

AMRITA VIDYALAYAM

AMRITA PRE BOARD EXAMINATION 2019 - 20

Class : X

Marks : 80

Time : 3 hrs

SCIENCE

GENERAL INSTRUCTIONS :

1. This question paper comprises of four 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 marks, short answer type questions. These are to be answered in about 50-60 words each.
6. All questions in Section C are five marks, 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. Write the formula and then balance the following equation.
Sodium sulphate + Barium chloride → Barium Sulphate + Sodium chloride
2. What is the valency of oxygen?
3. Answer the questions that follow on the basis of your understanding of the following paragraph and the related studied concepts.

It is easy to see that solar cooker devices are useful only at certain times during the day. This limitation of using solar energy is overcome by using solar cells that convert solar energy into electricity. A typical cell develops a voltage of 0.5 -1 V and can produce about 0.7 W of electricity when exposed to the sun. A large number of solar cells are, combined in an arrangement called solar cell panel that can deliver enough electricity for practical use. The principal advantages associated with solar cells are that they have no moving parts, require little maintenance and work quite satisfactorily without the use of any focusing device. Another advantage is that they can be set up in remote and inaccessible hamlets or very sparsely inhabited areas in which laying of a power transmission line may be expensive and not commercially viable.



- a) What type of source of energy is mentioned in the above picture?
 b) For what purpose solar panels are used?
 c) Write the three advantages of solar cells.
 d) Why solar cooker surface is painted with black colour?
4. Question numbers a) - d) are based on the two tables given below. Study these tables related to blood pressure level and answer the question that follow.

Table - A

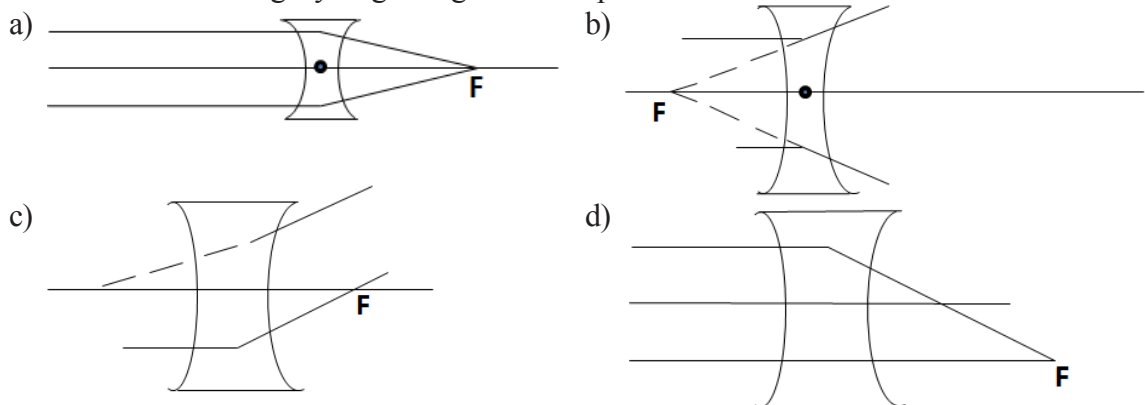
Blood Pressure Category	Systolic mm Hg (Upper number)	Diastolic mm Hg (Lower number)
Normal	120	80
Elevated	120-129	Less than 80
High blood pressure (Hypertension) stage 1	130-139	80-90
High blood pressure (Hypertension) stage 2	140 or higher	90 or higher
Hypertensive crisis (consult your doctor immediately)	Higher than 180	Higher than 120

Table - B

Time of Measurement	Blood pressure	
	Patient - X	Patient - Y
Morning	75 - 115	85 - 125
Afternoon	79 - 122	80 - 120
Evening	82 - 132	75 - 110

- a) In the table B, at which time patient - Y has ideal normal blood pressure?
 b) The instrument used to measure blood pressure is _____.
 (Stethoscope, Thermometer, Sphygmomanometer, None of these)
 c) Which diet is the best for high blood pressure patients?
 (Grain and fruits, High fat dairy products, Take large amount of sodium in diet, All of the above)
 d) The ideal blood pressure measurement is _____.
 (80-120 mm Hg, 85-125 mm Hg, 90-150 mm Hg, 95-100 mm Hg)

5. Which of the following ray diagrams give correct picture?



6. The identifying feature to observe budding in yeast in a slide is _____.
 (appearance of bud, division of nucleus, appearance of constriction, division of cytoplasm)

7. Part of embryonic axis below the level of cotyledon is _____.
(Epicotyls, Hypocotyl, Radicle, None of these)
8. Chemical formula of plaster of Paris is _____.
a) $\text{CaSO}_4 \cdot 3\text{H}_2\text{O}$ b) $\text{CaSO}_4 \cdot \frac{1}{2} \text{H}_2\text{O}$ c) $\text{CuSO}_4 \cdot 2\text{H}_2\text{O}$ d) $\text{CuSO}_4 \cdot \frac{1}{2} \text{H}_2\text{O}$
OR
Sodium Carbonate is a basic salt because it is a salt of _____.
(strong acid and strong base, weak acid and weak base, strong acid and weak base, weak acid and strong base)
9. At the synapse, the impulses are always passed from the _____.
(axon to dendrites, dendrites to axon, either way is possible, cyton to dendrites)
10. In an ecosystem, 10% of energy available for transfer from one trophic level to the next is in the form of _____.
(heat energy, light energy, chemical energy, mechanical energy)
11. Which of the following does not belong to same homologous series?
a) CH_4 b) C_2H_6 c) C_3H_8 d) C_4H_8
12. The common name of compound CaOCl_2 is _____.
(washing soda, bleaching powder, baking soda, baking powder)
13. Assertion : Most carbon compounds are poor conductors of electricity.
Reason : They do not dissociate to form ions.
(Assertion is incorrect but reason is correct, Both assertion and reason are correct and reason is the correct explanation of the assertion, Both assertion and reason are correct but, reason is not the correct explanation of the assertion, Assertion is correct but reason is incorrect.)
14. Assertion : Danger signal lights are red in colour.
Reason : Red lights have maximum wave length that scatters the least.
(Assertion is incorrect but reason is correct, Both assertion and reason are correct and reason is the correct explanation of the assertion, Both assertion and reason are correct but reason is not the correct explanation of the assertion, Assertion is correct but reason is incorrect.)

SECTION - B

15. Show the formation of Magnesium oxide by the transfer of electrons. What are the ions present in this compound?
16. What happens when nitric acid is added to egg shell? Write chemical equation also.
OR
Why do HCl , HNO_3 etc show acidic character in aqueous solution while solutions of compounds like alcohol and glucose do not show acidic character?
17. A magnesium ribbon is burnt in oxygen to give a white compound X accompanied by emission of light. If the burning ribbon is now placed in an atmosphere of nitrogen, it continues to burn and forms a compound Y.
a) Write the chemical formulae of X and Y.
b) Write a balanced equation, when X is dissolved in water.
18. a) Construction of large dams leads to social and environmental problems. List two problems of each category.
b) Mention any two advantages of dams.
19. An object 5 cm in length is held 25 cm away from a convex lens of focal length 10 cm. Draw a ray diagram and find the position and size of the image.
20. a) Why do ventricles have thicker muscular walls than atria?
b) What are peristaltic movements?

- c) Stomata remain closed in desert plants during day time. How do they carry out photosynthesis?
21. Name any three phytohormones and state briefly one function of each.
22. A wire of resistance 5Ω is bent in the form of a closed circle. What is the effective resistance between the two points at the ends of any diameter of that circle?
23. How does use of a fuse wire protect electrical appliances? Name the law behind the working of fuse wire.
24. Distinguish between resistivity and resistance of conducting wire. What are their SI units?

SECTION - C

25. a) Given below are the steps for extraction of copper from its ore. Write the reaction involved.
 (i) Roasting of copper (I) sulphide
 (ii) Reduction of copper (I) oxide with copper (I) sulphide
 (iii) Electrolytic refining
 b) Draw a neat and well labelled diagram for electrolytic refining of copper.
26. Atomic number of a few elements are given below 10, 20, 7, 14.
 a) Identify the elements.
 b) Identify the group number and period.
 c) Write the electronic configuration of each element.
 d) Determine the valency of each element.
27. a) Draw a sectional view of human female reproductive system and label the part where
 (i) egg develops. (ii) fertilization takes place.
 (iii) fertilized egg gets implanted.
 b) Describe in brief the changes the uterus undergoes to receive the zygote.
28. a) How do Mendel's experiments show that traits are inherited independently?
 b) Why did Mendel choose garden pea for his experiments? Write two reasons.

OR

- a) What are analogous organs? Why cannot the wing of a butterfly and the wing of a bat be considered homologous organ? State one reason.
 b) Evolution and classification of organisms are interlinked. Give reason to justify this statement.
29. Explain the underlying principle and working of an electric generator with the help of a labelled diagram. What is the function of brushes?

OR

Find out the following in the electric circuit given in figure.

- a) Effective resistance of two 8Ω resistance in the combination.
 b) Current following through 4Ω resistor.
 c) Potential difference across 4Ω resistor.
 d) Power dissipated in 4Ω resistor.
 e) Difference in ammeter readings if any.
30. a) Define real image of an object.
 b) Name the mirror that
 (i) can give real as well as virtual image of an object.
 (ii) will always give virtual image of same size of an object.
 (iii) will always give virtual and diminished image.
 (iv) is used by a doctor in examining teeth.

