

DEVAMATHA CMI PUBLIC SCHOOL
ANNUAL EXAMINATION 2017 - 18

Std. IX**SCIENCE (086)**

Time : 3 h.
 Marks : 80

SECTION A

I. Answer all the questions:

1. What should be the angle between the Force and Displacement to get maximum Work?(1)
2. Define : a.m.u. (1)
3. When a ball is dropped from a height, its speed increases gradually. Name the force which causes this change in Speed ? (1)
4. Ram and Shyam were studying about the Speed -time graph. They got confused between graphs showing constant speed and when the speed increases at constant rate, both are said to be straight line graphs. Draw both the graphs to solve their problem. (2)
5. A sample of vitamin C is known to contain 2.58×10^{24} Oxygen atoms. How many moles of Oxygen atoms are present in the sample ? (2)
6. Show on a diagram the meristematic tissues of plants on the basis of their location. (2)
7. Give reason for the following statements:
 - a) Argon and calcium are called isobars .
 - b) Helium and Neon have zero valency. (2)
8.
 - a) Sodium chloride contains two elements, but it is still a pure substance. Why?
 - b) How would you confirm that a colourless liquid given to you is pure water? (2)
9. An object thrown upwards reaches the highest point in 5 seconds.
 Find : i) the velocity with which it was thrown.
 ii) distance covered. (3)
10. Show the formation of chemical formula of the following compounds using their ions:
 - a) Magnesium Sulphate.
 - b) Ammonium Phosphate
 - c) Aluminum Sulphide (3)
11. Mr. Sam had common cold and throat infection. Doctor prescribed an antibiotic.
 - a) Which pathogen could have caused the infection?
 - b) What is the mode of action of antibiotics? Why antibiotics are not effective against virus? (3)
12.
 - a) What is relative density? The relative density of a substance is greater than 1. What does it signify ?
 - b) If relative density of aluminium is 2.7 and density of water is 1000kg/m^3 , what is the density of aluminium in SI units? (3)
13.
 - a) Why is the following called a chemical change ?
 - i) Burning of wood
 - b) What is dry ice? How is it prepared ?
 - c) Give one similarity and difference between boiling and evaporation. (3)

14. a) What is membrane biogenesis?
 b) Explain what will happen when a drop of concentrated sugar solution is placed on a Rheo leaf peel mounted on a glass slide. Name this phenomenon. Would the same happen if the Rheo leaf was boiled before mounting? Give reason for your answer. (3)
15. a) If any explosion takes place at the bottom of a lake, what type of shock waves will be formed in water?
 b) Sound produced by a thunderstorm is heard 10s after the lightning is seen. Calculate the approximate distance of the thundercloud. (Given speed of sound =340 m/s)
 c) For hearing the loudest ticking sound by the ear, find the angle x in the figure. (3)
16. a) A farmer wants to harvest more than two varieties at a time from his crop field. He has no idea about the cropping patterns. Suggest him one method to get the desired result. Also state three advantages of this cropping pattern.
 b) Name any two fodder crops. (3)
17. Tabulate three difference between solid, liquid and gaseous state. (3)
18. Give an account of the structure, position & functions of cuboidal epithelium & squamous epithelium. (3)
19. a) Derive $F = ma$
 b) If the engine of a car provides an acceleration of 2 m/s^2 to start it from rest, assuming the mass to be roughly 1000kg ,
 calculate: i) Force provided by the engine
 ii) Momentum after 10s.
 c) Define the SI unit of Force. (5)
20. a) Calculate the molecular mass of Calcium carbonate
 b) Verify by calculating that :
 i) 0.5 moles of CO_2 and 0.5 moles of H_2O do not have the same mass.
 ii) 240 g of Calcium oxide and 240 g of Magnesium oxide do not have the same number of atoms. (5)
21. Name the five Classes of Vertebrates. Compare any two on the basis of their :
 (i) habitat, (ii) covering of skin , (iii) Respiratory organ,
 (iv) chambers of heart, (v) Reproduction. (5)

22. a) Write full form of SONAR.
b) What is the range of hearing for normal human ear ?
c) Draw two separate diagram to represent each of the following cases:
i) Two sound waves having the same amplitude but different frequencies.
ii) Two sound waves having the same frequency but different amplitudes.
iii) Two sound waves having different amplitudes and also different wavelength. (5)
23. Vinod happens to see some people protesting against MR Vaccination being given to children. He made them aware about the importance of different immunization programmes conducted by Government.
a) What is immunization?
b) How do vaccines work?
c) What are the immunization programmes available at the nearest health centre in your locality?
d) What precautions would you take in your school to reduce incidence of infectious diseases? (5)

SECTION B

24. Why is it easier to swim in salt water as compared to fresh water ? Give 2 reasons. (2)
25. If an object weighing 50 N displaces water weighing 10N, then find the buoyant force of water on the object. What will be the weight of object in water? (2)
26. Four students were asked to add H₂O to glucose, milk, sand and soil separately in 4 beakers. Classify the mixtures as true solution, colloid and suspension. (2)
27. Write the melting point of ice and boiling point of water in degree Celsius and Kelvin Scale. (2)
28. Draw a neat labelled diagram of a nerve cell. (2)
29. Distinguish between wriggler and tumbler. Write down the characteristics features of each. (2)
