Sample/Pre-Board Paper 11

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.

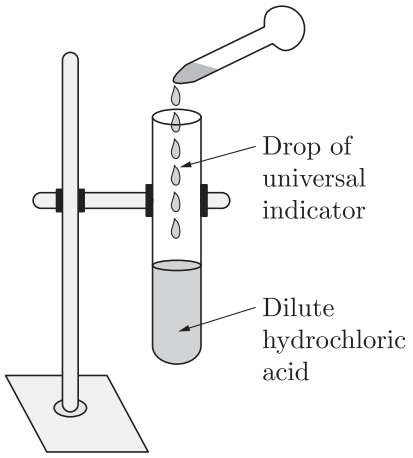
Section A

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

1. In the double displacement reaction between aqueous potassium iodide and aqueous lead nitrate, a yellow precipitate of lead iodide is formed. While performing the activity if lead nitrate is not available, which of the following can be used in place of lead nitrate?

(a) Lead sulphate (insoluble)
(b) Lead acetate
(c) Ammonium nitrate
(d) Potassium sulphate

2. A student adds a few drops of the universal indicator to a solution of dilute hydrochloric acid in the way shown in the figure.
He would observe that the colour of the solution changes from colourless to:



(a) red
(b) yellow
(c) violet
(d) green

3. Which of the following are not ionic compounds?

1. KCl
2. HCl
3. CCl_4
4. NaCl

(a) 1 and 2
(b) 2 and 3
(c) 3 and 4
(d) 1 and 3

4. Which of the following process involves chemical reaction?

(a) Formation of ice from water
(b) Compression of sponge
(c) Respiration
(d) Cutting of tree

5. An aqueous solution turns red litmus solution blue. Excess addition of which of the following solution would reverse the change?

(a) Baking powder
(b) Lime
(c) Ammonium hydroxide solution
(d) Hydrochloric acid

6. $2Mg(s) + O_2(g) \longrightarrow 2MgO(s)$

The stoichiometric coefficient of O_2 is:

(a) 1
(b) 2
(c) 3
(d) 4

7. The symbolic representation of an actual chemical change is known as

(a) Chemical equation
(b) Chemical formula
(c) Chemical symbol
(d) Physical formula

8. The chemical name of bleaching powder is:

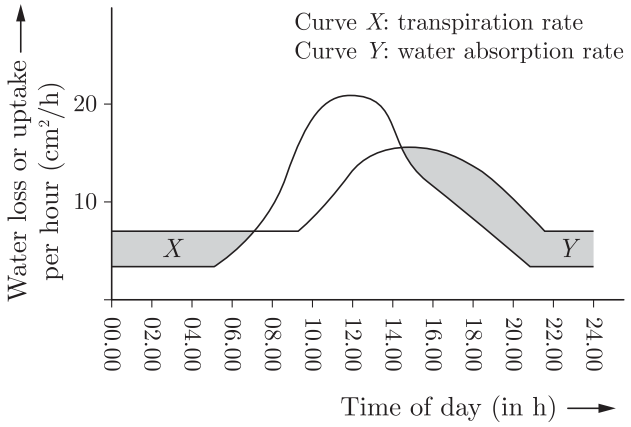
(a) Calcium oxychloride
(b) Calcium chloride
(c) Calcium carbonate
(d) Calcium sulfate

9. The colour of the pH paper turned red when it was dipped in X solution. The X is-

(a) Dilute Hydrochloric acid.
(b) Dilute sodium hydroxide solution.
(c) Tap water
(d) Dilute sodium bicarbonate solution.

10. Which metal have maximum reactivity?
(a) K (b) Na
(c) Au (d) Pt

11. Given graph shows the rates of water absorption and transpiration of a plant during a 24-hour period.



The difference between the rates of transpiration and water absorption between 00:00 and 06:00 hours is due to:
(a) The rate of absorption fell behind the rate of transpiration during the day, but exceeded it at night.
(b) Rate of absorption is always higher than rate of transpiration.
(c) Rate of absorption is always equal to rate of transpiration.
(d) The rate of absorption is higher than the rate of transpiration during the day, but decreases at night.

12. The purpose of closing the pores by the plants when it doesn't need photosynthesis is
(a) To save the water (b) To save energy
(c) To save food (d) None of the above

13. If the body size of the organisms is to grow:
(a) Additional carbon based food or raw material is needed.
(b) Needs more energy to expand.
(c) Have to go through complex process which sometimes is not possible.
(d) Needs lots of cell formation.

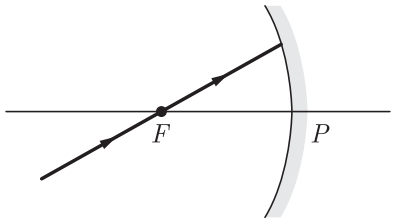
14. The rate of breathing in aquatic organisms is much faster than that seen in terrestrial organisms, because-
(a) the amount of dissolved oxygen in water is fairly high as compared to the amount of oxygen in the air.
(b) the amount of dissolved oxygen in water is fairly low as compared to the amount of oxygen in the air.
(c) aquatic organisms need more oxygen to breath.
(d) aquatic organisms do not have proper organs for breathing.

15. ..... helps in preventing the collapse of the air passage during breathing.
(a) Nostrils (b) Mucus
(c) Lungs (d) Rings of cartilage

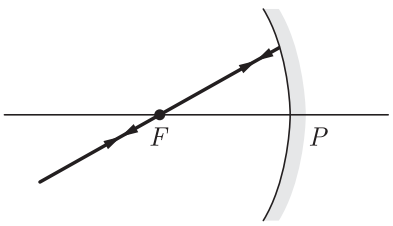
16. Blood consists of a fluid medium called ..... in which the cells are suspended.
(a) Plasma (b) RBCs
(c) Platelets (d) WBCs

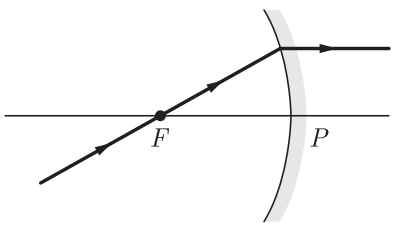
17. When light travels from one medium to the other of which the refractive index is different, then which of the following will change
(a) Frequency, wavelength and velocity
(b) Frequency and wavelength
(c) Frequency and velocity
(d) Wavelength and velocity

18. An incident ray strikes a concave mirror after passing through the focus (F) as shown in the figure.



Which of the following shows the correct path of reflected rays?

(a)


(b)


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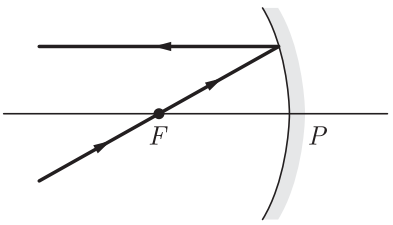
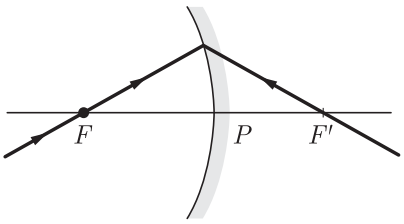


(d)


19. Magnification produced by a rear view mirror fitted in vehicles
(a) is less than one
(b) is more than one
(c) is equal to one
(d) can be more than or less than one depending upon the position of the object in front of it.

20. The focal length of a combination of convex lens of power 1 D and concave lens of power -1.5 D is-
(a) -2 m (b) 2 m
(c) 2.5 m (d) 0.5 m

21. SI unit of lens power is-
(a) metre (b) watt
(c) kilowatt (d) dioptre

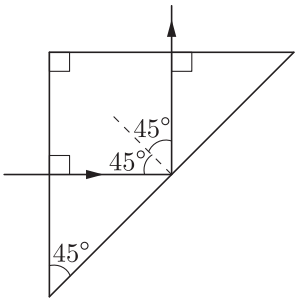
22. A convex lens has a focal length of 10 cm. At what distance from the lens should the object be placed so that it forms a real and inverted image 20 cm away from the lens?
(a) -20 cm (b) -40 cm
(c) -60 cm (d) -80 cm

23. Which of the following are correctly matched for the concave mirror?

	Object	Image
1.	Between P and F	at infinity
2.	At C	at C
3.	Beyond C	between F and C
4.	At infinity	at focus

Choose the correct option from the codes given below :
(a) 1, 3, 4 (b) 2, 3, 4
(c) 1, 2, 3 (d) 1, 2, 3, 4

24. A light ray is incident perpendicularly to one face of a 90° prism and is totally internally reflected at the glass-air interface. If the angle of reflection is 45°, we conclude that the refractive index



(a) $n > \frac{1}{\sqrt{2}}$ (b) $n > \sqrt{2}$
(c) $n < \frac{1}{\sqrt{2}}$ (d) $n < \sqrt{2}$

Section B

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

25. Which of following solution have a higher concentration of H^+ ions?
(a) 1 M HCl solution
(b) 1 M CH_3COOH solution
(c) 0.5 M CH_3COOH solution
(d) None of these

26. A student take a small amount of copper oxide in a beaker and dilute hydrochloric acid slowly while stirring. Which of the following product is formed in above process?
(a) $CuCl_2$ (b) CuCa
(c) $CuMg_2$ (d) CuCOH

27. Which of the following is the most malleable metal?
(a) Sulphur (b) Gold
(c) Phosphorus (d) Iron

28. Which of the following elements cannot be beaten into thin wires?
(a) O
(b) P
(c) S
(d) All of these

29. Which of the following is/are correct for pH?
1. A scale for measuring hydronium ion concentration.
2. Values less than 7 on the pH scale represent an acidic solution.
3. As the pH value increases from 7 to 14, it represents an increase in hydrogen ion concentration in the solution.

(a) Only 1
(b) Only 2
(c) Only 3
(d) 1, 2 and 3

30. Reaction between X and Y, forms compound Z. X loses electron and Y gains electron. Which of the following properties is not shown by Z?
(a) Has high melting point
(b) Has low melting point
(c) Conducts electricity in molten state
(d) Occurs as solid

31. **Assertion :** Some metal oxides are amphoteric is nature.
Reason : Metallic oxides show acidic behaviour.
(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 :** Equation $C(s) + O_2(g) \longrightarrow CO_2(g)$ is an example of combination reaction.
Reason : In the given above equation, carbon and oxygen react to give carbon dioxide.
(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 :** In plants, water is transported through phloem.
Reason : It is because sieve tubes are absent in phloem.
(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 :** When light from sun is focussed on a sheet of paper using a convex lens, the paper begins to burn producing smoke. It may even catch fire after a while.
Reason : Convex lens is a converging lens.
(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. Calcium phosphate is present in tooth enamel. Its nature is
(a) basic
(b) acidic
(c) neutral
(d) amphoteric

36. Which among the following is (are) double displacement reaction(s)?
1. $Pb + CuCl_2 \longrightarrow PbCl_2 + Cu$
2. $Na_2SO_4 + BaCl_2 \longrightarrow BaSO_4 + 2NaCl$
3. $C + O_2 \longrightarrow CO_2$
4. $CH_4 + 2O_2 \longrightarrow CO_2 + 2H_2O$

(a) 1 and 4 (b) Only 2
(c) 1 and 2 (d) 3 and 4

37. Oxygen is a waste product generated during ..... in plants.
(a) Respiration
(b) Photosynthesis
(c) Both respiration and photosynthesis
(d) None of the above

38. Which of the following harmful products is not produced in the biochemical reactions of the cell of living organisms?
(a) Urea (b) Uric acid
(c) Ammonia (d) Lymph

39. The image formed by a concave mirror is observed to be virtual, erect and larger than the object. Where should be the position of the object?
(a) Between the principal 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 its principal focus.

40. An object is placed at a distance of 30 cm from a convex mirror, the magnification produced is $\frac{1}{2}$. Where should the object be placed to get the magnification of $\frac{1}{3}$?
(a) -60 cm
(b) 40 cm
(c) 50 cm
(d) 60 cm

41. Choose the correct statement that describe the arteries?
(a) They have thick elastic walls, blood flows under high pressure, collect blood from different organs and bring it back to the heart.
(b) They have thin walls with valves inside, blood flows under low pressure and carry blood away from the heart to various organs of the body.
(c) They have thick elastic walls, blood flows under low pressure, carry blood from the heart to various organs of the body.
(d) They have thick elastic walls without valves inside, blood flows under high pressure and carry blood away from the heart to different parts of the body.

42. The vein which brings clean blood from the lungs into the heart is known as:

(a) Pulmonary vein (b) Hepatic vein

(c) Superior vena cava (d) Pulmonary artery

43. If two lenses of power 2 D and 3 D are kept in contact with each other, then focal length of the combination will be

(a) 5 cm (b) 10 cm

(c) 20 cm (d) 40 cm

44. If the rays constituting the beam actually meet at a point or appear to meet at a point, then the beam is:

(a) divergent (b) convergent

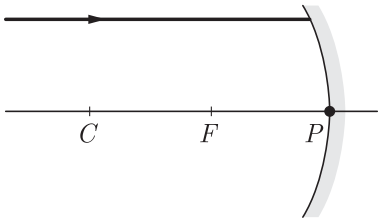
(c) parallel (d) equal

45. Light enters from air to glass having refractive index 1.50. The speed of light in vacuum is $3 \times 10^8\ \text{ms}^{-1}$. The speed of light in the glass is-

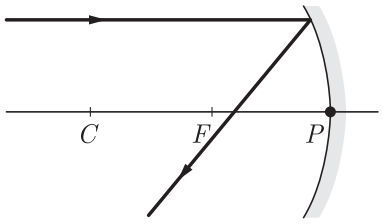
(a) $2 \times 10^8 \text{ms}^{-1}$ (b) $3 \times 10^8 \text{ms}^{-1}$

(c) $4 \times 10^4 \text{ms}^{-1}$ (d) $5 \times 10^5 \text{ms}^{-1}$

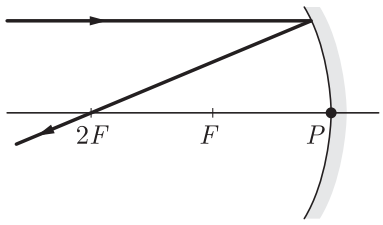
46. Which of the following ray diagrams is correct for the ray of light incident on a concave mirror as shown in Figure?



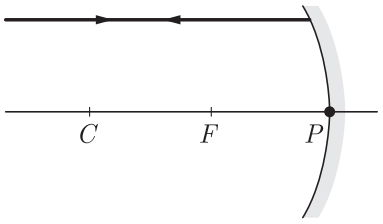
(a)



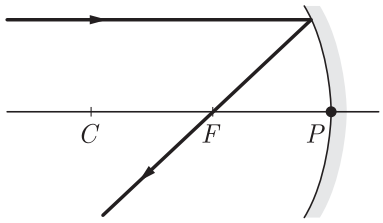
(b)



(c)



(d)



47. A lens of focal power 0.5 D is:

(a) A convex lens of focal length 0.5 m

(b) A concave lens of focal length 0.5 m

(c) A convex lens of focal length 2 m

(d) A concave lens of focal length 2 m

48. Which of the following oxide(s) of iron would be obtained on prolonged reaction of iron with steam?

(a) FeO (b) Fe_2O_3

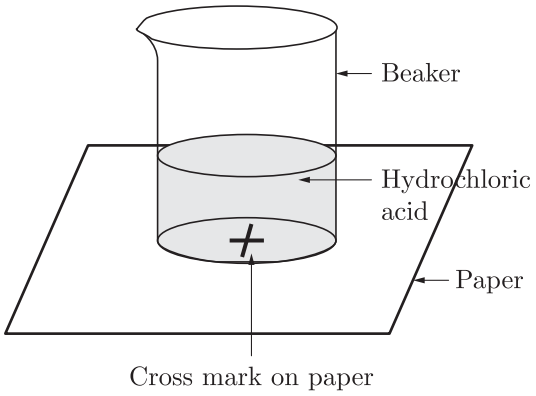
(c) Fe_3O_4 (d) Fe_2O_3 and Fe_3O_4

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)

In chemistry lab, a student took HCl in a beaker and was placed on a white paper with cross mark. When seen through the beaker the mark as shown in the figure was visible. On adding some sodium thiosulphate in the beaker the cross marked disappeared. When seen through the beaker. The student observed some reaction as the products formed were different than the reactants. Both the reactants were transparent.



49. Which of the following reaction is of similar type as observed in the given set up.

(a) $CaO(s) + H_2O(l) \rightarrow Ca(OH)_2(aq)$

(b) $2FeSO_4(s) \xrightarrow{\Delta} Fe_2O_3(s) + SO_2(g) + SO_3(g)$

(c) $Fe(s) + CuSO_4(aq) \rightarrow FeSO_4(aq) + Cu(s)$

(d) $Na_2SO_4(aq) + BaCl_2(aq) \rightarrow BaSO_4(s) + 2NaCl(aq)$

50. Name the resultant insoluble substance formed in the flask.

(a) Sulphur (b) Sodium sulphide

(c) Sodium sulphate (d) Sodium carbonate

51. Which of the following reaction is done in the above arrangement?

(a) Double displacement reaction

(b) Displacement reaction

(c) Precipitation reaction

(d) Redox reaction

52. Why did the cross mark disappear?

(a) The solution so formed has ability to absorb black colour hence black coloured cross is not seen.

(b) The resultant solution has high viscosity due to which it refracts the light to other angle.

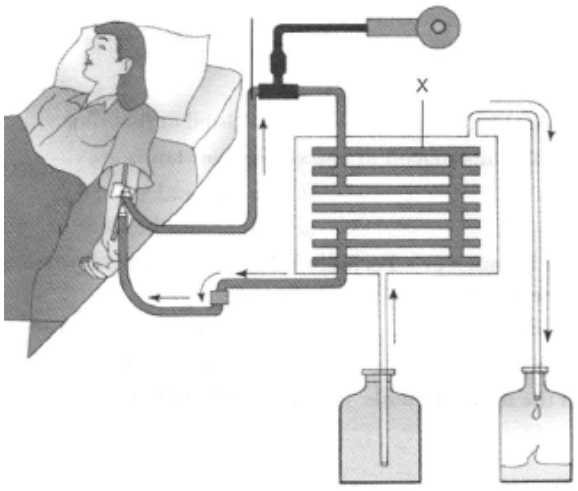
(c) The resultant solution is dark coloured which does not allow the light to pass through it.

(d) The insoluble precipitate that is formed in the flask does not allow the light to pass through it to see the cross mark.

Case Based Questions: (53-56)

Nitrogenous materials formed due to metabolic activities are need to be removed. The biological process involved in the removal of these harmful metabolic wastes from the body is called excretion. Different organisms use varied strategies to do this. Many unicellular organisms remove these wastes by simple diffusion from the body surface into the surrounding water while complex multi-cellular organisms use specialised organs to perform the same function.

53.



Study the picture given above and choose the correct combination of plots provided in the following table.

	X	**Process used**	**Function**
(a)	Dialysing pump	Filtration	To draw blood from the body and send it to dialyser
(b)	Dialysate	Osmosis	To add fluid to the blood
(c)	Blood thinner	Clotting	To remove the clots from the blood
(d)	Dialyser	Diffusion	To remove the excess wastes and fluid from the blood

54. Which of the following statement(s) is (are) true about excretion in human beings?

I. Urine is stored in the urethra until the urge of passing it out.

II. Each kidney has large numbers of filtration units called nephrons.

III. The bladder is muscular, so it is under nervous control.

IV. Kidneys are the primary excretory organs.

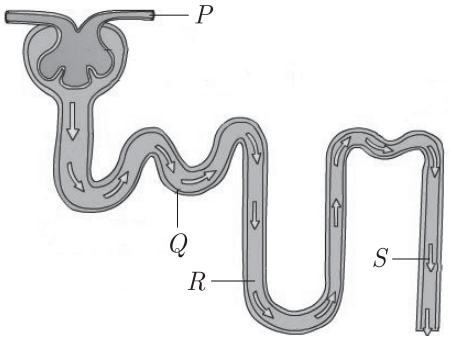
(a) I and II only (b) I and III only

(c) II, III and IV only (d) I and IV only

55. Study the table below and select the row that has the incorrect information.

	Excretory Organ	**Substances Excreted**
(a)	Oil glands	Sebum
(b)	Skin	Sweat
(c)	Lungs	Urea
(d)	Kidneys	Nitrogenous wastes

56. The given figure represents the structure of a nephron.



Which section of the nephron is responsible for concentrating the solute in the filtrate?

(a) P (b) Q

(c) R (d) S

Case Based Questions: (57-60)

Many optical instrument (like compound microscope) having number of lenses which are arranged is same specific manner and it is increases the magnification and sharpness of image which is formed by optical instrument. The net power (P) of the lenses placed in contact is given by the algebraic sum of the individual powers P_1, P_2, P_3, ... as

$$P = P_1 + P_2 + P_3 + ...$$

The use of powers, instead of focal lengths, for lenses is quite convenient for opticians During eye-testing, an optician puts several different combinations of corrective lenses of known power, in contact, inside the testing spectacles frame. The optician calculates the power of the lens required by simple algebraic addition. For example, a combination of two lenses of power $+2.0\,\mathrm{D}$ and $+0.25\,\mathrm{D}$ is equivalent to a single lens of power $+2.25\,\mathrm{D}$. The simple additive property of the powers of lenses can be used to design lens systems to minimise certain defects in images produced by a single lens. Such a lens system, consisting of several lenses, in contact, is commonly used in the design of camera lenses and the objectives of microscopes and telescopes.

57. The power of a convex lens is 4.0 D. The focal length of this lens will be:

(a) 0.5 m (b) 0.25 m

(c) 2.5 m (d) 5 m

58. Two lenses of power $\frac{1}{2}\,\mathrm{D}$ and $-0.3\,\mathrm{D}$ are in contact to each other. Their combined power will be:

(a) + 0.2 D (b) $-0.2\,\mathrm{D}$

(c) + 0.5 D (d) + 0.8 D

59. Which of the following instrument consists of a lens system consisting of two or more lenses in contact?

(a) Microscope (b) Telescope

(c) Camera (d) All of the above

60. The focal lengths of two lenses in contact to each other are 20 cm and 50 cm respectively. Their combined power is:

(a) + 7.0 D (b) + 70 D

(c) + 3.0 D (d) + 30 D

SAMPLE PAPER - 6 Answer Key

Paper Q. no.	Correct Option	Chapter no	Question Bank Q. no.
1	(b)	Ch-1	71
2	(a)	Ch-2	182
3	(b)	Ch-3	60
4	(c)	Ch-1	11
5	(d)	Ch-2	6
6	(a)	Ch-1	89
7	(a)	Ch-1	85
8	(a)	Ch-2	90
9	(a)	Ch-2	69
10	(a)	Ch-1	112
11	(a)	Ch-4	274
12	(a)	Ch-4	37
13	(a)	Ch-4	5
14	(b)	Ch-4	75
15	(d)	Ch-4	76
16	(a)	Ch-4	80
17	(d)	Ch-5	75
18	(c)	Ch-5	98
19	(a)	Ch-5	99
20	(a)	Ch-5	112
21	(d)	Ch-5	113
22	(a)	Ch-5	44
23	(b)	Ch-5	47
24	(b)	Ch-6	40
25	(a)	Ch-2	116
26	(a)	Ch-2	120
27	(b)	Ch-3	119
28	(d)	Ch-3	9
29	(b)	Ch-2	39
30	(b)	Ch-3	76
31	(c)	Ch-3	143

Paper Q. no.	Correct Option	Chapter no	Question Bank Q. no.
32	(a)	Ch-1	154
33	(d)	Ch-4	227
34	(a)	Ch-6	187
35	(a)	Ch-2	10
36	(b)	Ch-1	65
37	(b)	Ch-4	162
38	(d)	Ch-4	187
39	(d)	Ch-5	10
40	(a)	Ch-5	25
41	(d)	Ch-4	202
42	(a)	Ch-4	86
43	(c)	Ch-5	167
44	(b)	Ch-5	135
45	(a)	Ch-5	6
46	(d)	Ch-5	55
47	(c)	Ch-5	100
48	(c)	Ch-3	29
49	(a)	Ch-1	184
50	(a)	Ch-1	185
51	(c)	Ch-1	186
52	(d)	Ch-1	187
53	(d)	Ch-4	268
54	(c)	Ch-4	269
55	(c)	Ch-4	270
56	(c)	Ch-4	271
57	(b)	Ch-5	232
58	(a)	Ch-5	233
59	(d)	Ch-5	234
60	(a)	Ch-5	235