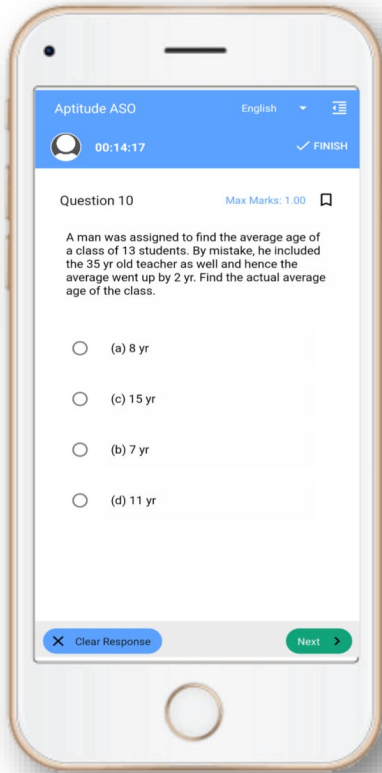


# OSSTET Exam- Mock Test, PYQS , Note, E-Books Get Now On [App](#)



[Tech Of World](#)  
[Download App](#)



[Click Here](#)

 [YouTube- Click Here](#)

 [Telegram- Click Here](#)

 [Facebook- Click Here](#)

non/len? (6)

## B-SECTION - III

## SCIENCE (PCM)

## PHYSICS

41. An electric bulb rated 200V and 100W is connected to a 160V power supply. What power will be consumed by the bulb ?
- (A) 64 W                      (B) 80 W  
(C) 100 W                    (D) 160 W
42. The radius R of a soap bubble is increased to 2R. What is the percentage change in the excess pressure inside the soap bubble ?
- (A) 100                      (B) 75  
(C) 50                        (D) -50
43. A copper wire is of the same length but double the diameter of a steel wire. Both the wires hung from the same roof are stretched by the same stretching force.  $\Delta l_c$  and  $Y_c$  are the elongation and Young's modulus of copper respectively whereas  $\Delta l_s$  and  $Y_s$  are the same for steel. If  $Y_c = 5Y_s$ , then what is  $\Delta l_c / \Delta l_s$  ?
- (A) 0.125                    (B) 0.50  
(C) 1.00                     (D) 2.00
44. A steel ball of radius 4 cm has a mass of 1.25 kg in air. When weighed inside a liquid its weight becomes
- 8N. What is the force of buoyancy on the ball if  $g = 10 \text{ m/s}^2$  ?
- (A) 1.56 N                    (B) 3.6 N  
(C) 4 N                        (D) 4.5 N
45. What is the name of the process involved in the sound wave propagation in air ?
- (A) Isothermal                (B) Isochoric  
(C) Adiabatic                (D) Isobaric
46. The relative velocity of B with respect to (w. r. t) A is 30 cm/s due north and that of C w. r. t. B is 30 cm/s due west. Then what is the relative velocity of C w. r. t. A in cm/s ?
- (A)  $30\sqrt{2}$  in north-west direction  
(B)  $30\sqrt{2}$  in east-north direction  
(C)  $15\sqrt{2}$  in north-west direction  
(D)  $15\sqrt{2}$  in north-east direction
47. A sleeping dog starts running with a uniform acceleration of  $2\text{m/s}^2$  when a rabbit crosses it in a straight, narrow passage. It catches the rabbit after covering 36 m. What is the distance covered by the dog in the last second ?
- (A) 25 m                      (B) 13 m  
(C) 11 m                      (D) 06 m

48. What is the minimum distance between an object and its real image formed by a convex lens of focal length  $f$ ?
- (A) Zero  
(B)  $2f$   
(C)  $3f$   
(D)  $4f$
49. In a Young's double slit experiment  $I_{\max} : I_{\min} = 49 : 9$  ( $I_{\max}/I_{\min} = 49/9$ ), where  $I$  stands for the intensity of the interference pattern. What is the ratio of  $I_a : I_b$  where  $I_a$  and  $I_b$  stand for the intensities of the coherent sources  $a$  and  $b$ . Assume that  $I_a > I_b$ .
- (A) 2 : 5                      (B) 5 : 2  
(C) 4 : 25                     (D) 25 : 4
50. The  $-ve$  and  $+ve$  charges of a dipole of moment  $\vec{p}$  are placed at points  $-ia$  and  $+ia$ . The electric field intensity due to the dipole at the point located at  $jy$  in air where  $y \gg a$  is:
- (A)  $\vec{p}/4\pi\epsilon_0 y^3$   
(B)  $-\vec{p}/4\pi\epsilon_0 y^3$   
(C)  $\vec{p}/2\pi\epsilon_0 y^3$   
(D)  $-\vec{p}/2\pi\epsilon_0 y^3$
51. An object is placed perpendicularly to the axis of a concave mirror so that the image formed is erect and magnified. What is the position of the object in front of the mirror?
- (A) Between its pole and focus  
(B) At its focus  
(C) Between its focus and centre of curvature  
(D) Beyond its centre of curvature
52. A  $2\mu\text{F}$  capacitor only is connected to the terminals of  $220\text{V}$  a. c. source of frequency  $50\text{ Hz}$ . What is the reactance of the circuit?
- (A)  $\frac{5 \times 10^{-3}}{\pi}$  Ohm  
(B)  $\frac{5 \times 10^3}{\pi}$  Ohm  
(C)  $5\pi \times 10^3$  Ohm  
(D)  $5\pi \times 10^{-3}$  Ohm
53. A charge of  $0.2\text{C}$  moves with a velocity  $\vec{v} = (3\hat{i} + 4\hat{j})\text{m/s}$  in a uniform magnetic field of  $B = 5\hat{k}\text{T}$ . What is the magnetic force experienced by the charge?
- (A)  $(4\hat{i} + 3\hat{j})\text{ N}$   
(B)  $(4\hat{i} - 3\hat{j})\text{ N}$   
(C)  $(3\hat{j} - 4\hat{i})\text{ N}$   
(D)  $(-4\hat{i} - 3\hat{j})\text{ N}$
54. Assume that the semi major axis of Jupiter is half of that of Saturn. If the time period of revolution of Jupiter is taken to be  $x$  years, what will be the time period of revolution of Saturn in years?
- (A)  $2x$   
(B)  $2\sqrt{2}x$   
(C)  $3x$   
(D)  $3\sqrt{2}x$

55. A projectile is projected with a speed of 10 m/s in a direction which makes  $30^\circ$  with the horizontal. Another projectile projected with the same initial speed from the same point but in a different direction, covers the same horizontal range as the first one. Then what is  $H_1 : H_2$ , where  $H_1$  and  $H_2$  are the maximum heights to which the first and the second projectiles rise ?
- (A) 1 : 1  
(B) 1 : 2  
(C) 1 : 3  
(D) 1 : 4
56. A hollow spherical shell of radius 40 cm contains two point charges  $3q$  and  $-3q$  placed at points separated by 30 cm inside the shell. What is the flux of the electric field due to the charges through the surface of the shell ?
- (A) Zero  
(B)  $3q/\epsilon_0$   
(C)  $6q/\epsilon_0$   
(D)  $qq^2/\epsilon_0$
- (Where  $\epsilon_0$  is the permittivity of air)
57. Which physical property of the geostationary satellite is common with that of earth ?
- (A) Linear velocity  
(B) Linear acceleration  
(C) Angular velocity  
(D) Angular momentum
58. A coil of area  $06\text{m}^2$  is placed in a magnetic field of 1T such that maximum flux is linked with it. When the coil is rotated for 0.15s the flux is reduced by 25%. What is the instantaneous induced emf in the coil ?
- (A) 0.15 V      (B) 0.60 V  
(C) 1V      (D) 1.5V
59. In the given wave equation  $y = 60 \sin \frac{\pi}{3} (6t - x)$ , what are the values of wavelength and frequency respectively if all the quantities are expressed in S. I. system ?
- (A) 3, 2      (B) 2, 3  
(C) 6, 1      (D) 1, 6
60. A straight wire of length  $l$  carries current  $I$ . When it is bent into a circular loop of radius  $r$ , the magnetic field at its centre is  $B$ . If it is bent into a loop of two turns the magnetic field at its centre is  $B_1$ . Then which of the following relations is correct ?
- (A)  $B_1 = B/4$       (B)  $B_1 = B/2$   
(C)  $B_1 = B$       (D)  $B_1 = 4B$