

Sample/Pre-Board Paper 13
Class X Term 1 Exam Nov -Dec 2021
Science (086)

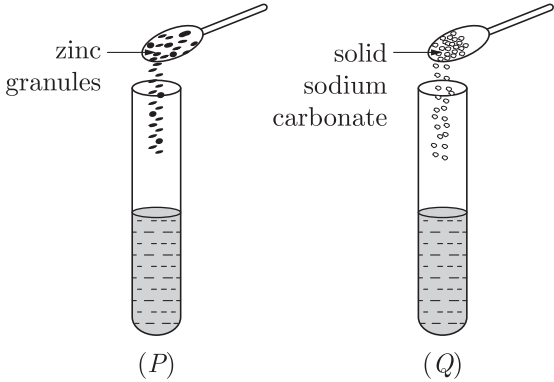
Time: 90 Minutes

General Instructions:

1. The question paper contains three sections.
 2. Section A has 24 questions. Attempt any 20 questions.
 3. Section B has 24 questions. Attempt any 20 questions.
 4. Section C has 12 questions. Attempt any 10 questions.
 5. All questions carry equal marks.
 6. There is no negative marking.
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Section A

Section – A consists of 24 questions. Attempt any 20 questions from this section.
The first attempted 20 questions would be evaluated.

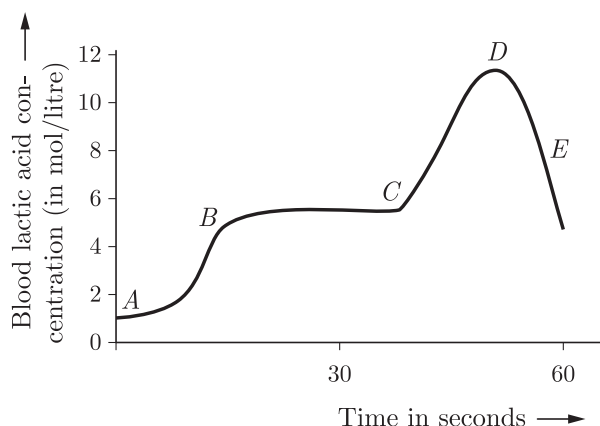
1. When the powder of a common metal is heated in an open china dish, its colour turns black. However, when hydrogen is passed over the hot black substance so formed, it regains its original colour.
Which type of chemical reaction take place in each step?
(a) oxidation, redox (b) redox, oxidation
(c) oxidation, oxidation (d) redox, redox
2. A student took two test tubes containing 2 mL of dilute hydrochloric acid and added zinc granules to test tube (*P*) and solid sodium carbonate to test tube (*Q*) as shown below.


(P) (Q)

The correct observation would be
(a) no reaction in any of the test tube
(b) rapid reaction in both the test tubes
(c) slow reaction in (*P*) and rapid reaction in (*Q*)
(d) rapid reaction in (*P*) but a slow reaction in (*Q*)
3. Which of the following metals are obtained by electrolysis of their chlorides in molten state?
1. Na 2. Ca
3. Fe 4. Cu
(a) 1 and 4 (b) 3 and 4
(c) 1 and 3 (d) 1 and 2
4. The reaction between nitrogen and hydrogen to give ammonia is an example of :
(a) displacement reaction
(b) combination reaction
(c) decomposition reaction
(d) oxidation reaction
5. Which of the following salts does not contain water of crystallization?
(a) Blue vitriol (b) Baking soda
(c) Washing soda (d) Gypsum
6. Which of the following is correct regarding the oxidizing agent?
(a) It gives oxygen for oxidation.
(b) It does not gives oxygen for oxidation.
(c) It does not remove hydrogen.
(d) It gives oxygen and does not remove hydrogen.
7. $2\text{Mg(s)} + \text{O}_2\text{(g)} \longrightarrow 2\text{MgO(s)}$
The stoichiometric coefficient of O_2 is:
(a) 1 (b) 2
(c) 3 (d) 4
8. is obtained by passing Cl_2 over dry slaked lime.
(a) Plaster of paris (b) Bleaching powder
(c) Banking soda (d) Washing soda
9. $2\text{NaOH} + \text{Zn} \longrightarrow \text{X} + \text{H}_2$
Here *X* is
(a) Na_2ZnO_2 (b) NaZnO_2
(c) Na_2ZnO (d) Na_3ZnO_2

10. Which of the following is the chemical change?
- (a) burning of paper (b) boiling of water
- (c) breaking of glass (d) melting of butter

11. Study the graph below that represents the blood test reports of an athlete just before and after a race.



Choose the correct combination of plots provided in the following table.

	Section of race	Concentration of lactic acid	Type of respiration
(a)	A-B (sprint start)	Changing high to low	Changing from anaerobic to aerobic
(b)	B-C (maintaining speed)	High to low	Anaerobic
(c)	C-D (sprint finish)	High	Aerobic
(d)	D-E (just after sprint finishing)	Low	Aerobic

12. The reason for swelling of guard cell is due to the presence of

- (a) Sunlight (b) Food
- (c) Water (d) Carbon dioxide

13. Since the environment is not under the control of the individual organism, the outside source of energy is quite:

- (a) Varied
- (b) Same
- (c) Differ from case to case
- (d) Under the control of organism

14. Movement of the synthesized products from the leaves to the roots and other parts of a plant's body takes place through the phloem. This process is known as?

- (a) Translocation (b) Transpiration
- (c) Transportation (d) Excretion

15. The process of diffusion of solvent particles from the region of less solute concentration to a region of high solute concentration through semi-permeable membrane is known as

- (a) Diffusion (b) Osmosis
- (c) Translocation (d) Transpiration

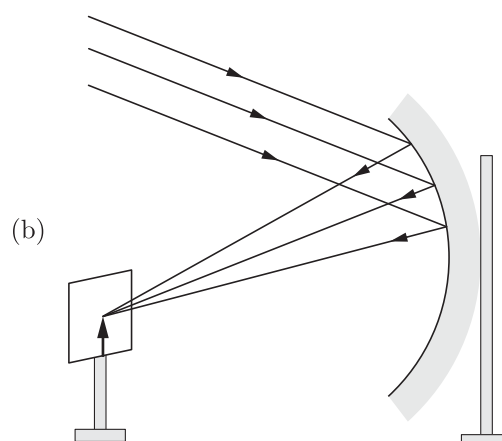
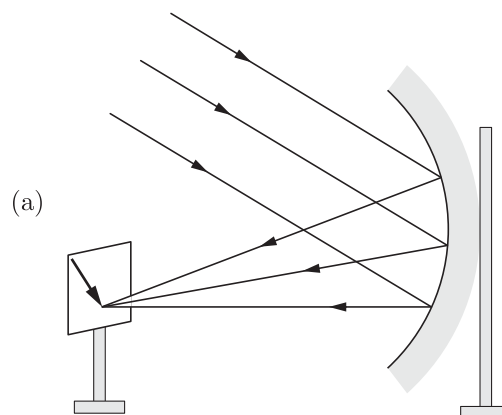
16. The function of valves present in auricles and ventricles is-

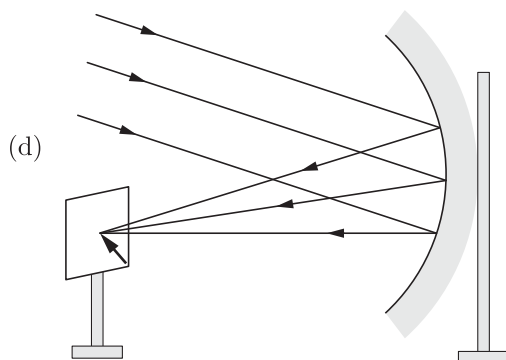
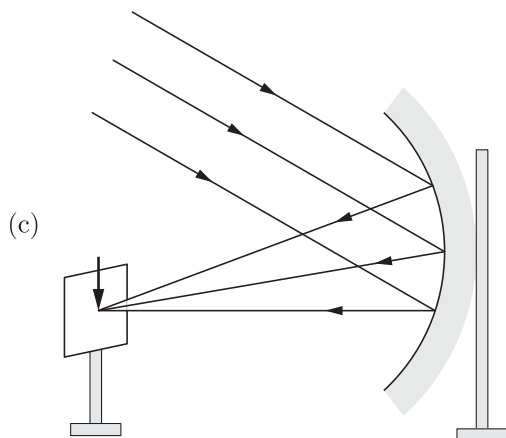
- (a) It ensures that the blood flows only in one direction.
- (b) Helps in coagulation of blood
- (c) Destroy the worn out blood cells
- (d) Measure pressure of body fluids

17. An object is immersed in a fluid. In order that the object becomes invisible, it should

- (a) Behave as a perfect reflector
- (b) Absorb all light falling on it
- (c) Have refractive index one
- (d) Have refractive index exactly matching with that of the surrounding fluid

18. Parallel rays from the top of a distant object, incident on a concave mirror form an image on the screen. The diagram correctly showing the image of the object on the screen in figure is:



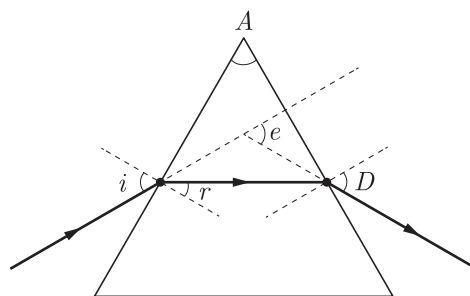


19. The rays from the sun converge at a point 25 cm in front of a concave mirror. Where should an object be kept so that size of its image is equal to size of the object?
- 12.5 cm in front of the mirror
 - 25 cm in front of the mirror
 - 50 cm in front of the mirror
 - between 25 cm and 30 cm in front of the mirror
20. Which of the following can make a parallel beam of light when light from a point source is incident on it?
- Concave mirror as well as convex lens.
 - Convex mirror as well as concave lens.

- Two plane mirrors placed at 90° to each other.
- Concave mirror as well as concave lens.

21. An object is at a distance of 0.5 m in front of a plane mirror. Distance between the object and image is-
- 0.5 m
 - 1 m
 - 0.25 m
 - 1.5 m
22. When two converging lenses of same focal length f are placed in contact, the focal length of the combination is
- f
 - $2f$
 - $\frac{f}{2}$
 - $3f$
23. The light reflected by a plane mirror will form a real image
- under no circumstances.
 - if object is placed close to the mirror.
 - if rays incident on mirror are parallel.
 - if rays incident on mirror are converging.

24.



Which of the following angles are correctly marked in the above ray diagram?

- $\angle i$, $\angle A$ and $\angle D$
- Only $\angle i$ and $\angle A$
- $\angle i$, $\angle r$ and $\angle A$
- All of the angles

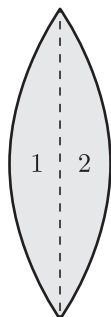
Section B

Section - B consists of 24 questions (Sl. No.25 to 48). Attempt any 20 questions from this section. The first attempted 20 questions would be evaluated.

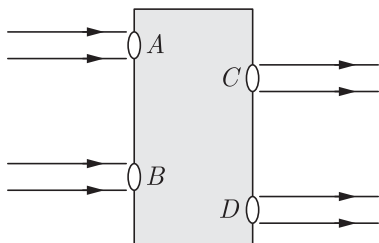
25. Bleaching powder is soluble in cold water giving a milky solution due to-
- The absorption of carbon dioxide from atmosphere
 - available chlorine
 - lime present in it
 - calcium carbonate formation
26. Bleaching powder gives smell of chlorine because it-
- contains excess of chlorine
 - is a mixture of chlorine and slaked lime
 - is unstable
 - gives chlorine on exposure to atmosphere
27. Which of the following is the best conductor of heat?
- Silver
 - Iron
 - Gold
 - Aluminium

28. The properties that are NOT possessed by non-metals are:
 (a) Low density
 (b) Brittleness
 (c) Malleability
 (d) Non-conductivity
29. Some of the substances used in making of a modern safety match box are listed below :
 1. Antimony trisulfide
 2. Glass powder
 3. Potassium chlorate
 4. Red phosphorus
 The head of modern safety match stick contains :
 (a) 1 and 4 (b) 2 and 3
 (c) 3 and 4 (d) 3 and 1
30. Electrical wires have a coating of an insulating material. The material, generally used is
 (a) Sulphur
 (b) Graphite
 (c) PVC
 (d) all can be used.
31. **Assertion :** Ionic compounds are soft solids.
Reason : There is weak molecular forces between particles of ionic compounds.
 (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
 (b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
 (c) Assertion is true but Reason is false.
 (d) Both Assertion and Reason are false.
32. **Assertion :** Precipitation reactions produce insoluble salts.
Reason : Precipitation reaction is a double decomposition reaction.
 (a) Both Assertion and Reason are True and Reason is the correct explanation of the Assertion.
 (b) Both Assertion and Reason are True but Reason is not the Correct explanation of the Assertion.
 (c) Assertion is True but the Reason is False.
 (d) Both Assertion and Reason are False.
33. **Assertion :** Failure of the kidneys leads to death of the person and there is no way he can survive.
Reason : Transplant of kidneys in humans is not possible.
 (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
 (b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
 (c) Assertion is true but Reason is false.
 (d) Both Assertion and Reason are false.
34. **Assertion :** Convex mirror is used as a shaving mirror.
Reason : Convex mirror always forms an enlarged image.
 (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
 (b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
 (c) Assertion is true but Reason is false.
 (d) Both Assertion and Reason are false.
35. A solution turns red litmus blue, its pH is likely to be
 (a) 1 (b) 4
 (c) 5 (d) 10
36. 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?
 1. Displacement reaction
 2. Precipitation reaction
 3. Combination reaction
 4. Double displacement reaction
 (a) Only 1 (b) Only 2
 (c) Only 4 (d) 2 and 4
37. Which one of the following is the final product of photosynthesis?
 (a) Mineral salt (b) Starch
 (c) Fat (d) Protein
38. In our body which organ is responsible for conversion of ammonia into urea?
 (a) Kidney (b) Lungs
 (c) Heart (d) Liver
39. A spherical mirror and a thin spherical lens have each a focal length of -15 cm . The mirror and the lens are likely to be-
 (a) both concave
 (b) both convex
 (c) the mirror is concave and the lens is convex
 (d) the mirror is convex, but the lens is concave
40. A ray of light falls normally on the surface of a transparent glass slab. The angle of emergence is-
 (a) 0° (b) 90°
 (c) 45° (d) 70°
41. Excretion is carried out by nephridia in?
 (a) Cockroach (b) Amoeba
 (c) Earthworm (d) Human
42. The upper two chambers of the heart are called
 (a) aorta (b) auricles
 (c) septa (d) ventricles

43. A convex lens has a focal length f . It is cut into two parts along the dotted line as shown in the figure. The focal length of each part will be



- (a) $\frac{f}{2}$
 (b) f
 (c) $\frac{3f}{2}$
 (d) $2f$
44. Beams of light are incident through the holes A and B and emerge out of box through the holes C and D respectively as shown in figure. Which of the following could be inside the box?



- (a) A rectangular glass slab
 (b) A convex lens
 (c) A concave lens
 (d) A prism

45. The power of a concave lens of focal length of 2 m is-
 (a) 0.5 D (b) -0.5 D
 (c) 1 D (d) -1 D
46. You are given water, mustard oil, glycerine and kerosene. In which of these media, a ray of light incident obliquely at same angle would bend the most?
 (a) Kerosene (b) Water
 (c) Mustard oil (d) Glycerine
47. A spherical mirror and a thin spherical lens each has a focal length of -15 cm. The mirror and the lens are likely to be-
 (a) Both concave
 (b) Both convex
 (c) The mirror is concave and lens is convex
 (d) The mirror is convex, but the lens is concave
48. Non-metals are:
 (a) soft (b) brittle
 (c) hard (d) all of the above

Section C

Section- C consists of three Cases followed by questions. There are a total of 12 questions in this section. Attempt any 10 questions from this section.
 The first attempted 10 questions would be evaluated.

Case Based Questions: (49-52)

Acidic solutions have excess of hydrogen ions. Even the acidic solutions contain hydroxide ions which come from the ionisation of water but the concentration of hydroxide ions in acidic solutions is much less than that of hydrogen ions.

The basic solution have excess of hydroxide ions. Even the basic solutions have hydrogen ions in them which come from the ionisation of water but the concentration of hydrogen ions in basic solutions is much less than that of hydroxide ions.

In 1909 Sorenson devised a scale (known as pH scale) on which the strength of acid solutions as well as basic solutions could be represented by making use of the hydrogen ion concentrations in them. Sorensen linked the hydrogen ion concentrations of acid and base solutions to the simple numbers 0 to 14 on his pH scale. The pH of a solution is inversely proportional to the concentration of hydrogen ions in it.

In everyday life, pH plays an important role on daily basis like in gardening and farming, the best crops

are usually obtained with neutral or slightly acidic soil (pH 6.5 to 7.0), tooth decay starts when the pH of mouth is lower than 5.5. Bee-sting leaves an acid which causes pain and irritation etc.

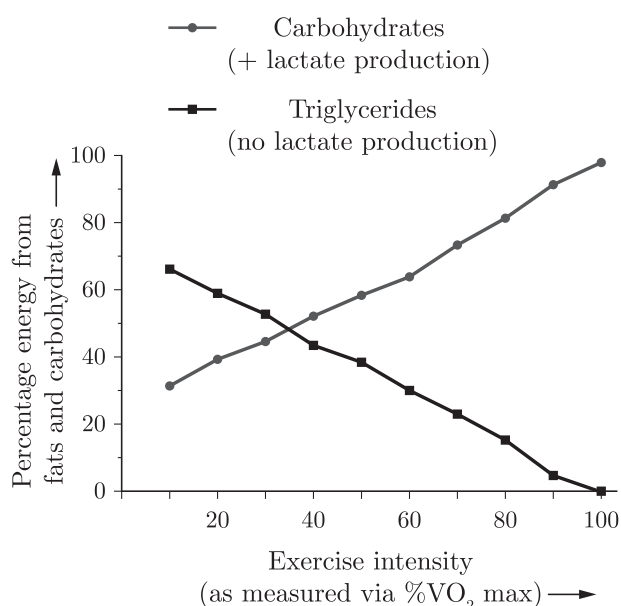
49. Which of the following substance(s) is added by farmers if the soil is acidic?
 (a) Common salt (b) Slaked lime
 (c) Vinegar (d) Limestone
50. Rain is called an acid rain when the pH is
 (a) above 8.5 (b) below 6.5
 (c) below 5.6 (d) between 7-8
51. During indigestion, which acid is produced by the stomach that causes irritation and pain?
 (a) Hydrochloric acid (b) Sulphuric acid
 (c) Nitric acid (d) Phosphoric acid

52. The basic salt that gives relief on the stung area is
 (a) washing soda (b) caustic soda
 (c) baking soda (d) bleaching powder

Case Based Questions: (53-56)

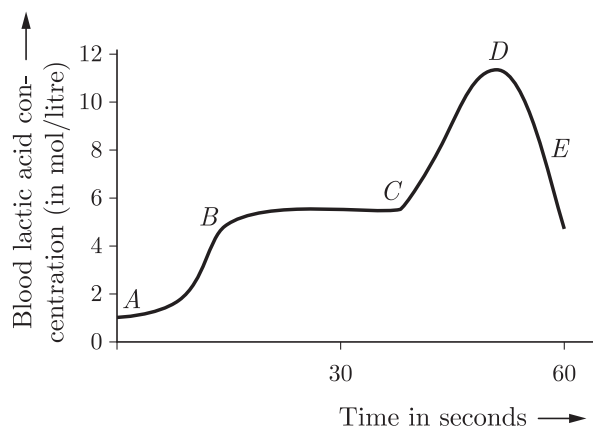
The food material taken in during the process of nutrition is used in cells to provide energy for various life processes. Diverse organisms do this in different ways - some use oxygen to break-down the food material completely, some use other pathways that do not involve oxygen. In all cases, the first step is the break-down of food material and it takes place in the cytoplasm. Further, the product of breakdown food may be converted into ethanol and carbon dioxide. Breakdown of food product using oxygen takes place in the mitochondria. Sometime food product is converted into lactic acid which is also a three-carbon molecule.

53. Athletes suffers from muscle cramps due to
 (a) conversion of pyruvate to ethanol
 (b) conversion of pyruvate to glucose
 (c) non-conversion of glucose to pyruvate
 (d) conversion of pyruvate to lactic acid
54. The given graph indicates the effect of exercise intensity on carbohydrate consumption.



- At high intensity of exercise
 (a) the anaerobic consumption of sugars increases
 (b) the aerobic consumption of sugars increases
 (c) the anaerobic consumption of sugars decreases
 (d) no consumption of sugars takes place

55. Study the graph below that represents the blood test reports of an athlete just before and after a race.



Choose the correct combination of plots provided in the following table.

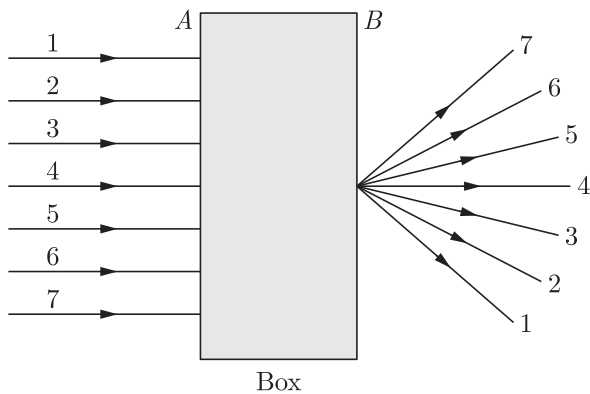
	Section of race	Concentration of lactic acid	Type of respiration
(a)	A-B (sprint start)	Changing high to low	Changing from anaerobic to aerobic
(b)	B-C (maintaining speed)	High to low	Anaerobic
(c)	C-D (sprint finish)	High	Aerobic
(d)	D-E (just after sprint finishing)	Low	Aerobic

56. Which of the following statement(s) is (are) true about energy released during cellular respiration?
 I. It is used immediately to synthesise ADP.
 II. It is used to fuel all other activities in the cell.
 III. ADP is the energy currency for most cellular processes.
 IV. An ADP molecule is formed from ATP and inorganic phosphate.
 (a) I and II only (b) II only
 (c) I, II and III only (d) I, III and IV only

Case Based Questions: (57-60)

Lenses are objects made of transparent materials such as glass or clear plastic that has curved surfaces. Diverging lenses are thicker at their edges than at their centres and make light rays passing through them spread out. Converging lenses are thicker in middle than at edges and make light rays passing through them focus at a point. These are used in spectacles to help people with poor vision see better. The converging lenses magnify by bending the rays or light that pass through them to meet at a point called focus. Thicker the converging lens is at its centre, the more it magnifies and closer the focus is to the lens.

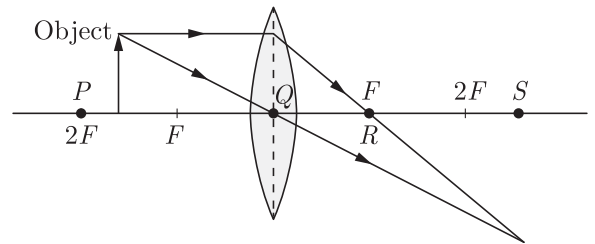
57. A beam of light is incident on the box through the holes on side A and emerges out of the holes on the other face of the box as shown in the figure.



Which of the following could be inside the box?

- (a) Rectangular glass plate
 - (b) Prism
 - (c) Convex lens
 - (d) Concave lens
58. Which relation of powers of lenses are correct?
- (a) P_1 is positive and P_2 is negative
 - (b) $P_1 > P_2$
 - (c) $P_1 < P_2$
 - (d) $P_1 = P_2$

59. The image represents the rays of light travelling through a convex lens.



Where is the image most likely to form?

- (a) Position S
 - (b) Position P
 - (c) Position Q
 - (d) Position R
60. Rakhi conducts an experiment to produce an image of an object on a screen which is placed at 20 cm from the lens. She uses a convex lens of focal length 15 cm for the experiment. Where should she place the object in order to produce the sharpest image?
- (a) 60 cm in front of the lens
 - (b) 15 cm in front of the lens
 - (c) 8 cm in front of the lens
 - (d) 20 cm in front of the lens

SAMPLE PAPER - 8 Answer Key

Paper Q. no.	Correct Option	Chapter no	Question Bank Q. no.
1	(a)	Ch-1	107
2	(b)	Ch-2	186
3	(d)	Ch-3	67
4	(b)	Ch-1	14
5	(b)	Ch-2	8
6	(a)	Ch-1	94
7	(a)	Ch-1	89
8	(b)	Ch-2	92
9	(a)	Ch-2	72
10	(a)	Ch-1	114
11	(d)	Ch-4	230
12	(c)	Ch-4	39
13	(a)	Ch-4	7
14	(a)	Ch-4	83
15	(b)	Ch-4	84
16	(a)	Ch-4	85
17	(d)	Ch-5	78
18	(c)	Ch-5	106
19	(c)	Ch-5	101
20	(a)	Ch-5	123
21	(b)	Ch-5	129
22	(c)	Ch-5	153
23	(b)	Ch-5	152
24	(c)	Ch-6	44
25	(c)	Ch-2	150
26	(d)	Ch-2	152
27	(a)	Ch-3	122
28	(c)	Ch-3	12
29	(d)	Ch-2	48
30	(c)	Ch-3	80
31	(d)	Ch-3	145

Paper Q. no.	Correct Option	Chapter no	Question Bank Q. no.
32	(b)	Ch-1	156
33	(d)	Ch-4	229
34	(d)	Ch-6	189
35	(d)	Ch-2	1
36	(d)	Ch-1	68
37	(b)	Ch-4	164
38	(d)	Ch-4	189
39	(a)	Ch-5	12
40	(a)	Ch-5	27
41	(c)	Ch-4	206
42	(b)	Ch-4	88
43	(d)	Ch-5	169
44	(a)	Ch-5	126
45	(b)	Ch-5	8
46	(d)	Ch-5	53
47	(a)	Ch-5	102
48	(b)	Ch-3	31
49	(b)	Ch-2	198
50	(c)	Ch-2	199
51	(a)	Ch-2	200
52	(c)	Ch-2	201
53	(d)	Ch-4	278
54	(a)	Ch-4	279
55	(d)	Ch-4	280
56	(b)	Ch-4	281
57	(c)	Ch-5	242
58	(c)	Ch-5	243
59	(a)	Ch-5	244
60	(a)	Ch-5	245