

# AMRITA VIDYALAYAM

## HALF YEARLY EXAMINATION 2018 -'19

Class : X

Marks : 80

Time : 3 hrs

### SCIENCE

#### GENERAL INSTRUCTIONS :

1. All questions are compulsory.
2. All questions of Section A and Section B are to be attempted separately.
3. There is an internal choice in two questions of three marks each, two questions of five marks each in Section A and in one question of two marks in Section B.
4. Question numbers 1 and 2 in Section A are one- mark questions. They are to be answered in one word or in one sentence.
5. Question numbers 3 and 5 in Section A are two- marks questions. They are to be answered in about 30 words each.
6. Question numbers 6 and 15 in Section A are three- marks questions. They are to be answered in about 50 words each.
7. Question numbers 16 and 21 in Section A are five- marks questions. They are to be answered in about 70 words each.
8. Question numbers 22 and 27 in Section B are based on practical skills. Each question is a two-marks question. These are to be answered in brief.

#### SECTION - A

1. Name any two constituents of biogas.
2. State the basic difference between the process of respiration and photosynthesis.
3. a) Write down a function each of
  - (i) Cerebellum.
  - (ii) Medulla oblongata.b) Name the origin of the two components of peripheral nervous system.
4. a) Why does the food get spoiled?  
b) How the spoilage of food can be prevented?
5. How does chemical co-ordination occur in plants? Explain with the help of three examples.
6. a) The atomic number of magnesium is 12 and of chlorine is 17. Show the formation of magnesium chloride by the transfer of electrons.  
b) Which type of bonding is present in magnesium chloride?

OR

What happens when a piece of

- a) aluminium metal is added to dilute hydrochloric acid?
- b) zinc metal is added to copper sulphate solution?
- c) silver metal is added to copper sulphate solution?

Also write balanced chemical equation, if the reaction occurs.

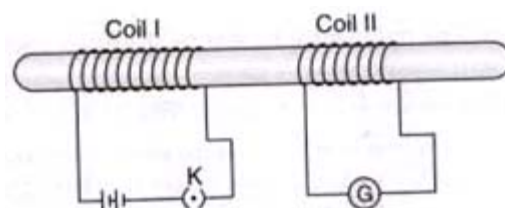
7. You are going through the Science notebook of your brother. You suddenly come across a question stating "What is the reason behind regular formation of cramps in cricketers?". Your brother stated the answer as "cramps are developed due to tear in ligament". Is this answer correct? State reasons for your answers.
8. One day Suresh connected many house hold high power appliances having a current rating more than 6A to a multiplug of 6A rating. When he was about to switch them on, his elder sister

shouted and asked him to remove the appliances from a single socket.

- a) According to you, why she would not advice to connect multi-high power appliances on a single socket?
- b) What would have happened, if he switched them on?
- c) What was the value shown by his sister?
9. Write the chemical formula of washing soda? How may it be obtained from baking soda? Give an industrial use of washing soda other than washing clothes.
10. a) Name the disease by which a person is likely to suffer due to the deficiency of  
(i) iodine. (ii) insulin.
- b) How are the timing and amount of hormone secretion regulated in humans? Explain with an example.

OR

- a) What is reflex action?
- b) Draw a diagram showing reflex arc and label the following parts.  
(i) Sensory neuron (ii) Motor neuron
11. Justify the following statements.  
a) Variations are beneficial for a species for a given period of time.  
b) New offsprings produced are similar to the parents but not identical.  
c) Binary fission is different in *Amoeba* and *Leishmania*.
12. Explain the following.  
a) Why is tungsten used almost exclusively for filament of electric lamp?  
b) Why is the series arrangement not used for domestic circuits?  
c) Why are copper and aluminium wires usually employed for electricity transmission?
13. Describe how a hydropower plant produces electricity. Write any two advantages of hydroelectric energy?
14. Give reasons for the following.  
a) Plaster of paris is stored in a sealed container.  
b) Copper sulphate crystals leave white residue on heating.  
c) Dry hydrogen chloride gas has no effect on blue litmus paper.
15. State how would you connect three resistors each of  $6\Omega$ , so that the combination has a resistance of  
a)  $9\Omega$ . b)  $4\Omega$ .
16. a) Distinguish roasting and calcination.  
b) How is zinc extracted from its sulphide ore? Explain the various steps supported by chemical equations.  
c) Draw a labelled diagram for the electrolytic refining of copper.
17. Two coils of insulated copper wire are wound over a non conducting cylinder as shown. Coil 1 has larger number of turns.



- a) Write your observations when  
(i) key k is closed. (ii) key k is opened.
- b) Mention the name of the phenomenon involved and define it.
- c) Name of the two coils used in this experiment.

d) State the rule which gives the direction of induced current.

OR

a) Define Alternating current and Direct current.

b) Name a source of Alternating and Direct current.

c) Mention the frequency of AC supply in India.

d) State two advantages of Alternating current over Direct current.

18. a) Draw a sectional view of human female reproductive system and label the part where  
(i) eggs develop. (ii) fertilized egg gets implanted.  
b) Describe, in brief, the changes the uterus undergoes  
(i) to receive the zygote. (ii) if zygote is not formed.

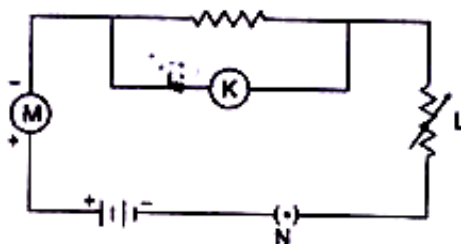
OR

Define the terms pollination and fertilization. Draw a diagram of a pistil showing pollen tube growth into the ovule and label the following- pollen grain, male gamete, female gamete, ovary.

19. Two conductors A and B of resistances  $5\Omega$  and  $10\Omega$  respectively are first joined in parallel and then in series. In each case the voltage applied is  $20\text{V}$ .  
a) Draw the circuit diagram to show the combination of these conductors in each case.  
b) In which arrangement will the voltage across the conductors A and B be the same?  
c) In which arrangement will the current through A and B is the same?  
d) Calculate the equivalent resistance for each arrangement.
20. a) Compound A when dissolved in water gives compound B which is used in whitewashing. Compound B reacts with carbon dioxide to form a white precipitate of compound C. Identify compound A, B and C. Also write the equations involved.  
b) What happens when silver chloride is exposed to sunlight? Write a chemical equation for this reaction.
21. Plastic production is increasing day by day in spite of the fact that plastic is non-biodegradable.  
a) What is the difference between biodegradable and non-biodegradable substances?  
b) Write any two harmful effects of plastic usage.  
c) Write any four ways by which we can avoid the use of plastics.

### SECTION - B

22. a) A student puts a few drops of an unknown solution on the pH strip. Colour of the pH strip changes to violet. What is the nature of the solution?  
b) Which gas is liberated when zinc granules are added to dilute hydrochloric acid? How will you test this gas?
23. To verify ohm's law, a circuit diagram was drawn by a student as shown below. What do K, L, M, N stand for?



24. In a voltmeter there are 20 divisions between 0 mark and  $0.5\text{V}$  mark. Calculate the least count of the voltmeter.
25. Name the cells seen on either side of the stomata. How does their shape differ in monocots and dicots?

26. What is observed when a solution of sodium sulphate is added to a solution of barium chloride taken in a test tube? Write equation for the chemical reaction involved and name the type of reaction in this case.

OR

What changes do you observe when an aluminium strip is kept immersed in ferrous sulphate solution? Give chemical equation also.

27. Why are germinating seeds taken in the experiment of 'Respiration in Plants'? What would happen if germinating seeds are replaced by boiled seeds?