

14. If $a = 13, b = 14, c = 15$ then $r =$ _____ - []
 a. 2 b. 3 c. 4 d. 1
15. If $\angle C = 90^\circ$ then $2(r+R) =$ _____ - []
 a. $a-b$ b. $a+b$ c. $2(a+b)$ d. $2(a-b)$
16. $(b-c)^2 \cos^2 A/2 + (b+c)^2 \sin^2 A/2 =$ _____ []
 a. a b. a^2 c. $2a^2$ d. $\frac{a^2}{2}$
17. In $\Delta ABC, a = 2b, |A-B| = \frac{\pi}{3}$ then $\angle C =$ _____ - []
 a. 45° b. 60° c. 30° d. 75°
18. If $\sin \theta = \frac{a}{b+c}$ then $\frac{2\sqrt{bc}}{b+c} \cos A/2 =$ _____ []
 a. $\cos \theta$ b. $\sin \theta$ c. $\cot \theta$ d. $\tan \theta$
19. If $r:R:r_1 = 2:5:12$ then $\angle A =$ _____ []
 a. 30° b. 45° c. 60° d. 90°
20. If a, b, c are in AP then $\cos\left(\frac{A-C}{2}\right) \operatorname{cosec} B/2 =$ _____ - []
 a. -2 b. 2 c. 1 d. None

Physics

- 21 A body mass 5 kg at rest is acted upon by a force. Its velocity changes to 5m/s. find its initial and final momentum []
 a. 40 kg m/s,0 b. 0,25kgm/s c. 0,50kg m/s d. 20 kg m/s,0
- 22 Two stones of masses m_1 and m_2 are left fall from heights $2h$ and h , their momentum on reaching the ground are in the ratio []
 a. 1:1 b. $\sqrt{m_1} : \sqrt{m_2}$ c. $2m_1:m_2$ d. $\sqrt{2} m_1:m_2$
- 23 A car of mass 1800 kg moving with a speed of 10m/s is brought to rest after a covering a distance of 50m. calculate the force acting on the car []
 a. 1800N b. 900N c. 3600N d. 1600N
24. The force on a particle of mass 10g its $10\hat{i}+5\hat{j}$ N. if it starts from rest what was its position at time $t= 5$ sec? []
 a. $\left(12500\hat{i}+6250\hat{j}\right)m$ b. $-\left(1250\hat{i}+625\hat{j}\right)m$
 b. $-\left(12500\hat{i}+6250\hat{j}\right)m$ d. $\left(1250\hat{i}+625\hat{j}\right)m$
25. A 6kg ball strikes a vertical wall with a velocity 34m/s and rebounds with a velocity 26m/s. the impulse is []

- a. 60NS b. 180NS c. 45Ns d. 360Ns

26. Two blocks of masses m_1 and m_2 respectively are kept in contact on a frictionless table. The experimenter pushes the block A from behind so that the blocks accelerate. If the block 'A' exerts a force 'F' on the block B what is the force exerted by the experimenter on A []

- a. $F(1 + \frac{m_2}{m_1})$ b. $F(1 + \frac{m_1}{m_2})$ c. $F(1 - \frac{m_2}{m_1})$ d. $F(2 + \frac{m_2}{m_1})$

27. When a toothpaste tube is squeezed its shape changes. The force responsible for this is an example of []

- a. Balanced forces b. centripetal forces
b. unbalanced forces d. centrifugal forces

28. The particles of mud fly off tangentially from the wheel of a moving vehicle. This is due to []

- a. Inertia of rest b. inertia of motion c. inertia of direction d. both A & B

29. Action and reaction []

- a. Always exists in pairs c. always action opposite direction
b. Are equal in magnitude d. all the above are true

30. The apparent weight of a freely falling body is []

- a. Zero b. increased c. decreased d. constant

31. A body of mass m falls from a height h_1 rises a height h_2 . The magnitude of the change in momentum during the impact with the ground []

- a. $Mg(h_1 + h_2)$ b. $m(\sqrt{2gh_1} + \sqrt{2gh_2})$ c. $m(\sqrt{2gh_1} - \sqrt{2gh_2})$ d. zero

32. A constant force acts on a body of mass 10kg and produces in it an acceleration of 0.2 m/s^2 . Calculate the magnitude of force acting on the body []

- a. 1N b. 2N c. 3N d. 4N

33. A chain of length L and mass M is hung by fixing its upper end to a rigid support. Find the tension in the chain at a distance x from the rigid support. []

- a. $(1 - \frac{x}{L})Mg$ b. $(\frac{x}{L})Mg$ c. $(1 + \frac{x}{L})Mg$ d. none of these

34. A uniform rope of length L resting on a smooth horizontal floor is pulled at one end by a force F . Find the tension in the rope at a distance $\frac{1}{4}L$ from the end where the force is applied []

- a. F b. $F/2$ c. $F/4$ d. $3F/4$

35. A block of mass 0.2 kg is suspended from the ceiling by a light string. A second block of mass 0.3 kg is suspended from the first block through another string. Find the tension in the two strings. Take $g = 10 \text{ m/s}^2$ []

50. IP_1 value of chlorine is 12eV and electron affinity of chlorine is 3.6 eV number of chlorine atoms in the gaseous state that can be ionised by utilising the energy that is liberated in the Process $\text{Cl}_{(g)} + e^- \rightarrow \text{Cl}_{(g)}^-$ involving one mole of chlorine atoms is []
- a. 1.3×10^{23} b. 3 c. 3×10^{23} d. 1.8×10^{22}