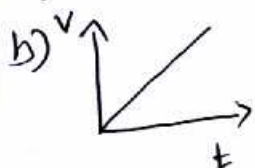


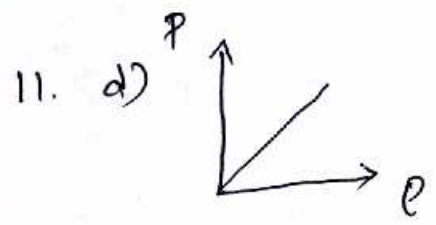
PHYSICS

STD: XI

ANSWER KEY

PART-I

1. c) velocity
2. a) 2.5π rad
3. b) 



4. c) zero
5. d) 13.81 m/s
6. d) stress
7. d) centripetal force acts towards centre and centrifugal force appears to act away from the centre in a circular motion
8. d) angular velocity increases and moment of inertia decreases
9. a) perihelion and aphelion
10. c) adiabatic

12. c) acceleration
13. $\sin(x + vt)$ (d)
14. b) 6.28 rad m^{-1}
15. d) Transverse and longitudinal waves

PART-II

16. correct statement - 2 marks
17.
$$v = \frac{dx}{dt} = \frac{d}{dt}(2 - 5t - 6t^2) \rightarrow \textcircled{1}$$

$$v = -5 \text{ m s}^{-1} \rightarrow \textcircled{2}$$
18. correct statement \rightarrow 2 marks
 or $\frac{dP}{dt} = F \rightarrow$ 1 mark
19. correct definition \rightarrow 2 marks

20. Any two differences \rightarrow 2 marks

21. NO SEASONS \rightarrow 2 marks

22. Affecting factors

Pressure & Temperature \rightarrow 2 marks

23. Steel is more elastic \rightarrow 1 mark

Reason \rightarrow 1 mark

24. $T \propto \sqrt{l} \rightarrow \frac{1}{2}$ mark

$$\frac{T_f}{T_i} = \sqrt{\frac{1 + \frac{44}{100}l}{l}} \rightarrow 1 \text{ mark}$$

$$T_f = T_i + 20\% T_i \rightarrow \frac{1}{2} \text{ mark}$$

PART-III

25. $\lambda = \frac{1}{\sqrt{2} \pi n d^2} \rightarrow 1 \text{ mark}$

Substitution $\rightarrow 1 \text{ mark}$

Ans: $0.63 \times 10^{-3} \text{ m} \rightarrow 1 \text{ mark}$

26. Pastallax method.

Diagram $\rightarrow 1 \text{ mark}$

Introduction $\rightarrow 1 \text{ mark}$

upto answer $\rightarrow 1 \text{ mark}$

27. Diagram + Introduction $\rightarrow 1 \text{ mark}$

derivation $\rightarrow 2 \text{ mark}$

28. Centrifugal force = $\frac{mv^2}{r} \rightarrow 1$

$$\frac{60 \times 50 \times 50}{10}$$

Substitution $\rightarrow 1 \text{ mark}$

Answer $F = 15000 \text{ N} \rightarrow 1 \text{ mark}$

29. Total energy conserved $\rightarrow 1 \text{ mark}$

Reason $\rightarrow 2 \text{ mark}$

30. Kepler's laws

3 laws $\rightarrow 3 \text{ marks}$

31. Transverse vibration laws

3 laws → 3 marks

33. $\frac{F_1}{A_1} = \frac{F_2}{A_2} \rightarrow 1 \text{ mark}$

Substitution → 1 mark

$$F_2 = \underline{7200N}$$

PART-IV

34. $T \propto m^a l^b g^c \rightarrow 1 \text{ mark}$

Dimension → 1 mark

powers equating → 1 mark

finding a, b, c → 1 mark

$$T = 2\pi \sqrt{\frac{l}{g}} \rightarrow 1 \text{ mark}$$

(or)

Theorem → 1 mark

Diagram → 1 mark

Introduction → 1 mark

proof → 2 marks

35. 5 properties each → 5 marks

(or) Escape speed Definition → 1 mark

Diagram → 1 mark, Introduction → 1 mark

Derivation up to $v_e = \sqrt{2gR_e} \rightarrow 2 \text{ marks}$

36. LAW

Diagram \rightarrow 1/2 mark

Graph \rightarrow 1/2 mark

Derivation \rightarrow 3 marks
+ explanation

(OR)

(i) Power definition \rightarrow 1 mark

Derivation \rightarrow 1 mark

(ii) Power formula \rightarrow 1 mark $P = (F_{tot} + F_{resis}) \times velocity$

Substitution \rightarrow 1 mark

Answer = 22.5 kW \rightarrow 1 mark

37. Bernoulli's theorem: \rightarrow 1 mark

Diagram \rightarrow 1 mark

Total energy at A \rightarrow 1 mark

Total energy at B \rightarrow 1 mark

UP TO $\frac{P}{\rho} + \frac{v^2}{2} + gh = constant \rightarrow$ 1 mark

(OR)

T.E = P.E + K.E \rightarrow 1/2 mark

P.E (derivation) \rightarrow 1 1/2 mark

K.E (derivation) \rightarrow 1 1/2 mark

Total energy substitution \rightarrow

Answer T.E = $\frac{1}{2} m A^2 w^2$

Graph \rightarrow 1/2 mark

} \rightarrow 1 mark

38. Newtons formula \rightarrow 3 marks

Laplace correction \rightarrow 2 marks

(OR)

~~Diagram~~

Diagram \rightarrow 1 mark

F.B.D \rightarrow 1 mark

Derivation upto

$$a = g \sin \theta \rightarrow 3 \text{ mark}$$

Handling Teachers:

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