

PHYSICS FORM FOUR

MID TERM 2 EXAM 2026

MARKING SCHEME

SECTION A (25 MARKS)

1. Depth of liquid / density of liquid. (1 mk)
2. Amount of heat energy required to change a unit mass of a substance from solid to liquid without temperature change. (1 mk)
3. Distance = speed \times time = $20 \times 5 = 100$ m. (2 mks)
4. At constant temperature, current through a conductor is directly proportional to the potential difference across it. (1 mk)
5. $a = F/m = 20/5 = 4$ m/s². (2 mks)
6. Transverse waves vibrate perpendicular to direction of motion while longitudinal waves vibrate parallel to direction of motion. (2 mks)
7. Stepping up or stepping down voltage during transmission. (1 mk)
8. Power = $1/f = 1/0.2 = +5$ D. (2 mks)
9. Length / temperature / thickness / material of conductor. (1 mk)
10. $v^2 = u^2 - 2gh$
 $0 = 30^2 - 2 \times 10 \times h$
 $h = 45$ m. (3 mks)
11. Energy cannot be created or destroyed but can only be transformed from one form to another. (1 mk)
12. $f = v/\lambda = 340/2 = 170$ Hz. (2 mks)
13. Electric generators / transformers / dynamos. (1 mk)

14. Correct labelled ray diagram showing object beyond C, diminished inverted image between C and F. (5 mks)

SECTION B (75 MARKS)

15.

(a) Motion in which velocity changes by equal amounts in equal intervals of time. (2 mks)

(b)(i) $v = u + at = 0 + (4 \times 10) = 40 \text{ m/s}$. (2 mks)

(b)(ii) $s = ut + \frac{1}{2}at^2 = 0 + \frac{1}{2} \times 4 \times 10^2 = 200 \text{ m}$. (3 mks)

(c) Correct velocity-time graph with straight line from origin to 40 m/s at 10 s. (3 mks)

16.

(a) A body wholly or partially immersed in a fluid experiences an upthrust equal to the weight of fluid displaced. (2 mks)

(b)(i) Upthrust = $15 - 12 = 3 \text{ N}$. (2 mks)

(b)(ii) Relative density = Weight in air / loss in weight = $15/3 = 5$. (3 mks)

(c) Designing ships; hydrometers; submarines; balloons. Any two. (2 mks)

17.

(a) Quantity of heat required to raise temperature of unit mass of substance by 1°C or 1 K. (2 mks)

(b) $c = Q/m\Delta T = 48000 / (2 \times 60) = 400 \text{ Jkg}^{-1}\text{K}^{-1}$. (3 mks)

(c) Land heats faster than sea during day; warm air over land rises; cool air from sea moves to replace it forming sea breeze. (4 mks)

18.

- (a) An emf is induced when there is change in magnetic flux linkage in a conductor. (2 mks)
- (b) Coil rotated in magnetic field cuts magnetic lines producing alternating emf; slip rings and brushes collect current. Well explained process. (5 mks)
- (c) Use high voltage; use thick cables; use low resistance wires. Any three. (3 mks)

19.

- (a) Real images can be formed on screen while virtual images cannot. (2 mks)
- (b)(i) $1/f = 1/u + 1/v$
 $1/15 = 1/30 + 1/v$
 $1/v = 1/30$
 $v = 30 \text{ cm.}$ (3 mks)
- (b)(ii) Magnification = $v/u = 30/30 = 1$. (2 mks)
- (c) Correct labelled diagram showing myopia corrected using concave lens. (3 mks)

END