



ROLL NO.	
NAME	
CLASS & SECTION	

APEEJAY COMMON PRE-BOARD EXAMINATION, 2019-20

03

CLASS-X

SCIENCE (Code 086)

Time allowed : 3 hrs.

Maximum Marks : 80

General Instructions :

1. The question paper comprises three sections –A, B and C. Attempt all the sections.
2. All questions are compulsory.
3. Internal choice is given in each section.
4. All questions in Section A are one-mark questions comprising MCQ, VSA type and assertion-reason type questions. They are to be answered in one word or in one sentence.
5. All questions in Section B are three-mark, short-answer type questions. These are to be answered in about 50 -60 words each.
6. All questions in Section C are five-mark, long-answer type questions. These are to be answered in about 80 -90 words each.
7. This question paper consists of a total of 30 questions.

(SECTION : A)

1. Draw the structural formula of 2-Chloro pentane. (1)
2. How does metallic character vary from top to bottom of a group in the Modern Periodic table and why? (1)
3. Question numbers 3(a) - 3(d) are based on the information given below.

Teacher demonstrates the activity to measure the approximate focal length of different types of mirrors and lenses. She chooses a distant tree to focus it on the screen by using a mirror and a lens. Focal length can be measured by measuring the distance between a mirror/a lens and a screen.

- (a) What type of a mirror and a lens is used in the above case : (1)
- (i) A convex mirror and a convex lens
 - (ii) A concave mirror and a concave lens

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- (iii) A concave mirror and a convex lens
- (iv) A convex mirror and a concave lens
- (b) Position of the screen in the above case is : (1)
 - (i) In front of the mirror and the lens
 - (ii) Between the distant tree and the mirror or lens
 - (iii) Between the distant tree and the mirror and on the other side of the lens
 - (iv) Screen can be placed anywhere between the distant tree and the mirror or the lens
- (c) What kind of changes are likely to be observed when the above mirror is replaced by an another type of mirror : (1)
 - (i) No change in the image formation
 - (ii) No image is formed on the screen
 - (iii) Magnified image is formed on the screen
 - (iv) Diminished image is formed on the screen
- (d) What kind of changes are likely to be observed when the above lens is replaced by an another type of lens : (1)
 - (i) No change in the image formation
 - (ii) Magnified image is formed on the screen.
 - (iii) Diminished image is formed on the screen
 - (iv) No image is formed on the screen

4. Question numbers 4(a) - 4(d) are based on the information given below.

Thyroid is an endocrine gland which plays an important role in the metabolism, growth and maturation of the human body. It is located in front of the trachea just below the larynx in the neck. Thyroxine hormone is made by extracting iodine from the blood and incorporating it into thyroid hormones. Thyroxine targets the genes involved in the metabolism of glucose in the body. The hypothalamus and the pituitary gland are the main centers that regulate the activity of the thyroid gland.

Improper secretion of thyroxine hormone can lead to disorders and affect about 5% women and 0.5% men.

If the thyroid is too active (overactive) and makes too much hormones, it is called hyperthyroidism.

If it's not active enough (underactive), it is called hypothyroidism

Both hypothyroidism and hyperthyroidism can make the thyroid larger than normal. An enlarged thyroid gland can be seen easily and this condition is called goiter.

- (a) Where is thyroid gland located? (1)

- (i) Spine (ii) Brain
 (iii) Neck (iv) Between the lungs
- (b) Which of the following body function is regulated by the hormone secreted by Thyroid Gland? (1)
 (i) Metabolism (ii) Excretion
 (iii) ova formation (iv) Respiration
- (c) Which gland/glands mainly control and regulate the actual thyroid activity? (1)
 (i) Pituitary Gland (ii) Hypothalamus
 (iii) Both (i) and (ii) (iv) Only (i)
- (d) What is abnormal enlargement of thyroid gland known as? (1)
5. Which of the following is a disadvantage of most of the renewable energy : (1)
 (a) Highly polluting (b) High waste disposal cost
 (c) Unreliable supply (d) High running cost
6. Solar cells convert the energy of sunlight into : (1)
 (a) Chemical energy (b) Biogas
 (c) Electrical energy (d) Geothermal energy
7. When a 40V battery is connected across an unknown resistor there is a current of 100 mA in the circuit. Find the value of the resistance of the resistor. (1)
8. The following is the correct grazing food chain. (1)
 (a) Grass – Grasshopper – Frog – Snake – Hawk
 (b) Grass – Frog – Grasshopper – Snake – Hawk
 (c) Grass – Grasshopper – Frog – Hawk – Snake
 (d) Grass – Grasshopper – Snake – Frog – Hawk

OR

Given below are a few statements related to biodiversity. Pick those that correctly describe the concept of biodiversity

- (i) Biodiversity refers to the different species of flora and fauna present in an area.
 (ii) Biodiversity refers to only the flora of a given area.
 (iii) Biodiversity is greater in a forest.
 (iv) Biodiversity refers to the total number of individuals of a particular species living in an area.
- (a) (i) and (ii) (b) (ii) and (iv)
 (c) (i) and (iii) (d) (ii) and (iii)

9. A successful forest conservation strategy should involve (1)
- (a) protection of animals at the highest trophic level
 - (b) protection of only consumers
 - (c) protection of only herbivores
 - (d) comprehensive program to protect all physical and biological components
10. Which one of the following does not result in the evolution of hydrogen gas? (1)
- (a) $Zn + \text{dil. HCl}$
 - (b) $Al + \text{dil. HCl}$
 - (c) $Mg + \text{dil. H}_2\text{SO}_4$
 - (d) $Zn + \text{dil. HNO}_3$
11. With the increase in the concentration of hydrogen ions the pH value will (1)
- (a) Increase
 - (b) Decrease
 - (c) Remain same
 - (d) Increase or decrease
12. The elements A, B, C, D and E have atomic numbers 9, 11, 17, 12 and 13 respectively. Which pair of elements belongs to the same group of Modern Periodic table? (1)
- (a) A and B
 - (b) B and D
 - (c) A and C
 - (d) D and E

OR

The elements A, B, C and D have atomic number 7, 3, 12, 19 respectively. Which of them will form acidic oxide?

- (a) B
 - (b) D
 - (c) C
 - (d) A
13. For the question number 13 and 14, two statements are given – one labelled - Assertion (A) and other labelled Reason (R). Select the correct answer to these questions selecting the appropriate option given below. (1)
- (a) Both A and R are true and R is the correct explanation of A
 - (b) Both A and R are true but R is not the correct explanation of A
 - (c) A is true but R is false
 - (d) A is false but R is true

Assertion (A)-Ethanol, Methanol and Butanol have almost similar chemical properties
Reason (R)-Ethanol, Methanol and Butanol have single bond between carbon atoms

14. Assertion (A)-When resistors are connected in series potential difference remains same for the combination. (1)
Reason (R)-When resistors are connected in parallel potential difference divides in the each arm.

(SECTION : B)

15. On heating blue coloured powder of copper(II) nitrate in a boiling tube, copper oxide (black in colour) , oxygen gas and a brown coloured gas 'X' is formed. (3)
(a) Write a balanced chemical equation of the reaction.
(b) Identify the brown gas 'X' evolved.
(c) Name and define the type of reaction in the above chemical reaction.
16. A dry pellet of a common base 'B', when kept in open absorbs moisture. The compound is a by- product of chlor alkali process. Identify 'B'. mention its one use. Write balanced chemical equation of its formation from brine. (3)

OR

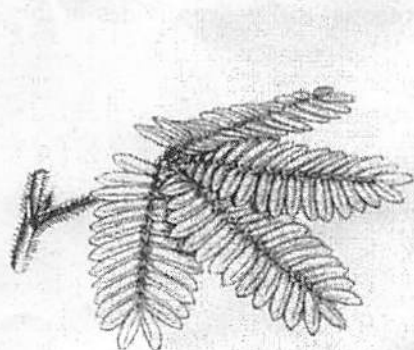
- (a) Write the name given to bases that are highly soluble in water. Give example.
(b) How is tooth decay related to pH?
(c) Why does bee sting cause pain when a bee bites? Rubbing of moist baking soda gives relief from it. Why?
17. (a) An element 'X' has mass number 35 and number of neutrons 18. Write atomic number and electronic configuration of 'X'. Also write period number of Modern Periodic table and valency of 'X'.
(b) Write any one merit of Modern periodic table. (3)
18. Give any three reasons for opposition to the construction of large dams, such as the Tehri dam on the river Ganga by local people? (3)

OR

Explain how pesticides enter the food chain and subsequently get into our body?

19. (a) Why do ventricles have thicker muscular walls than Atria? (3)
(b) What is peristaltic movement?
(c) Stomata remain closed during the day time in desert plants. How do they perform Photosynthesis?

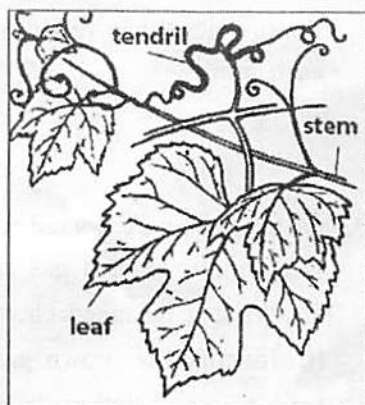
20. (a) What is the stimulus which is common for movement in both the cases-I and II? (3)



I



II

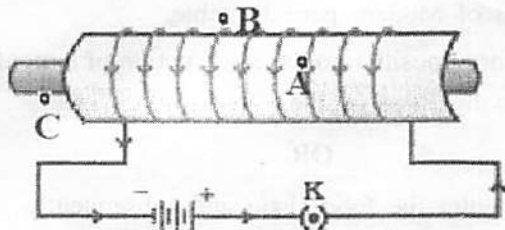


- (b) Does the movement take place away/at the point where stimulus is received?
Mention separately for both I & II.
(c) Give one reason for the movement in each case.

21. (a) Draw the structure of nephron and label the following parts: (3)

- (i) Glomerulus (ii) Bowman's Capsule
(iii) Collecting duct

22. For a current carrying solenoid as shown below, draw magnetic field lines and giving reason explain that out of the three points A, B and C at which point the field strength is minimum and at which point it is maximum? (3)



23. (a) What do you mean by the reflection of light? Is the laws of reflection true in case of light reflected from a rough surface like a rock? Support your answer with a diagram.
(b) Why is red colour selected for danger signal lights? (3)

OR

- (a) The refractive index of Ruby is 1.71. What is meant by this statement?

(b) The absolute refractive index of some medium are given below :

Crown glass	-	1.52
Water	-	1.33
Sapphire	-	1.77

In which of the medium is the speed of light will be maximum and which it will be minimum. Calculate speed of light in sapphire.

24. When a wire of length L carrying current I is placed in a magnetic field of strength B , it experiences a force F . (3)

(a) State the rule to find the direction of force.

(b) In the above case what will happen to the direction of force if we reverse the direction of current?

(c) When will it experience maximum force?

(SECTION : C)

25. (a) Write electron dot structure of chlorine and sodium. Show the formation of compound formed from sodium and chlorine by the transfer of electrons. (5)

(b) Common salt conducts electricity in molten state? Why?

(c) Why melting point of ionic compounds are high.

OR

(a) A metal that exists as liquid at room temperature is obtained by heating its sulphide in the presence of air. Name the ore and the metal. Also write balanced chemical equations involved in obtaining above metal from its ore.

(b) Carbon cannot be used as reducing agent to obtain Aluminium from Aluminium oxide. Why?

26. (a) An organic compound 'X' on heating with concentrated sulphuric acid forms a compound 'Y' which on addition of one molecule of hydrogen in the presence of nickel forms a compound 'Z'. One molecule of compound 'Z' on combustion forms carbon dioxide gas and water. Identify 'Y' and 'Z' and write chemical equations showing formation of Compound 'Y' from compound 'X' and 'Z' from 'Y'.

(b) State the action of soaps in removing an oily spot from a shirt. (5)

27. (a) Draw the longitudinal section of a flower and label the following parts which : (5)

(i) develops into fruit

(ii) produces pollens

(iii) receives the pollens

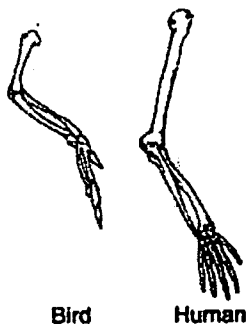
(iv) is colourful and attracts insects

- (b) What is the effect of DNA copying, which is not perfectly accurate, on the reproduction process?
- (c) How does the amount of DNA remain constant though each new generation is a combination of DNA copies of two individuals?

OR

- (a) State the changes that take place in the uterus when
- Implantation of embryo takes place
 - Female gamete/egg is not fertilized
- (b) State the function of each of the following parts of human male reproductive system.
- Vas deferens
 - Testes
 - Prostrate Gland

28. (a) Observe the diagram showing the limbs of a bird and a human-being. (5)



- Are they homologous or Analogous? Give reason to support your answer?
 - How do they provide evidence for evolution?
- (b) 'Are older designs inefficient in the process of evolution'? Justify it with the help of an example.
29. A person cannot read newspaper placed nearer than 50 cm from his eyes. Name the defect of vision he is suffering from. Draw a ray diagram to illustrate this defect. List its two possible causes. Draw a ray diagram to show how this defect may be corrected using a lens of appropriate focal length. (5)
30. Which uses more energy, a 250W TV set in 1 hour, or a 1200W toaster in 10 minutes and by how much? (5)

OR

A bulb draws 24W when connected to a 12V supply. Find the power if it is connected to a 6V supply. Find the current drawn by a bulb in each case. (5)

BEST OF LUCK!