

**DISTRICT INSTITUTE OF EDUCATION AND TRAINING THIRUVANANTHAPURAM
EVALUATION TOOL FOR CLASS X – 2022 FEBRUARY**

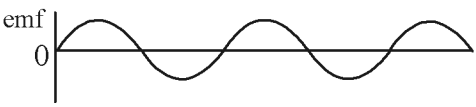

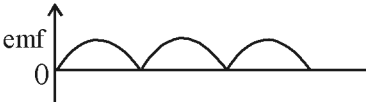
**PHYSICS
ANSWER KEY**

PART I

1. b or correct fig 1
2. Butane 1
3. $H = I^2Rt$ 1
4. Electrical energy → Mechanical energy 1
5. Mechanical effect 1
6. Convex lens 1
7. Earth leakage circuit breaker 1
8. $\frac{360}{\phi} - 1 = \frac{360}{60} - 1 = 6 - 1 = 5$ 1
9. Difficult to handle. Explosive nature 1
10.

| Step up | Step down |
|----------------|------------------|
| $V_s > V_p$ | $I_s > I_p$ |
| $I_p > I_s$ | $V_s < V_p$ |

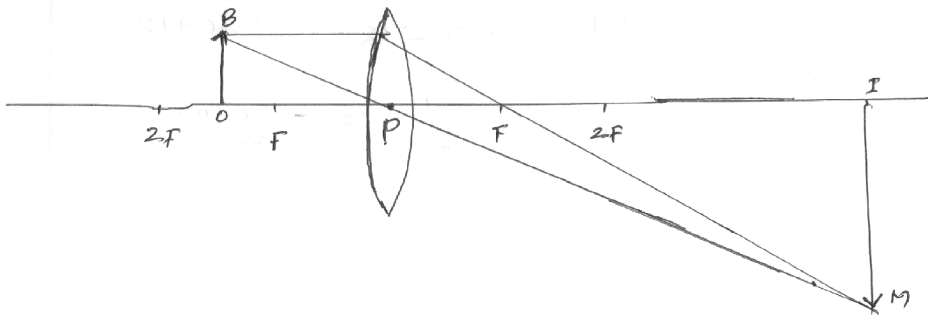
2
11. Towards p
Flemings left hand rule 2
12. $m = \frac{h_i}{h_o}$
 $-4 = \frac{h_i}{h_o}$
 $h_i = 5 \times -4$
 $= -20\text{cm}$ 2

| A | B |
|---------------|--------------------------------------------------------------------------------------|
| Source | Graph |
| AC generator |  |
| Battery |  |
| DC generator |  |

3

14. Green energy → Solarcell, energy form waves, wind mill
 Brown energy → Atomic reactor, Thermal power station. Diesel engine. 3

15.



Position – beyond 2F 3

Nature – real, inverted

Size – magnified

16. a. Convex mirror 1
 b. Rear view mirror in vehicles. 2

17. $f = -20\text{cm}$
 $v = -12\text{cm}$ 3
 $u = ?$

$$\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$$

$$-\frac{1}{u} = \frac{1}{f} - \frac{1}{v}$$

$$\frac{1}{u} = \frac{1}{v} - \frac{1}{f}$$

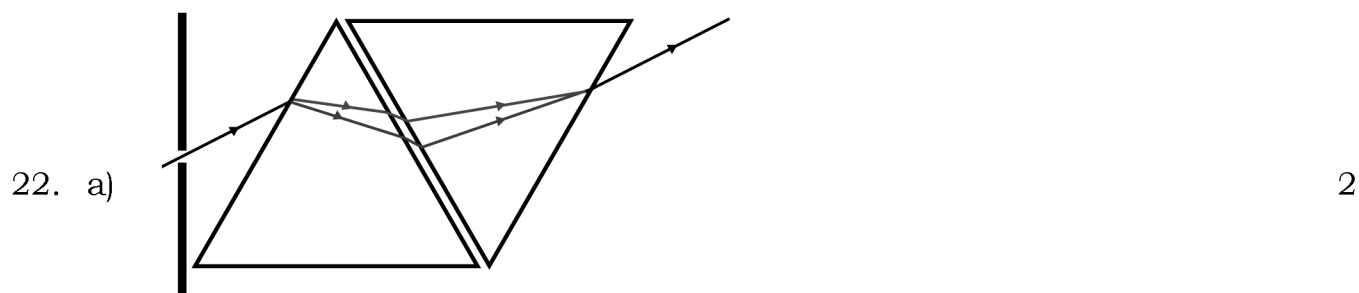
$$= \frac{f - v}{vf}$$

$$u = \frac{vf}{f - v} = \frac{-12 \times -20}{-20 - 12} = \frac{240}{-20 + 12}$$

$$= \frac{240}{-8} = -30\text{cm}$$

18. a) Alloy of tin and lead 1
 b) High melting point 1
 c) Series 1
 d) Short circuit and overloading 1
19. a) Moving coil loud speaker 1
 b) Electrical energy → sound energy 1
 c) Motor principle 1

- d) Explanation 1
20. a) Concave 1
- b) Same size of the object 1
- c) $f = -10\text{cm}$ 1
- d) 1 1
21. a) Tungsten, 2
high resistivity, high melting point etc.
- b) Vaporisation can be reduced by filling same inert gas at low pressure inside the bulb 2



- b) VIBGYOR 1
- c) White light 1
23. a) d, e
- b) Self induction
- c) The change in magnetic flux due to the flow of an AC in a solenoid will generate a back emf in the same solenoid in a direction opposite to that applied to it. This phenomenon is known as the self induction. 2
- d) Presence of soft iron core increases the flux density and back emf increases. Due to this resultant voltage decreases. 1
24. a) Torch light, Beaker, Sodium thiosulphate, hydrochloric acid, Screen 2
- b) To write the correct procedure 2
- c) As the wave length increases rate of scattering decrease. 1

OR

As the wave length decreases rate of scattering increases.