ACE OF PACE
Sample Paper (Medical)
Grade X moving XI

(SOLUTION)

Physic

1.   Sol:

Force **Solution:** A vector quantity has both magnitude and direction. Force satisfies this condition, whereas work, energy, and power are scalars.

2.   Sol:

$10\ N$ **Solution:** By Newton's second law, $F = ma = 5 \times 2 = 10$ N.

3.   Sol:

Mass **Solution:** Inertia is the tendency of a body to resist changes in its state of motion, and it depends directly on the mass of the object.

4.   Sol:

Downward gravitational force only **Solution:** Once released, no force is applied by the hand. Only gravity acts downward.

5.   Sol:

$40\ s$ **Solution:** Momentum initially $= mv = 1000 \times 20 = 20000\ kg \cdot m/s$.
Force $F = \Delta p / \Delta t \Rightarrow \Delta t = \dfrac{20000}{500} = 40\ s$.

6.   Sol:

All of the above **Solution:** Work is $W = Fd\cos\theta$. If $d = 0$, or $F = 0$, or $\theta = 90°$, then $W = 0$.

7.   Sol:

$400\ J$ **Solution:** Work $= mgh = 20 \times 10 \times 2 = 400\ J$.

8.   Sol:

$2000\ J$ **Solution:** Work $=$ Power $\times$ Time $= 200 \times 10 = 2000\ J$.

9.   Sol:

$50\ J$ **Solution:** $KE = \frac{1}{2}mv^2 = 0.5 \times 1 \times 100 = 50\ J$.

10.   Sol:

$100\ J$ **Solution:** $PE = mgh = 2 \times 10 \times 5 = 100\ J$.

11. Sol:

 60° **Solution:** By law of reflection, $\angle i = \angle r = 30°$. Hence total angle $= 30 + 30 = 60°$.

12. Sol:

 Focus **Solution:** Rays coming from infinity are parallel and after reflection converge at the focus.

13. Sol:

 2.0×10^8 m/s **Solution:** $v = \dfrac{c}{\mu} = \dfrac{3 \times 10^8}{1.5} = 2 \times 10^8 \ m/s$.

14. Sol:

 It bends towards the normal **Solution:** In a denser medium, speed decreases and ray bends towards the normal.

15. Sol:

 $+2$ D **Solution:** Power $P = 100/f$ $(f \ in \ cm) = 100/50 = +2 \ D$.

Chemistry

16. Soln.: (1)

17. Soln.: (3)

18. Soln.: (4)

19. Soln.: (3)

20. Soln.: (3)

21. Soln.: (2)

22. Soln.: (1)

23. Soln.: (1)

24. Soln.: (3)

25. Soln.: (1)

26. Soln.: (1)

27. Soln.: (2)

28. Soln.: (1)

29.   Soln.: (4)

30.   Soln.: (2)

Biology

31.   Sol: (2)
Cell is the basic structural & functional unit of life

32.   Sol: (4)

33.   Sol: (2)
Anaphase is a phase where spindle fibre mones away from each other in opposite poles leads to separation of sister chromatids

34.   Sol: (4)

35.   Sol: (3)
Fly has chromosome present in pairs (2n). Egg is a gamete which is haploid fuses with sperm (n) to form (2n) 2ygote.

36.   Sol: (3)

37.   Sol: (4)

38.   Sol: (2)

39.   Sol: (4)Bryophyllum shows vegetative propagation through leaf.

40.   Sol: (1)

41.   Sol: (3)
Common cold and AIDS both are viral disease.

42.   Sol: (1)

43.   Sol: (3)
Fungi shows Fragmentation, budding, etc but not regeneration while Planaria truely regenerate during its life cycle. Mossess shows fragmentation for propagation of their progenies. Thallus tip, protonema fragments and even rhizoids can grow into new moss thallus.

44.   Sol: (1)

45.   Sol: (1)
Golgi apparatus is a cellular organelle which is involved in in the modifying, sorting and packaging of proteins for secretion. Mitochondria are known as the power house of the cell as they are the site of chemical reactions that transfer energy from organic compounds in ATP. Vacuole is a membrane bound organelle and filled with water containing inorganic and organic molecules including enzymes in solution. Vacuoles might store food or any variety of nutrients a cell might need to survive. Grana are a

stacked membranous structure within the chloroplasts of plants and green algae that contains the chlorophyll and is the site of the light reactions of photosynthesis.

46.   Sol: (2)

47.   Sol: (1)

48.   Sol: (1)

49.   Sol: (3)

50.   Sol: (4)