

# AMRITA VIDYALAYAM

## AMRITA PRE BOARD EXAMINATION 1 - 2018 -'19

Class : X

Marks : 80

Time : 3 hrs

### SCIENCE

#### *GENERAL INSTRUCTIONS :*

- (i) The question paper comprises five sections, A, B, C, D and E. You are to attempt all sections.
- (ii) All questions are compulsory.
- (iii) Internal choice is given in Section B, C, D and E.
- (iv) Question numbers 1 and 2 in Section A are one mark question. They are to be answered in one word or in one sentence.
- (v) Question numbers 3 to 5 in Section B are two marks questions. These are to be answered in 30 words each.
- (vi) Question numbers 6 to 15 in Section C are three marks questions. These are to be answered in about 50 words each.
- (vii) Question numbers 16 to 21 in Section D are 5 marks questions. These are to be answered in 70 words each.
- (viii) Question numbers 22 to 27 in Section E are based on practical skills. Each question is a two marks question. These are to be answered in brief.

#### SECTION - A

1. Which is the information source for making proteins in the cell?
2. Name any two traditional water harvesting system.

#### SECTION - B

3. Write balanced chemical equation for the following reactions.
  - a) Dilute Sulphuric acid reacts with aluminium powder.
  - b) Dilute Hydrochloric acid reacts with sodium carbonate.
4. How will you differentiate arteries from veins?
5. Give an activity to show that magnetic field is generated around straight current carrying conductor.

OR

On what does the strength of the magnetic field at the centre of a circular coil of a wire depend?

- a) Radius of the coil.
- b) Number of turns of the wire of the coil.

#### SECTION - C

6.
  - a) A solution of substance 'X' is used for white washing. What is the substance 'X'? State chemical reaction of 'X' with water.
  - b) Why does the colour of copper sulphate solution change when iron nail is dipped in it?
7. An element X has mass number 35 and the number of neutrons is 18. Identify the group number and period, also predict the nature of it.

8. State the number of water molecules present in crystals of washing soda and plaster of paris. What are these water molecules called?

OR

Give three practical applications of neutralization reaction.

9. What is an ecosystem? List its components. We do not clean natural ponds but an aquarium needs to be cleaned regularly, why is it so?
10. On the notice board of Ultra sound clinics it is generally stated, 'Here prenatal sex determination and disclosure of sex of foetus is not done. It is prohibited and punishable under law'.  
a) List two advantages of imposing ban on prenatal sex determination.  
b) What can students do to educate the society about the following?  
(i) The ill effects of indiscriminate female foeticide.  
(ii) Adopting small family norms.
11. a) Draw a schematic diagram of a circuit consisting of a 24 V battery, a  $10\Omega$  resistor,  $5\Omega$  resistor and  $1\Omega$  resistor, an ammeter and a switch all connected in series.  
b) Calculate the ammeter reading in this circuit.
12. a) What is dispersion of light?  
b) What is the cause of dispersion?  
c) Draw a diagram to show the dispersion of white light by a glass prism.

OR

Why is the colour of clear sky blue? Explain.

13. a) Distinguish between renewable and non renewable sources of energy with one example for each.  
b) Choose the renewable sources of energy from the following.  
coal, biogas, sun, natural gas
14. An object is placed at the following distances from a concave mirror of focal length 15cm.  
a) 10cm                      b) 20cm                      c) 30cm                      d) 40cm  
Which position of the object will produce  
(i) virtual image?              (ii) a diminished real image?              (iii) An enlarged real image?
15. a) Which plant hormone is present in greater concentration in the areas of rapid cell division?  
b) Give one example of a plant growth promoter and a plant growth inhibitor.

OR

- a) How is brain protected from injury and shock?  
b) Name two main parts of hind brain and state the function of each.

### SECTION - D

16. a) List two differences between calcination and roasting.  
b) Which method will you use to reduce the following? Explain by giving a suitable example.  
(i) oxides of less reactive metals.  
(ii) oxides of moderately reactive metals.  
(iii) oxides of highly reactive metals.
17. a) What are hydrocarbons? Give examples.  
b) Give the structural difference between saturated and unsaturated hydrocarbons with two examples each.  
c) What is functional group? Give examples of four different functional groups.

OR

A compound C ( $C_2H_4O_2$ ) reacts with sodium metal to form a compound R and evolves a gas

which burns with a pop sound. Compound C on treatment with an alcohol A in presence of an acid forms a sweet smelling compound S ( $C_3H_6O_2$ ). On addition of NaOH to C, it also gives R and water. S on treatment with NaOH solution gives back R and A. Identify C, R, A, S and write down the reactions involved.

18. A pea plant with blue colour flower denoted by 'BB' is cross bred with a pea plant with white flower denoted by 'ww'.
- What is the expected colour of the flowers in their  $F_1$  progeny?
  - What will be the percentage of plants bearing white flower in  $F_2$  generation, when the flowers of  $F_1$  plants were selfed?
  - State the expected ratio of the genotype BB and Bw in the  $F_2$  progeny.
19. a) Draw the structure of a nephron and label the following parts on it.
- |                    |                       |
|--------------------|-----------------------|
| (i) Glomerulus     | (ii) Bowman's capsule |
| (iii) Renal artery | (iv) Collecting duct  |
- b) What happens to glucose that enter the nephron along with filtrate?

OR

- Draw a labelled diagram of the respiratory system of man, with diaphragm at the end of expiration.
  - List three conditions required for efficient gas exchange in an organism.
  - Name the end products of glucose breakdown in anaerobic respiration.
20. a) What is meant by refraction of light?
- b) State the cause of refraction of light.
- c) A 4cm tall object is placed perpendicular to the principal axis of a convex lens of focal length 20cm. The distance of the object from the lens is 15 cm. Find the nature, position and size of the image.
21. Describe the working of an A.C generator with the help of a labelled circuit diagram. What changes must be made in the arrangement to convert an A.C generator to a D.C generator.

OR

Describe an activity that shows that a current carrying conductor experiences a force perpendicular to its length and the external magnetic field. How does Fleming's left hand rule help us to find the direction of the force acting on the current carrying conductor?

### SECTION - E

22. Name a vegetable oil which is saturated. Give its chemical name and formula.

OR

State any two physical properties of acetic acid.

23. A gas is liberated immediately with a brisk effervescence when you add acetic acid to sodium hydrogen carbonate powder in a test tube. Name the gas and explain the test that confirms the identity of the gas.
24. In respiration experiment, what would happen if
- KOH is not hung in conical flask during experiment?
  - seeds are not kept moist during experiment?

OR

Draw a labelled diagram of stomata and label the following.

- |            |                           |
|------------|---------------------------|
| a) Nucleus | b) cells that form stoma. |
|------------|---------------------------|
25. You soak seeds of bean and observe them after 2-3 days. What will be your observations?
26. Draw a path of light ray passing through a prism and label the following.
- |                       |  |
|-----------------------|--|
| a) Angle of incidence | b) Angle of deviation in the ray diagram |
|-----------------------|--|

27. What is likely to happen and how it would affect the value of resistance if we pass the current for a longer time in a circuit?

OR

In a given ammeter, a student sees that needle indicates 17 divisions while performing an experiment to verify Ohms law. If ammeter has 10 divisions between 0 and 0.5A, then what is the value corresponding to 17 divisions?