



**Class – X (Going to XI)**  
**Duration : 2 hrs. | Maximum Marks : 180**

### **IMPORTANT INSTRUCTIONS**

1. This Booklet is your Question Paper. DO NOT break seal of Booklet until the invigilator instructs to do so.
2. Fill your APRE Roll No. & Answer Sheet No. in the space provided on the cover page.
3. Please make sure that paper you received is of your class only.
4. The Answer Sheet is provided to you separately which is a machine readable Optical Response Sheet (ORS).  
You have to mark your answers in the ORS by darkening bubble, as per your answer choice, by using black or blue ball point pen.
5. After breaking the Question Paper seal, check there are 11 pages in the booklet. This Question Paper contains 60 MCQs with 4 choices (Subjects: Physics: 20, Chemistry: 20, Biology: 20)
6. Think wisely before darkening bubble as there is negative marking for wrong answer. Answer once marked by pen cannot be cancelled.
7. Marking Scheme:
  - a. If darkened bubble is RIGHT answer: 3 Marks.
  - b. If darkened bubble is WRONG answer: 1 Mark (Minus One Mark).
  - c. If no bubble is darkened in any question: No Mark.
8. If you are found involved in cheating or disturbing others, then your ORS will be cancelled.
9. Do not put any stain on ORS and hand. It over back properly to the invigilator.

**Name of the Candidate:** \_\_\_\_\_

**Registration Number:** \_\_\_\_\_

# PHYSICS

1. In a plane mirror, an object is 0.5 m in front of the mirror. The distance between object and image is –  
(A) 0.5 m                      (B) 1 m                      (C) 0.25 m                      (D) 0.75 m
2. Air is not visible because it-  
(A) is nearly a perfectly transparent                      (B) neither absorbs nor reflects light  
(C) transmits whole of light                      (D) all of the above are correct
3. A light ray falls on a mirror and deviates by  $60^\circ$  then the angle of reflection will be  
(A)  $30^\circ$                       (B)  $90^\circ$                       (C)  $60^\circ$                       (D)  $180^\circ$
4. The image formed by a concave mirror is observed to be virtual, erect and larger than the object. then the position of the object should be-  
(A) between the focus and the centre of curvature                      (B) at the centre of curvature  
(C) beyond the centre of curvature                      (D) between the pole of the mirror and the focus
5. How will the image formed by a convex lens be affected, if the central portion of the lens is wrapped in black paper, as shown in the fig.



- (A) No image will be formed
- (B) Full image will be formed but it is less bright
- (C) Full image will be formed but without the central portion
- (D) Two images will be formed, one due to each exposed half.

6. Refractive index of glass with respect to air is 1.5 and refractive index of water with respect to air is  $\frac{4}{3}$ . What will be the refractive index of glass with respect to water?  
(A) 1 (B) 1.5 (C) 1.125 (D) -10
7. A swimming pool appears to be 2m deep. Its actual depth is ( $\mu$  for water = 1.33)-  
(A) 2.66 m (B) 2 m (C) 2.34 (D) 2.54 m
8. The power of a lens having focal length 50 cm is-  
(A)  $\frac{1}{2}$ D (B) 2D (C) 3D (D) 0.2 D
9. Focal length of coloured goggles (Without number) is-  
(A) zero (B) infinity  
(C) between zero and infinity (D) None of these
10. The focal length of eye lens is controlled by :  
(A) Iris (B) Cornea (C) Ciliary muscles (D) Optic nerve
11. Rainbow is formed due to-  
(A) reflection and dispersion of light through the water droplets  
(B) total internal reflection, refraction and dispersion of light through the water droplets  
(C) only dispersion of light  
(D) only refraction of light
12. Convex lens of suitable focal length can correct-  
(A) short sightedness (B) long sightedness (C) presbyopia (D) astigmatism
-

13. A ray of light travelling in air falls on the surface of a transparent material at an angle of  $45^\circ$  to the normal. It bends by  $15^\circ$  after refraction. Find the refractive index of the material.
- (A)  $\sqrt{3}$                       (B)  $\sqrt{2}$                       (C)  $\sqrt{7}$                       (D) 0
14. A boy stands straight in front of a mirror at a distance of 30 cm away from it. he sees his erect image whose height is  $\frac{1}{5}$ th of his real height. The mirror he is using is:
- (A) plane mirror              (B) convex mirror              (C) concave mirror              (D) plano-concave mirror
15. The distance of an object from the focus of a concave mirror of focal length  $f$  is  $x$  & the distance of the real image from the focus is  $y$ . Then
- (A)  $\frac{1}{x} + \frac{1}{y} = \frac{1}{f}$               (B)  $\frac{1}{x} - \frac{1}{y} = \frac{1}{f}$               (C)  $xy = f^2$                       (D) None of these
16. The difference between reflection and total internal reflection is that
- (A) the laws of reflection hold true for reflection but not for total internal reflection.
- (B) total internal reflection can take place only when light travels from a rarer medium to a denser medium while reflection can take place vice-versa also.
- (C) reflection can take place when light travels from a rarer medium to denser medium and vice-versa but total internal reflection can take place only when it travels from an optically denser to an optically rarer medium.
- (D) reflection is a natural phenomena while total internal reflection is man-made
17. A normal eye is not able to see objects closer than 25 cm because
- (A) the focal length of the eye is 25 cm
- (B) the distance of the retina from the eye-lens is 25 cm
- (C) the eye is not able to decrease the distance between the eye-lens and the retina beyond a limit
- (D) the eye is not able to decrease the focal length beyond a limit
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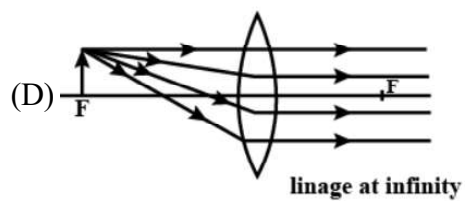
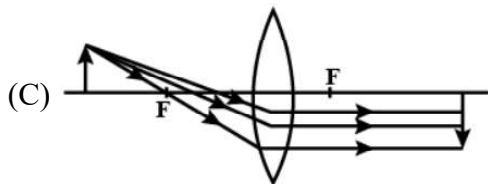
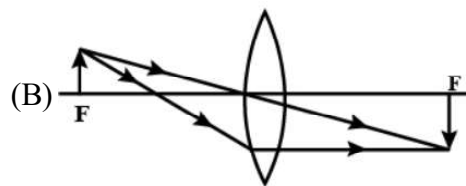
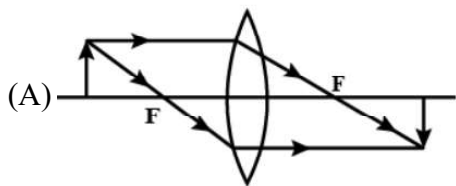
18. To read a poster on a wall, a person with defective vision needs to stand at a distance of 0.4 m from the poster. A person with normal vision can read the poster from a distance of 2.0 m. Which one of the following lens may be used to correct the defective vision?

- (A) A concave lens of 0.5 D                      (B) A concave lens of 1.0 D  
 (C) A concave lens of 2.0 D                      (D) A convex lens of 2.0 D

19. An object is placed at a distance  $2f$  from the pole of a convex mirror of focal length  $f$ . The linear magnification is

- (A)  $\frac{1}{3}$                       (B)  $\frac{2}{3}$                       (C)  $\frac{3}{4}$                       (D) 1

20. Which of the following ray diagram is correct?



# CHEMISTRY

21. The process of reduction involves  
(A) addition of oxygen (B) addition of hydrogen  
(C) removal of oxygen (D) removal of hydrogen
22. Which of the following is an endothermic process?  
(A) Dilution of sulphuric acid (B) Sublimation of dry ice  
(C) Condensation of water vapours (D) Respiration in human beings
23. When  $\text{SO}_2$  gas is passed through saturated solution of  $\text{H}_2\text{S}$ , which of the following reaction occurs?  
(A)  $\text{SO}_2 + 2\text{H}_2\text{S} \rightarrow 2\text{H}_2\text{O} + 3\text{S}$  (B)  $\text{SO}_2 + 2\text{H}_2\text{S} \rightarrow \text{H}_2\text{O} + 3\text{S}$   
(C)  $\text{SO}_2 + \text{H}_2\text{S} \rightarrow \text{H}_2\text{O} + \text{S}$  (D)  $\text{SO}_2 + \text{H}_2\text{O} \rightarrow \text{SO}_3 + \text{H}_2$
24.  $\text{Pb} + \text{CuCl}_2 \rightarrow \text{PbCl}_2 + \text{Cu}$   
The above reaction is an example of:  
(A) combination (B) double displacement  
(C) decomposition (D) displacement
25. Which of the following involves combination of two elements ?  
(A)  $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightarrow 2\text{NH}_3(\text{g})$  (B)  $\text{CaO}(\text{s}) + \text{CO}_2(\text{g}) \rightarrow \text{CaCO}_3(\text{g})$   
(C)  $2\text{SO}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow 2\text{SO}_3(\text{g})$  (D)  $\text{NH}_3(\text{g}) + \text{HCl}(\text{g}) \rightarrow \text{NH}_4\text{Cl}(\text{s})$
26. Which of the following is a thermal decomposition reaction ?  
(A)  $2\text{H}_2\text{O} \rightarrow 2\text{H}_2 + \text{O}_2$  (B)  $2\text{AgCl} \rightarrow 2\text{Ag} + \text{Cl}_2$   
(C)  $\text{ZnCO}_3 \rightarrow \text{ZnO} + \text{CO}_2$  (D)  $\text{H}_2(\text{g}) + \text{Cl}_2(\text{g}) \rightarrow 2\text{HCl}(\text{g})$
27. Barium chloride on reacting with ammonium sulphate forms barium sulphate and ammonium chloride. Which of the following correctly represents the type of the reaction involved ?  
(i) Displacement reaction (ii) Precipitation reaction  
(iii) Combination reaction (iv) Double displacement reaction  
(A) (i) only (B) (ii) only (C) (iv) only (D) (ii) and (iv)

28.  $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$  is  
 (A) Washing soda (B) Baking soda (C) Bleaching powder (D) Tartaric acid
29. Which of the following statements is correct about an aqueous solution of an acid and of a base?  
 (i) Higher the pH, stronger the acid (ii) Higher the pH, weaker the acid  
 (iii) Lower the pH, stronger the base (iv) Lower the pH, weaker the base  
 (A) (i) and (iii) (B) (ii) and (iii) (C) (i) and (iv) (D) (ii) and (iv)
30. Rain is called acid rain when its:  
 (A) pH falls below 7 (B) pH falls below 6 (C) pH falls below 5.6 (D) pH is above 7
31. Sodium hydroxide is a  
 (A) weak base (B) weak acid (C) strong base (D) strong acid
32. Sodium hydroxide is used  
 (A) as an antacid (B) in manufacture of soap  
 (C) as a cleansing agent (D) in alkaline batteries
33. A solution of NaCl  
 (i) will turn red litmus blue (ii) will turn pH paper green  
 (iii) will turn blue litmus red (iv) will not affect litmus  
 (A) (i) and (ii) (B) (i), and, (iii) (C) (i) and (iv) (D) (ii) and (iv)
34. Curd cannot be stored in  
 (i) Brass vessel (ii) Copper vessel (iii) Steel (iv) Bronze  
 (A) (i), (ii), (iii) (B) (ii), (iii), (iv) (C) (i), (ii), (iv) (D) (i), (iii), (iv)
35. Lime water reacts with chlorine to form  
 (A)  $\text{CaCl}_2$  (B)  $\text{CaOCl}_2$  (C)  $\text{Ca}(\text{ClO}_3)_2$  (D)  $\text{CaO}_2\text{Cl}_2$
36. The brown gas evolved on heating of copper nitrate is  
 (A)  $\text{O}_2$  (B)  $\text{NO}_2$  (C)  $\text{N}_2$  (D) NO

37. Which of the following gives the correct increasing order of acidic strength ?  
(A) Water < Acetic acid < Hydrochloric acid    (B) Water < Hydrochloric acid < Acetic acid  
(C) Acetic acid < Water < Hydrochloric acid    (D) Hydrochloric acid < Water < Acetic acid
38. Which of the following salts does not contain water of crystallisation?  
(A) Blue vitriol                      (B) Baking soda                      (C) Washing soda                      (D) Gypsum
39. Calcium phosphate is present in tooth enamel. Its nature is  
(A) basic                                  (B) acidic                                  (C) neutral                                  (D) amphoteric
40. Which of the following statement is not correct?  
(A) All metal carbonates react with acid to give salt, water and carbon dioxide.  
(B) All metal oxides react with water to give salt and acid.  
(C) Some metals react with acids to give salt and hydrogen.  
(D) Some non-metal oxides react with water to form an acid.



# BIOLOGY

41. In amoeba, food is digested in the  
(A) Food vacuole      (B) Mitochondria      (C) Pseudopodia      (D) Chloroplast
42. The contraction and expansion movement of the walls of the food pipe is called  
(A) Translocation      (B) Transpiration  
(C) Peristaltic movement      (D) Digestion
43. The respiratory pigment in human beings is  
(A) Carotene      (B) Chlorophyll      (C) Haemoglobin      (D) Mitochondria
44. Which of the following is the important characteristic of Emphysema?  
(A) Destruction of the alveolar wall and air sacs in the lungs are damaged  
(B) Increase in the growth of the lung tissue  
(C) Inflammation in the wall of the bronchi  
(D) Thickening of the artery walls of the lungs
45. How is food transported from the phloem to the tissues according to plants needs?  
(A) Food is transported along with the water in the plant's body  
(B) Food is transported in only one direction, like water in the plant body through the xylem  
(C) Food is transported from a region with a low concentration to a higher concentration  
(D) Food is transported from the region where it is produced to other parts of the plants
46. Humans have two different sex chromosomes, X and Y. Based on Mendel's laws, a male offspring will inherit which combination of chromosomes?  
(A) Both the X chromosomes from one of its parents  
(B) Both the Y chromosomes from one of its parents  
(C) A combination of X chromosomes from either of its parents  
(D) A combination of X and Y chromosomes from either of its parents
47. Organisms depend on hormones as well as electric impulses for the transmission of signals from the brain to the rest of the body. What can be a likely advantage of hormones over electric impulses?  
(A) It is secreted by all types of cells present in the body.
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- (B) It is secreted by stimulated cells and reaches all cells of the body.
- (C) It is relayed to the target organ faster than electric impulses.
- (D) It does not depend on an external stimulus to be generated in the cells.

48. Which of the following is not a part of hind brain?  
(A) Medulla oblongata (B) Thalamus (C) Cerebellum (D) Pons
49. Which part of the brain regulates the body temperature, hunger and water balance?  
(A) Hypothalamus (B) Infundibulum (C) Medulla oblongata (D) Pons varoli
50. Which part of brain controls emotions like love, anger and pleasure?  
(A) Medulla oblongata (B) Hypothalamus (C) Cerebrum (D) Cerebellum
51. Fruits are formed from the  
(A) Stamen (B) Stigma (C) Ovary (D) Ovule
52. Which of the following diseases is transmitted sexually?  
(A) Kala Azar (B) Jaundice (C) Cholera (D) Syphilis
53. Which of the following is a contraceptive?  
(A) Copper T (B) Condom (C) Diaphragm (D) All of these
54. What conclusion can be made about the division in plasmodium?  
(A) The cyst repeatedly divides to form many daughter cells.  
(B) The cell divides multiple times giving rise to many daughter cells.  
(C) The nucleus repeatedly divides inside the cell to form new daughter cells.  
(D) The cyst enlarges in size and then bursts, producing many new daughter cells.
55. Which section of DNA provides information for one protein?  
(A) Nucleus (B) Chromosome (C) Trait (D) Gene
56. The movement of food in phloem is called  
(A) transpiration (B) translocation (C) respiration (D) evaporation
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57. Which of the following statement is incorrect?  
(A) For every hormone there is a gene.  
(B) For every protein there is a gene.  
(C) For production of every enzyme there is a gene.  
(D) For every molecule of fat there is a gene.
58. Given below are two statements  
*i.* Amphibians and reptiles have a 3-chambered heart with two atria and a single ventricle, and are oviparous in nature.  
*ii.* Crocodiles possess a 4 chambered heart with two ventricles and two atria and are viviparous in nature.
- Select the most appropriate option  
(A) *i* is correct but *ii* is incorrect  
(B) *i* is incorrect but *ii* is correct  
(C) Both *i* and *ii* are correct  
(D) Both *i* and *ii* are incorrect
59. Single circulation, i.e., blood flows through the heart only once during one cycle of passage through the body, is exhibited by which of the following:  
(A) hyla, rana, draco  
(B) whale, dophin, turtle  
(C) labeo, chameleon, salamander  
(D) hippocampus, exocoetus, anabas
60. Name a circulatory fluid in the human body other than blood.  
(A) Platelets  
(B) RBC  
(C) Lymph  
(D) Plasma
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