



RISE OF NATION ACADEMY

"We Create the Impeccable Creature"

Test Paper

Standard - X

Subject – Science (Set-A)

Date – 07/01/2018

Time – 03:00 hrs.

Max. Marks - 80

Min. Marks – 40

GENERAL INSTRUCTIONS

1. This question paper comprises of five sections A, B, C, D and E. you have to attempt all the sections.
2. All questions in this question paper are compulsory.
3. All questions in all sections are to be attempted separately.
4. Question numbers 1 to 2 in Section A are one mark questions. These are to be answered in one word or one sentence.
5. Question numbers 3 to 5 in Section B are two marks questions. These are to be answered in about 30 words each.
6. Question numbers 6 to 15 in Section C are three marks questions. These are to be answered in about 50 words each.
7. Question numbers 16 to 21 in Section D are five marks questions. These are to be answered in about 70 words each.
8. Question numbers 22 to 27 in Section E are based on practical skills. Each question is a two marks question.

Section A

Q(1). Write down the relation between

- (i). Focal length and radius of curvature of convex mirror.
- (ii). The radius of curvature of a spherical mirror is 32 cm. What is its focal length?

Q(2). What happens when vegetable oil is heated with sodium hydroxide solution?

Section B

Q(3).

- (i). State two uses of convex lens.
- (ii). A convex lens has a focal length of 20 cm. Where should an object be placed in front of the convex lens so as to obtain the image which is real, inverted and same size as that of object?
Draw a ray diagram to show the formation of the image.

Q(4). What is the cause of acid rain.

Q(5). Is the number of stomata same in the leaves of all plants? Explain.

Section C

Q(6). The endocrine glands in our body secrete the correct amount of hormones for effective functioning of the body. However, certain factors lead to disturbances causing slightly more or less secretion.

Explain the consequence of these disturbances with examples.

Q(7). Define esterification and saponification reactions of organic compounds.

Or

The pH of lemon juice, milk and tomato juice are 2.2, 6.8 and 4.2 respectively. Calculate the corresponding hydrogen ion concentration in each.

Q(8). Write down the function of the following in digestive process.

- (i). Mucus (ii). Bicarbonate secreted by duodenal wall
(iii). Pancreatic amylase

Q(9). Differentiate between homozygous and heterozygous organisms.

Q(10).

- (i). What a labeled diagram describe an activity to show the formation of an ester.
(ii). What is the melting point of pure ethanoic acid?

Or

Predict the periods and blocks with their electronic configuration to which each of the following elements belong?

- (i). Al (ii). Cr (iii). Cu

Q(11). Atomic number of a few elements is given below 10, 20, 7 and 14.

- (i). Identify the elements.
(ii). Identify the group number of these elements in the periodic table.
(iii). What would be the electronic configuration for each of these elements?

Q(12). Explain the reasons behind the following observations.

- (i). A teacher took few crystals of sugar in a dry test tube and heated the test tube over flame. The colour of sugar turned black.
(ii). Sugar solution is not an ionic compound.
(iii). Ionic compound are crystalline solids. Why?

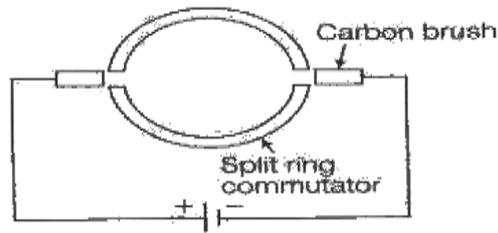
Q(13). Himanshu was doing an experiment by using an ammeter. Suddenly, it fell from his hand and broke. He was fearing that he might be scolded by his teacher. His classmate advised him not to tell the teacher but he refused and told his teacher. On listening to him patiently, the teacher did not scold him as it was just an incident and used the opportunity to show the whole class the internal structure of ammeter.

On the basis of above passage, answer the following questions:

- (i). What are the values displayed by Himanshu?
- (ii). What is the use of ammeter? How is it connected in the circuit?
- (iii). State the aim of any one experiment, where Himanshu could have used the ammeter.

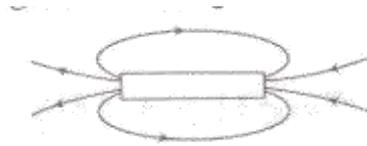
Q(14).

- (i). The figure shows the split ring commutator and the two carbon brushes in their respective positions.



What can you say about carbon brush and split ring commutator?

- (ii). Identify the poles of a magnet in the figure.



Q(15). How do transpiration helps in functioning of the plants? During an experiment a plant leaf was coated with Vaseline. What happens to the leaf and why?

Section D

Q(16).

- (i). What is scrotum?
- (ii). What are the three parts of sperm?
- (iii). Why is the testes of males located outside the body?
- (iv). Human man remains fertile throughout their life, explain.

Or

Mention the function of the following reproductive structures.

- | | |
|---------------|--------------|
| (i). Vagina | (iii). Ovary |
| (ii). Oviduct | (iv). Uterus |

Q(17). A student is unable to see clearly the words written on the blackboard placed at a distance of approximately 4 m from him. Name the defect of vision the boy is suffering from. Explain the method of correcting this defect.

Draw ray diagram for the

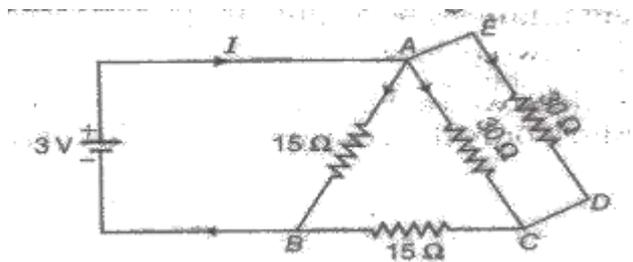
(i). Defect of vision and also

(ii). For its correction.

Q(18). What are ionic compounds? Write their important properties. Give one example of ionic compound and give its electron dot structure.

Q(19).

(i). Find the value of current I in the circuit as given below:



(ii). You have four resistors of $8\ \Omega$ each. Show how would you connect these resistors to have an effective resistance of $8\ \Omega$.

Q(20).

(i). What is the chemical name of baking soda? How is it produced? Why is it used in baking? Write the reactions involved.

(ii). How is washing soda obtained from baking soda? Give an industrial use of washing soda other than washing cloths.

Q(21). Number of vultures are decreasing remarkably now-a-days, which is a matter of concern. Answer the following questions relating to the statement given above.

(i). Vultures belong to which category of animals?

(ii). What is their role in nature to maintain ecological balance?

(iii). At which trophic level will you place vultures, in a food chain?

(iv). Give the energy flow diagram in an ecosystem. How much energy is passed on at each trophic level.

Section E

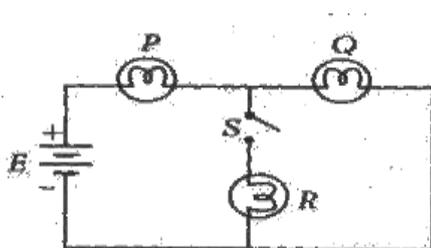
Q(22). In an experiment Rohit a student of that class was asked to immerse an object in a fluid. So that the object becomes invisible. What should he do?

Q(23). A chimpanzee can hold objects by its hand and an elephant by its trunk. Are these two organs analogous or homologous? Give reason in support of your answer.

Q(24). A student takes an unknown organic liquid (A). She observes that it does not turn blue litmus to red and give no effervescence with sodium hydrogen carbonate. However, when a dry piece of sodium metal is added to the liquid, a gas is evolved with brisk effervescence.

- (i). Identify the organic liquid (A).
- (ii). Name the gas due to which effervescence involved. Write the equation also.

Q(25). A battery E is connected to three identical lamps, P , Q and R as shown in figure. Initially the switch S is kept open the lamp P and Q are observed to glow with some brightness. Then, switch S is closed.



How will be the brightness of bulbs P and Q changed? Justify your answer.

Q(26). What will happen when

- (i). A Spirogyra filament attain considerable length?
- (ii). Planaria gets cut into two pieces.

Q(27). In an experiment a student was asked to show how a prism can be used to spilt white light into spectrum. Mark only the ends of the spectrum in the diagram.