   d) motor bike

    Ans: generator

30. Which is the unit electrical power?
    a) Volts   b) ohms   c) watts   d) ampere

    Ans: watts

31. What is the current flow in the bult? P=550 Watts; R = 22 Ohms; I = ...amps?
    a) 2 amps   b)3 amps   c) 4 amps   d) 5 amps

    Ans: $I^2 = \dfrac{P}{R}$;

    $I = \sqrt{550/22}$ = **5 Amps**

32. What is the power required? I = 0.455 Amps, R = 484 Ohms, P = ...Watts?
    a) 98.2 watts   b) 99.2 watts   c) 100.2 watts   d) 101.2 watts

    Ans: $P = I^2R = (0.455)^2$ x 484 = **100.2 Watts**

33. What is the rated power if an adjustable resistor bears the following label 1.5 ohms/ 0.08A?
    a) 9.2 watts   b) 9.4 watts   c) 9.6 watts   d) 9.8 watts

    Ans: $P = I^2R = (0.08)^2$ x 1500 = **9.6 Watts**

34. How much voltage will be required to illuminate a 40 watts fluorescent lamp draws a current of 0.10 amperes?
    a) 390 volts   b) 395 volts   c) 400 volts   d) 405 volts

    Ans: $V = \dfrac{P}{I} = \dfrac{40}{0.10}$ = **400 volts**

35. How many hours will take for a 100 watts bulb to consume 1 kwh energy? W = 1 KWH, P = 100 Watts, t = ... hours?
    a) 10 hours   b) 12 hours   c) 18 hours   d) 24 hours

    Ans: Given Work = 1KWH = 1000 WH; Power = 100 Watts;

    Work = Power x Time;

    Time $= \dfrac{WORK}{POWER} = \dfrac{1000}{100}$ = **10 hours**