

Answer Key [PHYSICS] Std: X 2nd Term Exam December – 2018

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Any 4 from 1 to 5

1. Scattering (1)
2. 327 K (1)
Hint :- $mc(\theta_2 - \theta) = mc(\theta - \theta_1)$
 $\theta = \frac{(\theta_2 + \theta_1)}{2}$
 $= \frac{352 + 302}{2} = 327 \text{ K}$
3. Fleming's Right Hand Rule (1)
4. 273 K (1)
5. Power Grid (1)

Any 4 from 6 to 10

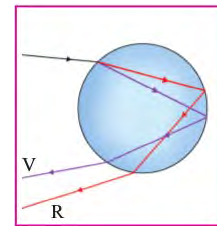
6. (a) Step up Transformer (1)
(b) By increasing the voltage , the current can be reduced with out any change in the power . As a result the loss of electrical energy in the form of heat energy can be reduced . (1)
7. (a) Evaporation (1)
(b) Vapourisation (1)
8. Bulb D (1)
As soft iron core is used in the solenoid in this circuit back e.m.f increases . This results in the decrease of effective voltage in the circuit . (1)
9. (a) Power transformer (1)
(b) Star Connection (1)
10. (a) Magenta (1/2)
(b) Red (1/2)
(c) Red (1/2)
(d) Yellow (1/2)

Any 4 from 11 to 15

11. (a) C (1)
(b) 230 V (1)
(c) When a single line is touched , no potential difference is felt . (1)

12.

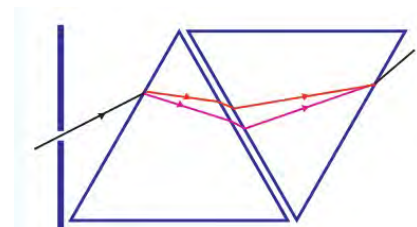
- (i) a - Diaphragm (1/2)
b - Voice Coil (1/2)
 - (ii) The electrical signals coming from moving coil microphone are incapable of making the voice coil of a loud speaker vibrate. (1)
Amplifier (1)
13. (a) (2)



- (b) When viewed from an aeroplane at a high altitudes , the observer can see 42.7° from his line of vision in all directions .(1)

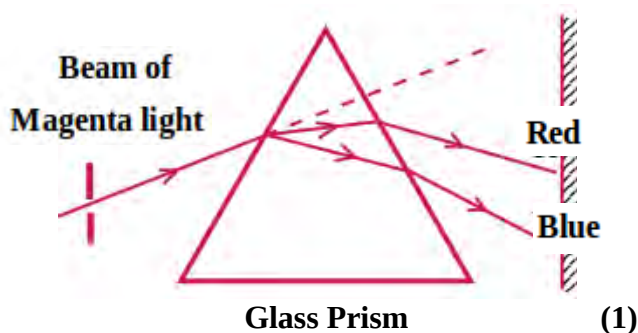
14. (a) Step up Transformer (1)
(b) $\frac{V_s}{V_p} = \frac{N_s}{N_p}$
 $V_s = 250 \text{ V} ; N_s = 2500 ; N_p = 500$
 $\frac{250}{V_p} = \frac{2500}{500}$
 $V_p = 50 \text{ V}$ (1)
(c) $V_p \times I_p = V_s \times I_s$ $I_s = 0.2 \text{ A}$
 $I_p = \frac{V_s \times I_s}{V_p} = \frac{250 \times 0.2}{50} = 1 \text{ A}$ (1)

15. (a)



- Pass white light through a prism and obtain the constituent colours on a screen. A similar prism is placed with its base is on the upper side and adjacent to the first prism as shown in the above figure . (2)

(b)



Any 4 from 16 to 20

16. (a) Infra Red (1)

(b) Industrialisation , Excessive use of fossil fuels , Deforestation , Natural gas exploration , Decay of biomass , Leak in the gas pipe lines , Excessive use of AC , Fridge etc. (any 4) (2)

(c)

Avoid excessive use of fossil fuels

Reduce the use of CFC

Reduce the further production of green house gases

Find out an effective method to use Hydrogen as a fuel

Use non conventional sources of energy to the maximum for our energy needs . (any 2) (1)

17 (a) Dark (1)

(b) Blue (1)

(c) Red (1)

(d) Green (1)

18. (a) The specific heat capacity of water is 5 times more than that of sand . As a result , during night the sea gets cooled slowly compared to the land and the density of the air above the sea is decreased . (1)

(b) When propylene glycol is added to water , the boiling point of water increases to 129°C . This property is made use of in using coolants (1)

(c) Water is evaporated through very minute pores of earthen pot . For this process heat energy is absorbed from

the water in the pot . During evaporation the substance which supplies heat gets cooled . (1)

(d) Latent heat of fusion of ice is very high . (1)

19.(a) Mutual Induction (1)

(b) Bulb B1 : Decreases (1)

Bulb B2 : Increases (1)

(c) Increase the number of coils in the solenoid S_2 (1)

20. (a)

$\text{kwh} = \frac{\text{Power in watt} \times \text{Time in hour}}{1000}$

Electrical energy consumed by 20 W 40 CFLs in 8 hours =

$$\frac{20 \times 40 \times 8}{1000} = \frac{64}{10} = 6.4 \text{ kwh} \quad (1)$$

Electrical energy consumed by 20 W 40 LEDs in 8 hours =

$$\frac{9 \times 40 \times 8}{1000} = \frac{288}{100} = 2.88 \text{ kwh} \quad (1)$$

Energy saved per day = $6.4 - 2.88$
= 3.52 kwh

Energy saved per month = 3.52×30
= 105.6 kwh (1)

(b) (1)

*" Saving electricity is
equivalent to generating
electricity "*

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