Sample/Pre-Board Paper 24

Class X Term 1 Exam Nov -Dec 2021

Science (086)

Time: 90 Minutes

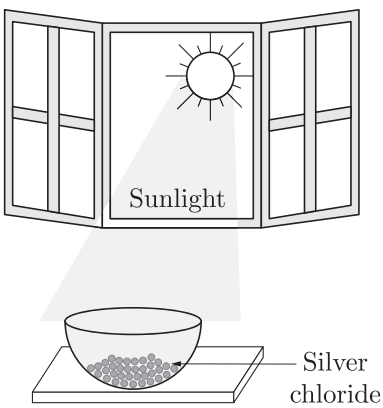
General Instructions:

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. The silver chloride placed under the sunlight as shown in the figure:



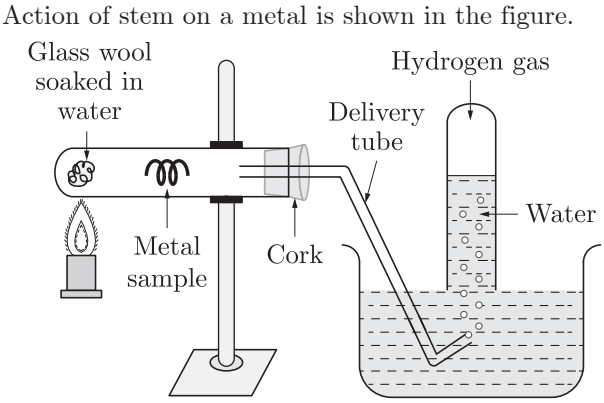
The colour of silver chloride after some time is:

(a) Black (b) Green
(c) Gray (d) Yellow

2. When electricity is passed through an aqueous solution of sodium chloride than ..... is formed.

(a) Sodium hydroxide (b) Sodium sulphate
(c) Sodium chloride (d) Sodium bicarbonate

3. Action of stem on a metal is shown in the figure.



The metal sample in the above experiment is-

(a) Zinc (b) Copper
(c) Aluminium (d) Platinum

4. The balancing of chemical equation is based on:

(a) Law of conservation of energy
(b) Law of conservation of mass
(c) Law of conservation of heat
(d) None of these

5. Which of the following is used for dissolution of gold?

(a) Hydrochloric acid (b) Sulphuric acid
(c) Nitric acid (d) Aqua regia

6. The indication of chemical reaction in an activity is/ are:

(a) change in state (b) change in colour
(c) change in temperature (d) all of the above

7. Which of the following processes can not take place in the absence of oxygen?

(a) Combination (b) Combustion
(c) Displacement (d) All of the above

8. Which of the following are correctly matched?

1.	Bleaching powder	oxidising agent in chemical industries.
2.	Baking powder	a mixture of sodium hydrogen carbonate and a mild edible acid.
3.	Washing soda	remove permanent hardness of water.

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

9. Which of the following acid present in curd?
(a) Acetic acid (b) Citric acid
(c) Oxalic acid (d) Lactic acid

10. Which of the following statements about the reaction below are incorrect?

$$2PbO(s) + C(s) \longrightarrow 2Pb(s) + CO_2(g)$$

1. Lead is getting reduced.
2. Carbon dioxide is getting oxidised.
3. Carbon is getting oxidised.
4. Lead oxide is getting reduced.

(a) 1 and 2 (b) 1 and 3
(c) 1, 2 and 3 (d) all of the above

11. The table shows the characteristics of blood in one blood vessel of the body.

Oxygen concentration	**Carbon dioxide concentration**	**Pressure**
High	Low	High

Which blood vessel contains blood with these characteristics?
(a) Vena cava (b) Pulmonary vein
(c) Aorta (d) Pulmonary artery

12. Some unicellular organism like paramoecium take food at a
(a) Specific spot (b) Entire surface
(c) Nucleus (d) Food vacuole

13. Organisms which uses simple food material obtained from inorganic sources in the form of carbon dioxide and water are:
(a) Single cell organism (b) Multi cell organism
(c) Virus (d) Autotrophs

14. What is normal blood pressure in humans?
(a) 120/80 mm of Hg (b) 130/60 mm of Hg
(c) 140/70 mm of Hg (d) 140/ 90 mm of Hg

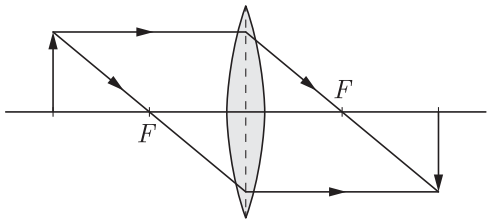
15. In amoeba excretion takes place through the process of?
(a) Diffusion (b) Infusion
(c) Uricotelic (d) None of the above

16. Man is _____
(a) Ammonotelic (b) Ureotelic
(c) Uricotelic (d) None of the above

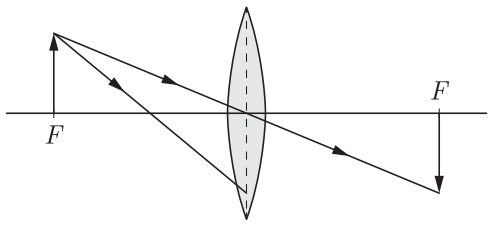
17. A spherical mirror and a thin spherical lens have each a focal length of $-15\,\text{cm}$. The mirror and the lens are likely to be-
(a) both concave
(b) both convex
(c) the mirror is concave and the lens is convex
(d) the mirror is convex, but the lens is concave

18. Which of the following ray diagram is correct?

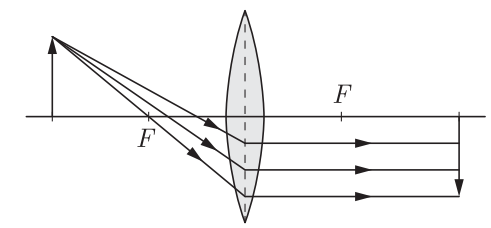
(a)



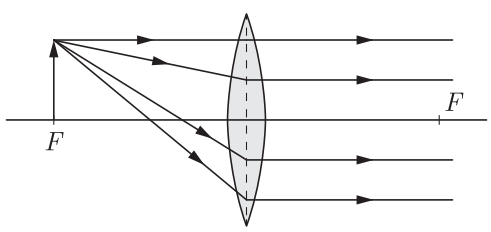
(b)



(c)



(d)



19. An object is placed at a distance of 10 cm from a convex mirror of focal length 15 cm. the position of the image is-
(a) 6 cm (b) 9 cm
(c) 8 cm (d) 7 cm

20. An object 5.0 cm in length is placed at a distance of 20 cm in front of a convex mirror or radius of curvature 30 cm. The position of the image is-
(a) 8.57 cm (b) 9.10 cm
(c) 8.15 cm (d) 7.15 cm

21. An object of size 7.0 cm is placed at 27 cm in front of a concave mirror of focal length 18 cm. At what distance from the mirror should a screen be placed, so that a sharp focussed image can be obtained?
(a) 54 cm (b) 60 cm
(c) $-54\,\text{cm}$ (d) $-60\,\text{cm}$

22. The radius of curvature of a plane mirror is:
(a) zero (b) infinite
(c) negative (d) finite

23. The distance between the pole and centre of curvature of a spherical mirror is called ..... .
(a) radius of curvature (b) focal length
(c) object distance (d) image height

24. Which of the following phenomena contributes significantly to the reddish appearance of the sun at sunrise or sunset?

(a) Dispersion of light

(b) Scattering of light

(c) Total internal reflection of light

(d) Reflection of light from the earth

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. The acidic solution is the one in which the concentration of ..... is grater than that of ..... ions.

(a) H^+, OH^- (b) DH^-, H^+

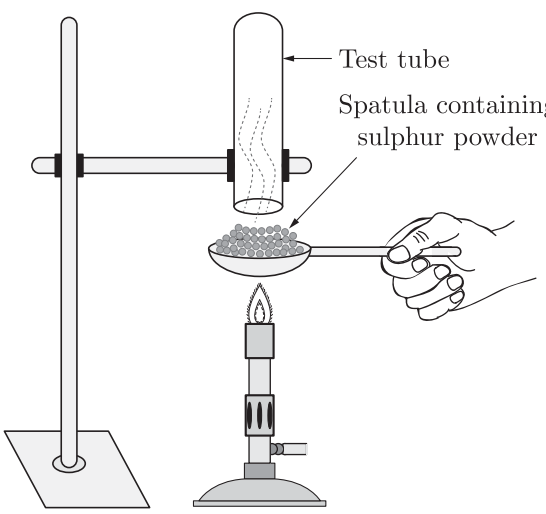
(c) H_3O^+, H^+ (d) H^+, H_3O^+

26. The organic acid present in tomato is

(a) oxalic acid (b) lactic acid

(c) malic acid (d) tartaric acid

27. Pratyush took sulphur powder on a spatula and heated it. He collected the gas evolved by inverting a test tube over it, as shown in figure below.



The balance chemical equation for the reaction taking place will be-

(a) $S + O_2 \rightarrow SO_2$

(b) $SO_2 + H_2O \rightarrow H_2SO_3$

(c) $SO_2 + O_2 \rightarrow SO_4$

(d) Both (a) and (b)

28. A solid compound A consists of simple ions. The nature of the bond present in A will be

(a) molecular (b) ionic

(c) hydrogen bond (d) covalent

29. The hydrogen ion concentration of solution is 0.001 M. The pH of solution is?

(a) 3 (b) 2

(c) 1 (d) 1.5

30. An element reacts with oxygen to give a compound with a high melting point. This compound is also soluble in water. The element is likely to be

(a) calcium (b) carbon

(c) silicon (d) iron

31. **Assertion :** The process of dissolving an acid or a base in water is a highly exothermic one.

Reason : A large amount of heat is produced.

(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.

32. **Assertion :** $Fe_2O_3 + 2Al \longrightarrow Al_2O_3 + 2Fe$

The above chemical equation is an example of displacement reaction.

Reason : Aluminium being more reactive than iron, displaces Fe from its oxide.

(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 :** The main organ of human excretory system is kidney.

Reason : Kidneys perform the function of adding water and nitrogenous wastes from the body.

(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.

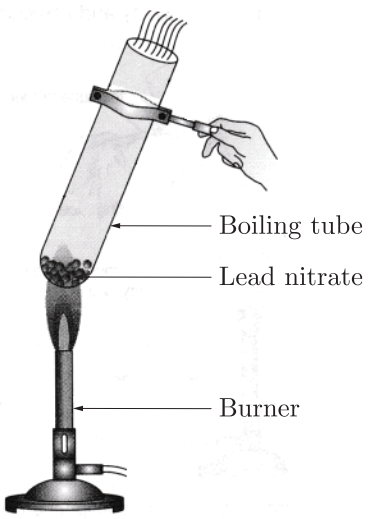
(d) Assertion is false but Reason is true.

34. **Assertion :** A rainbow is a natural spectrum appearing in the sky after a rain shower.
Reason : It is caused by reflection of sunlight by tiny water droplets present in the atmosphere.
(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. On washing with soap, a turmeric stain on the cloth turns to red because
1. Soap solution is alkaline.
2. Soap solution is acidic.
3. Turmeric contains a natural indicator.
4. Turmeric contains litmus.

Select the correct alternative.
(a) 1 and 3 (b) 2 and 4
(c) 3 and 2 (d) 1 and 4

36. Ramesh is science teacher in Kendriya Vidyalya. He asked Sunita to perform following activity with lead nitrate powder.
- Take about 2 g lead nitrate powder in a boiling tube.
- Hold the boiling tube with a pair of tongs and heat it over a flame as shown in figure.



Which of the following product is formed in the above process?
(a) Lead oxide (b) Lead carbonate
(c) Lead sulphide (d) Lead sulphide

37. Blood cell without nucleus are
(a) white blood corpuscles
(b) blood platelets
(c) red blood corpuscles
(d) none of these

38. The best long term solution for kidney failure is?
(a) Dialysis (b) Kidney transplant
(c) Both A and B (d) Only B

39. The image of a candle flame placed at a distance of 30 cm from a spherical lens is formed on a screen placed on the other side of the lens at distance of 60 cm from the optical centre of the lens. The focal length of lens is-
(a) 40 cm (b) 30 cm
(c) 50 cm (d) 20 cm

40. An object of height 5 cm is placed perpendicular to the principal axis of a concave lens of focal length 10 cm. If the distance of the object from the optical centre of the lens is 20 cm, the size of the image is-
(a) 1.66 cm (b) 2.16 cm
(c) 1.69 cm (d) 2.91 cm

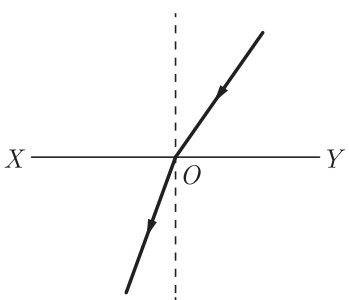
41. Transpiration and _____ help in transport of water in plants?
(a) Translocation (b) Photosynthesis
(c) Root pressure (d) Shoot pressure

42. The biological process involved in the removal of these harmful metabolic wastes from the body is called
(a) Photosynthesis (b) Respiration
(c) Excretion (d) Translocation

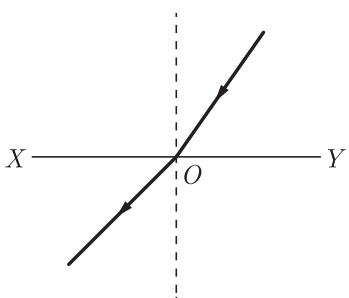
43. In torches, search light and headlights of vehicles the bulb is placed
(a) Between the pole and focus of the reflector
(b) Very near to the focus of the reflector
(c) Between the focus and centre of curvature of the reflector
(d) At the centre of curvature of the reflector

44. Which of the following figures shows refraction of light while going from denser to rarer medium?

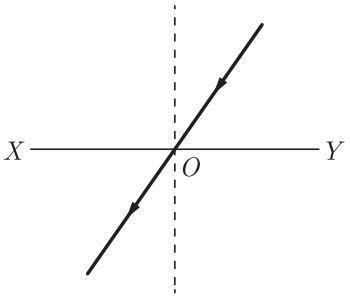
(a)



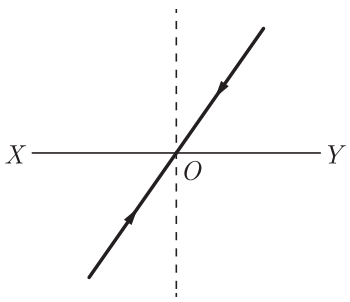
(b)



(c)



(d)



45. The focal length of a lens of power -2.0 D is-

(a) -50 cm (b) 40 cm

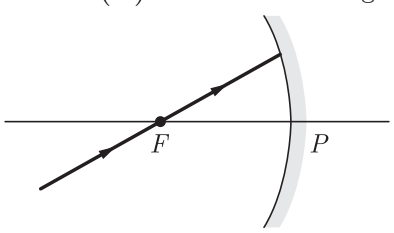
(c) 50 cm (d) -40 cm

46. The image of a candle flame placed at a distance of 30 cm from a spherical lens is formed on a screen placed on the other side of the lens at distance of 60 cm from the optical centre of the lens. The focal length of lens is-

(a) 40 cm (b) 30 cm

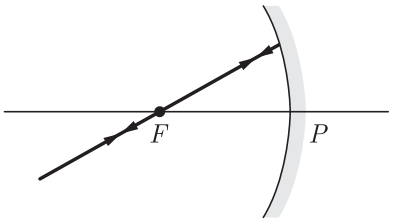
(c) 50 cm (d) 20 cm

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

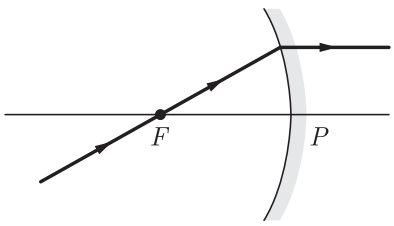


Which of the following shows the correct path of reflected rays?

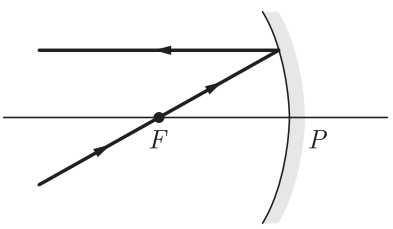
(a)



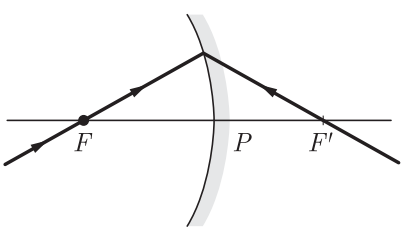
(b)



(c)



(d)



48. Which of the following is not the characteristic property of non-metal?

(a) Not malleable

(b) Sonorous

(c) Not ductile

(d) Not lustrous

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)

The reactivity series is a list of metals arranged in the order of their decreasing activities. The metal at the top of the reactivity series is the most reactive and metal at the bottom is the least reactive. The more reactive metal displaces less reactive metal from its salt solution.

Activity series: Relative reactivities of metals

K	Potassium	Most reactive
Na	Sodium	
Ca	Calcium	
Mg	Magnesium	
Al	Aluminium	
Zn	Zinc	Reactivity decreases
Fe	Iron	
Pb	Lead	
H	Hydrogen	
Cu	Copper	
Hg	Mercury	
Ag	Silver	
Au	Gold	Least reactive

49. The metals which react with steam but not with hot water is
(a) Al, Zn, Fe (b) K, Na, Mg
(c) Ag and Au (d) Pb and Cu

50. Non-metals do not displace hydrogen from acids because
(a) they are electron donor
(b) they are electron acceptor
(c) they have low tensile strength
(d) they have low density

51. $CO_2(g) + H_2O(l) \longrightarrow$
(a) $HCO_3(s)$ (b) $H_2CO_3(aq)$
(c) $HCO_3(aq)$ (d) $H_2CO_3(s)$

52. Among the following, the correct arrangement of the given metals in ascending order of their reactivity is
Zinc, Iron, Calcium, Potassium
(a) Zinc < Iron < Calcium < Potassium
(b) Potassium < Calcium < Iron < Zinc
(c) Potassium < Zinc < Calcium < Iron
(d) Potassium < Calcium < Zinc < Iron

Case Based Questions: (53-56)

This transport of soluble products of photosynthesis is called translocation and it occurs in the part of the vascular tissue known as phloem. Besides the products of photo-synthesis, the phloem transports amino acids and other substances. These substances are especially delivered to the storage organs of roots, fruits and seeds and to growing organs. The translocation of food and other substances takes place in the sieve tubes with the help of adjacent companion cells both in upward and downward directions. Unlike transport in xylem which can be largely explained by simple physical forces, the translocation in phloem is achieved by utilising energy, Material like sucrose is transferred into phloem tissue using energy from ATP. This increases the osmotic pressure of the tissue causing water to move into it. This pressure moves the material in the phloem to tissues which have less pressure. This allows the phloem to move material according to the plant's needs. For example, in the spring, sugar stored in root or stem tissue would be transported to the buds which need energy to grow.

53. The transportation of materials into phloem requires:
(a) Amino acids (b) Food
(c) Water (d) Energy

54. The translocation of food in plants takes place in:
(a) Upward direction only
(b) Downwards direction only
(c) Leaves only
(d) Both in upward and downward directions

55. The components which help in the translocation process in plants are:
(a) Amino acid
(b) Sieve tubes and companion cells
(c) Fruit
(d) Seeds

56. The phenomenon of transportation of food in plants in its dissolved form is called:
(a) Translocation
(b) Excretion
(c) Transpiration
(d) Nutrition

Case Based Questions: (57-60)

The ability of a lens to converge or diverge light rays depends on its focal length. For example, a convex lens of short focal length bends the light rays through large angles, by focussing them closer to the optical centre. Similarly, concave lens of very short focal length causes higher divergence than the one with longer focal length. The degree of convergence or divergence of light rays achieved by a lens is expressed in terms of its power. The power of a lens is defined as the reciprocal of its focal length. It is represented by the lefter P. The power P of a lens of focal length f is given by

$$P = \frac{1}{f}$$

The SI unit of power of a lens is 'dioptre'. It is denoted by the letter D. If f is expressed in metres, then, power is expressed in dioptres. Thus, 1 dioptre is the power of a lens whose focal length is 1 metre. $1\,\mathrm{D} = 1\,\mathrm{m}^{-1}$. The power of a convex lens is positive and that of a concave lens is negative.

57. Which one of the following lens is a converging lens?
(a) Flat lens (b) Bifocal lens
(c) Convex lens (d) Concave lens

58. The power of a diversing lens is 2.0 D. The focal length of lens is:
(a) $+0.5$ m (b) -50 cm
(c) $+500$ mm (d) -40 cm

59. The focal length of a lens is $+40$ cm. The power of lens is:
(a) $+5.0$ D (b) -2.5 D
(c) $+9.5$ D (d) -9.5 D

60. The S.I. unit of power of a lens is:
(a) Kwh (b) Meter
(c) Watt (d) Dioptre

SAMPLE PAPER - 19 Answer Key

Paper Q. no.	Correct Option	Chapter no	Question Bank Q. no.
1	(c)	Ch-1	171
2	(a)	Ch-2	114
3	(a)	Ch-3	131
4	(b)	Ch-1	39
5	(d)	Ch-2	24
6	(d)	Ch-1	101
7	(b)	Ch-1	16
8	(d)	Ch-2	42
9	(d)	Ch-2	110
10	(a)	Ch-1	27
11	(c)	Ch-4	179
12	(a)	Ch-4	51
13	(d)	Ch-4	18
14	(a)	Ch-4	115
15	(a)	Ch-4	120
16	(b)	Ch-4	119
17	(a)	Ch-5	12
18	(a)	Ch-5	137
19	(a)	Ch-5	16
20	(a)	Ch-5	17
21	(c)	Ch-5	18
22	(b)	Ch-5	New
23	(a)	Ch-5	New
24	(b)	Ch-6	10
25	(a)	Ch-2	134
26	(a)	Ch-2	144
27	(d)	Ch-3	165
28	(b)	Ch-3	34
29	(a)	Ch-2	135
30	(a)	Ch-3	91
31	(a)	Ch-2	157

Paper Q. no.	Correct Option	Chapter no	Question Bank Q. no.
32	(a)	Ch-1	165
33	(a)	Ch-4	240
34	(c)	Ch-6	57
35	(a)	Ch-2	45
36	(a)	Ch-1	170
37	(c)	Ch-4	106
38	(b)	Ch-4	121
39	(d)	Ch-5	42
40	(a)	Ch-5	41
41	(c)	Ch-4	136
42	(c)	Ch-4	151
43	(b)	Ch-5	51
44	(b)	Ch-5	107
45	(a)	Ch-5	19
46	(d)	Ch-5	42
47	(c)	Ch-5	83
48	(b)	Ch-3	54
49	(a)	Ch-3	193
50	(b)	Ch-3	194
51	(c)	Ch-3	195
52	(a)	Ch-3	196
53	(d)	Ch-4	258
54	(d)	Ch-4	259
55	(b)	Ch-4	260
56	(a)	Ch-4	261
57	(c)	Ch-5	222
58	(b)	Ch-5	223
59	(a)	Ch-5	224
60	(d)	Ch-5	225