

# AMRITA VIDYALAYAM

ANNUAL EXAMINATION 2019 - 20

Class : IX

Marks : 80

Time : 3 hrs

## SCIENCE

### GENERAL INSTRUCTIONS :

- i) This question paper comprises of 30 questions of three sections - A, B and C. Attempt all the sections.*
- (ii) All questions are compulsory.*
- (iii) Internal choice is given in each section.*
- (iv) All questions in Section A are one mark questions comprising MCQ, VSA type and assertion and reasoning type questions. They are to be answered in one word or in one sentence.*
- (v) All questions in Section B are three marks, short-answer type questions. These are to be answered in about 50-60 words each.*
- (vi) All questions in Section C are five marks, long-answer type questions. These are to be answered in about 80-90 words each.*

### SECTION - A

1. The BCG vaccine is given for the immunity against \_\_\_\_\_.  
(Hepatitis, Jaundice, Tuberculosis, Malaria)
2. \_\_\_\_\_ proposed the model of atom similar to a Christmas pudding.  
(Rutherford, J.J. Thomson, Neils Bohr)
3. Which of the character is identifying feature of Gymnosperms?  
(naked seeds, rhizoids present, chlorophyll absent, do not possess vascular bundle)
4. Pisces : fish, Aves : \_\_\_\_\_.  
(reptiles, mammals, birds, amphibians)
5. \_\_\_\_\_ is known as the amphibians of the plant kingdom.  
(Thalophyta, Bryophyta, Pteridophyta, Angiosperms)
6. The difference between the angle of reflection and angle of incidence of a sound is \_\_\_\_\_.  
(zero, positive, negative, none of these)
7. The value of acceleration due to gravity \_\_\_\_\_.  
(same on equator and poles, is least on poles, is least on equator, increases from pole to equator)
8. S I unit of force is \_\_\_\_\_.  
(Joule, Newton, Watt, Hz)
9. What mass of a body can attain an acceleration of  $5\text{ m/s}^2$  under a force of 250N?  
(5 Kg, 250 Kg, 50 Kg, 10Kg)
10. A particle is moving in a circular path of radius 'r'. The displacement after half a circle would be \_\_\_\_\_.  
(zero,  $2r$ ,  $\pi r$ ,  $2\pi r$ )
11. The matter around us exists in three different states-solid, liquid and gas. On increasing the temperature of solids, the kinetic energy of the particles increases and start vibrating with greater speed. The particles leave their fixed positions and start moving more freely and convert into liquid. When we supply heat energy to water, water changes into its gaseous form.

Sometimes on heating, solids directly change into gaseous state without changing into liquid. Do we always need to heat or change pressure for changing the state of matter? No, in our daily life we can see. Wet clothes dry up without the liquid reaching the boiling point. The phenomenon of change of a liquid into vapours at any temperature below its boiling point is called evaporation.

a) During summer, water kept in an earthen pot becomes cool because of the phenomenon of \_\_\_\_\_.

b) Arrange given substances in the increasing order of 'forces of attraction' between their particles.

(water, wind, sugar)

c) Name the process of change of solid state directly into gaseous state without changing into liquid state.

d) What do you mean by the term 'Dry ice'?

e) Name the factors affecting the rate of evaporation.

f) The property to flow is unique to fluids. Which one of the following statement is correct?

(i) Only liquids behave like fluids.

(ii) Gases and liquids behave like fluids.

12. Lysosomes are also called the suicidal bags of a cell because they help to produce energy. (statement and reason are wrong, statement and reason are correct, statement is correct but reason is wrong, statement is wrong but reason is correct)

13. The cork float on water because the density of the cork is greater than the density of water. (statement and reason are wrong, statement and reason are correct, statement is wrong but reason is correct, statement is correct but reason is wrong)

14.

Time (s)	0	10	20	30	40	50
Speed (m/s)	5	10	15	20	25	30

a) Draw the shape of speed time graph.

b) Find the acceleration of the car.

## SECTION - B

15. Why do lichens not occur in Delhi whereas they commonly grow in Manali or Darjeeling?

16. Composition of the nuclei of two species X and Y are given below.

	X	Y
Protons	20	18
Neutrons	20	22

Give the mass numbers of X and Y. What is the relation between the two species?

17. Write down the formulae and calculate formula unit mass of given compounds.

\* Aluminium chloride

\* Magnesium sulphate

(Atomic masses of Mg = 24u, S = 32u, O = 16u, Cl = 35.5 u, Al = 27 u)

18. Who discovered cell? When? How?

19. Name the phylum of the following organism, whose exclusive characteristics is given below.

a) Hollow bones

b) Jointed appendages

c) Flatworm

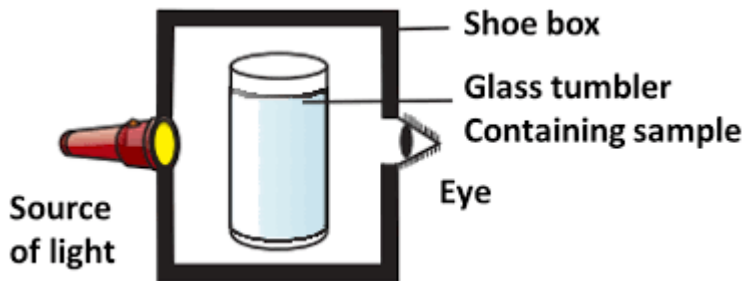
d) Round worm parasites

e) Soft body, muscular marine animal

- f) Radially symmetrical spiny skin
20. Describe Bohr's model of the atom with a neat diagram.
21. What are the factors for which variety improvement of crops are done?
22. a) Write two main properties of ultrasound.  
b) Mention one application of ultrasound in  
(i) industries. (ii) medical field.
23. State Archimedes principle. Write its two applications.
24. a) Explain Law of Conservation of energy with example.  
b) Give one example where work done on an object is zero.

### SECTION - C

25. A group of students took an old shoe box and covered it with a black paper from all sides. They fixed a source of light at one end of the box by making a hole in it and made another hole on the other side to view the light. They placed a milk sample contained in a beaker in the box as shown in figure. They were amazed to see that milk taken in the tumbler was illuminated. They tried the same activity by taking a salt solution but found that light simply passed through it.



- a) Explain why the milk sample was illuminated. Name the phenomenon involved.  
b) Same result were not observed with a salt solution. Explain.  
c) Can you suggest two more solutions which would show the same effect as shown by the milk solution? Mention two properties of this type of solutions.

OR

Fractional distillation is suitable for separation of miscible liquids with a boiling point differences of about 25K or less. What part of fractional distillation apparatus makes it efficient and possess an advantage over a simple distillation process? Explain using a diagram.

26. Write the differences between plant cell and animal cell with the help of a diagram.

OR

Give the flowchart of plant tissue.

27. a) Which has more number of atoms, 100 grams of sodium or 100 grams of calcium?  
(Given atomic mass of Na = 23u and Ca = 40u)  
b) Write any two postulates of Dalton's atomic theory.

OR

- a) Verify by calculating that 5 moles of  $\text{CO}_2$  and 5 moles of  $\text{H}_2\text{O}$  do not have the same mass.  
b) Verify that 240 g of calcium and 240 g of magnesium elements have a mole ratio of 3 : 5
28. a) Derive formula of Universal Law of Gravitation.  
b) The mass of a man is 75 kg. What will be his weight on surface of earth? What will be his weight on surface of moon?  
c) Give two example / application of the Universal Law of gravitation.

OR

a) State and define SI unit of power.

b) In a house 3 bulbs of 25w each are used for 5h a day. Calculate the units of electricity consumed in a month of 31 days. Also find the total expenditure, if 1 unit of electricity costs rupees 2.50.

29. What is a disease? Classify diseases based on duration and causes of infection.

OR

Give the outline classification of animal kingdom.

30. a) What does SONAR stand for? Name its two main parts. List two uses of SONAR technique.

b) Waves of frequency 100Hz are produced in a string as shown in the figure. Give its  
(i) amplitude. (ii) wavelength. (iii) velocity.

