

## IX SCIENCE SAMPLE PAPER-1 2012

### SECTION - A

1. Seema tried to push a heavy rock of 100 kg for 200 s but could not move it. Find the work done by Seema at the end of 200 s.
2. Name the carbon compounds responsible for causing ozone hole in the atmosphere.
3. Name the bacteria responsible for nitrification in nature.
4. At what speed a body of mass 1 kg will have a kinetic energy of 1 J ?
5. Which organisms are called primitive ? How are they different from the advanced organisms ?
6. When we stand on loose sand, our feet go deep into the sand. But when we lie down on the sand our body does not go that deep in the sand. Why ?
7. (a) What is an epidemic disease ?  
(b) Which organ is affected if a person is suffering from jaundice ?
8. 5 g of calcium combine with 2 g of oxygen to form a compound. Find the molecular formula of the compound. (Atomic mass of Ca = 40 u ; O = 16 u)
9. If K and L shells of an atom are full, then what would be the total number of electrons in the atom ? What is the valency of this element ?
10. Three persons, A, B and C are made to hear a sound travelling through different mediums as given below :

Person	Medium
A	Iron Rod
B	Air
C	Water

Who will hear the sound first ? Why ?

11. Define relative density of a substance. Relative density of silver is 10.8. The density of water is  $1000 \text{ kgm}^{-3}$ . What is the density of silver in SI units ?
12. What is soil erosion ? List two activities which cause soil erosion.
13. What is green house effect ? How is it caused ?
14. List three groups of plants. Which plants are referred to as vascular plants ? Out of these which group is further classified on the basis of number of cotyledon ? State its two characteristics.

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15. List in the tabular form any three differences between the Aves and the Mammalia group.
16. (a) Which of the following diseases are protozoan in origin ?  
Dengue, Malaria, Kala - azar and HIV - AIDS  
(b) Suggest any two ways to prevent being infected by protozoa.
17. List three main features of Rutherford's nuclear model of an atom.
18. (a) Why taking an antibiotic is not effective in the common cold ?  
(b) Name two diseases against which infants below one year are vaccinated.  
(c) List two symptoms of any one of these diseases.
19. (a) Why the stage of an auditorium has curved background, curtains, carpets and false ceiling ?  
(b) The sound of a ringing bell inside a vacuum chamber cannot be heard. Why ?
20. Ocean waves of time period 0.01s have a speed of 15 m/s. Calculate the wavelength of these waves. Find the distance between the adjacent crest and the trough.
21. On the basis of the number of protons, neutrons and electrons in the samples given below identify (a) the cation (b) the pair of isobars and (c) the pair of isotopes.

Sample	Protons	Neutrons	Electrons
A	17	18	16
B	18	19	18
C	17	20	17
D	17	17	17

22. A mass of 10 kg is dropped from a height of 50 cm. Find its :  
(a) Potential energy just before dropping  
(b) Kinetic Energy just on touching the ground  
(c) Velocity with which it hits the ground  
[Given  $g = 10 \text{ ms}^{-2}$ ]
23. When 3.0 g of carbon is burnt in 8.0 g of oxygen, 11.0 g of carbon dioxide is produced. What mass of carbon dioxide will be formed when 3.0 g of carbon is burnt in 50.00 g of oxygen ? Which law of chemical combination will govern your answer ? State the law.

OR

Define the following terms with example.

- (a) Atomicity  
(b) Anion  
(c) Molecular Mass  
(d) Relative Formula Mass  
(e) Cation

24. Define work, energy and power. Give the SI units for each of these quantities. A man whose mass is 80 kg climbs up 30 steps of the stairs in 30 s. If each step is 12.5 cm in height, calculate the power used in climbing the stairs. ( $g = 10 \text{ m/s}^2$ )

OR

Define Kinetic Energy and Potential energy. Write an expression for K.E of a body of mass  $m$  moving with a speed  $v$ . Find the kinetic energy of a stone of 10 kg moving with a velocity of 10 m/s.

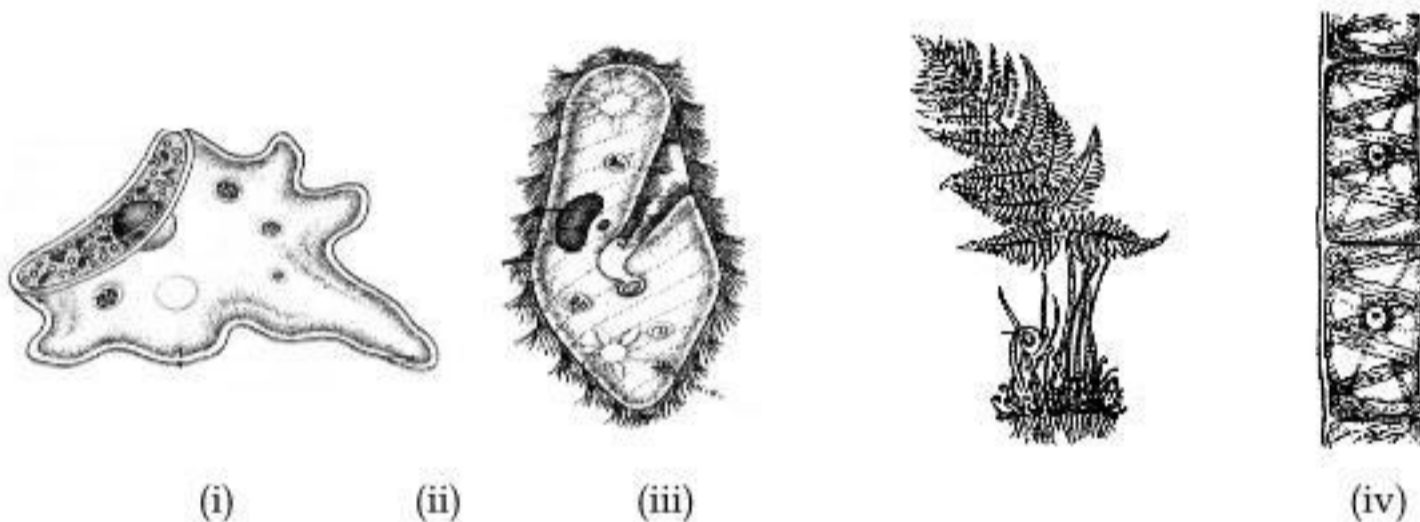
25. Many human activities lead to increasing levels of pollution of air, water bodies and soil. "Isolating these activities to specific and limited areas would not help in reducing pollution". Justify this statement giving at least five reasons.

OR

Explain with the help of a labelled diagram carbon cycle in nature.

### SECTION - B

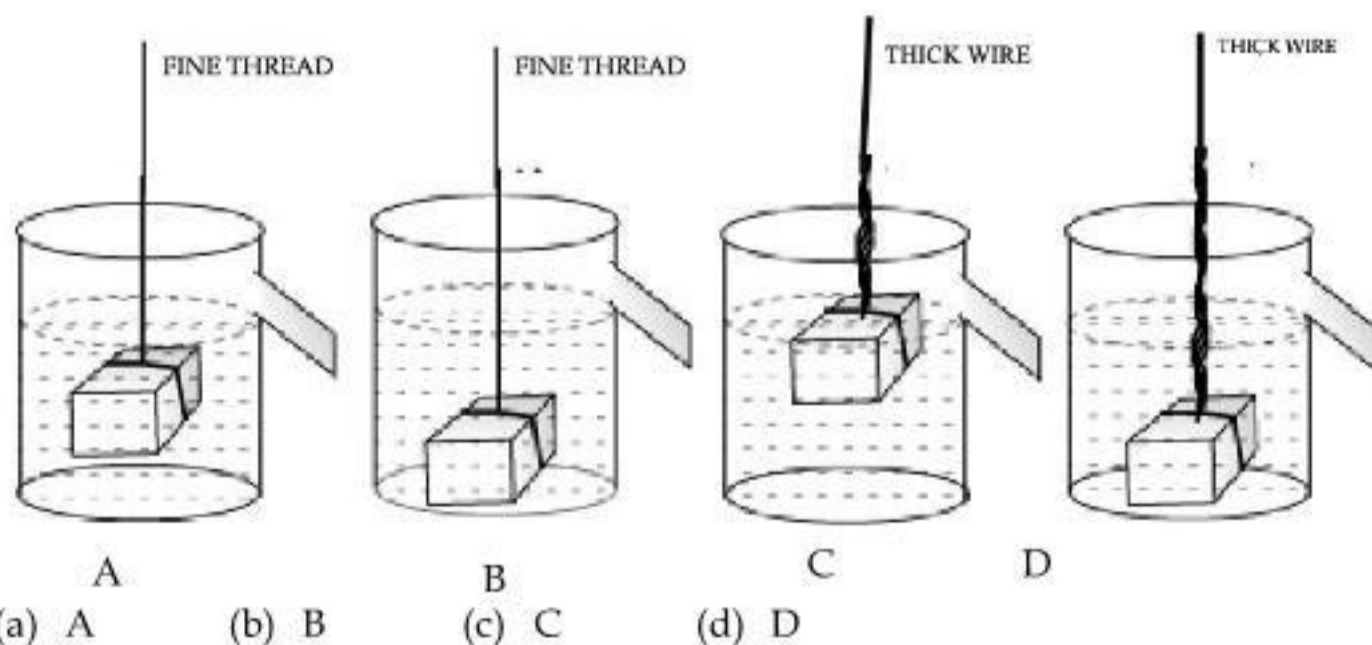
26. Needle like leaves are the characteristics of :  
 (a) Moss      (b) Fern      (c) Pinus      (d) Mustard
27. Study the figures of organisms and identify the groups to which they belong.



Which set of answers given below classifies them correctly ?

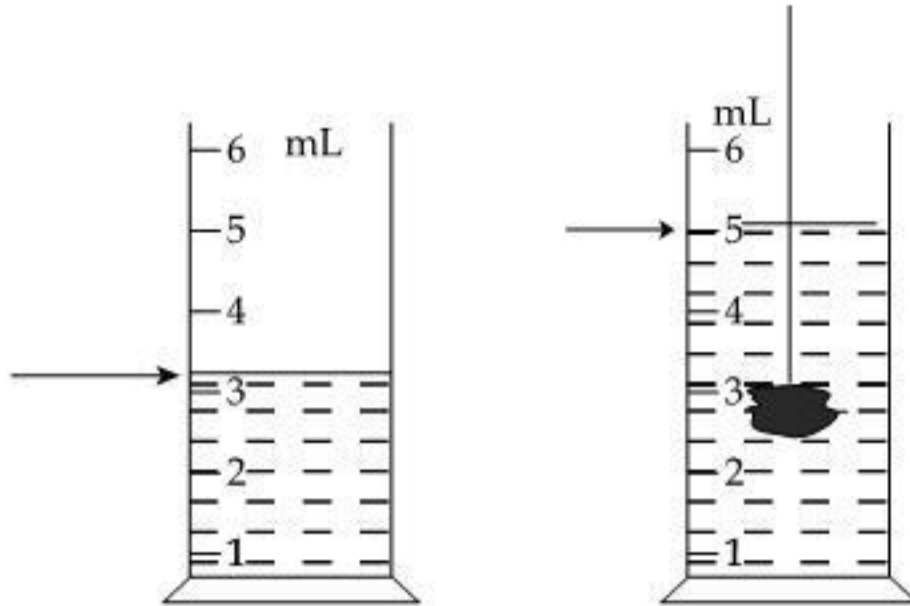
- |   |                   |
|---|-------------------|
| (a) (i) protista                        | (ii) fungi        |
| (iii) pteridophyta                      | (iv) thallophyta  |
| (b) (i) fungi                           | (ii) pteridophyta |
| (iii) thallophyta                       | (iv) protista     |
| (c) (i) thallophyta                     | (ii) fungi        |
| (iii) protista                          | (iv) pteridophyta |
| (d) (i) protista      (ii) pteridophyta | (iv) fungi        |
| (iii) thallophyta                       |                   |
28. The characteristic not common between bony fish and pigeon is -  
 (a) Vertebral Column      (b) Streamlined body  
 (c) Warm blooded      (d) Lay eggs

29. The body of a cockroach is divided into :
- (a) thorax and abdomen      (b) head, wings and legs  
 (c) head, abdomen and tail      (d) head, thorax and abdomen
30. Earthworm mainly feeds on :
- (a) dried leaves      (b) soil rich in humus  
 (c) small insects      (d) plant sap
31. The highest evolved among the following are :
- (a) Thallophytes      (b) Bryophytes  
 (c) Gymnosperms      (d) Angiosperms
32. The mass of a solid iron cube of side 3 cm is to be determined using a spring balance. If the density of iron is approximately  $8.5 \text{ g cm}^{-3}$ , the best suited spring balance for determining weight of the solid would be of :
- (a) Range 0 - 250 gwt ; Least count 1 gwt  
 (b) Range 0 - 250 gwt ; Least count 5 gwt  
 (c) Range 0 - 1000 gwt ; Least count 5 gwt  
 (d) Range 0 - 1000 gwt ; Least count 10 gwt
33. The correct set up shown for an experiment to establish relationship between loss in weight of an immersed solid with the weight of water displaced by it is :



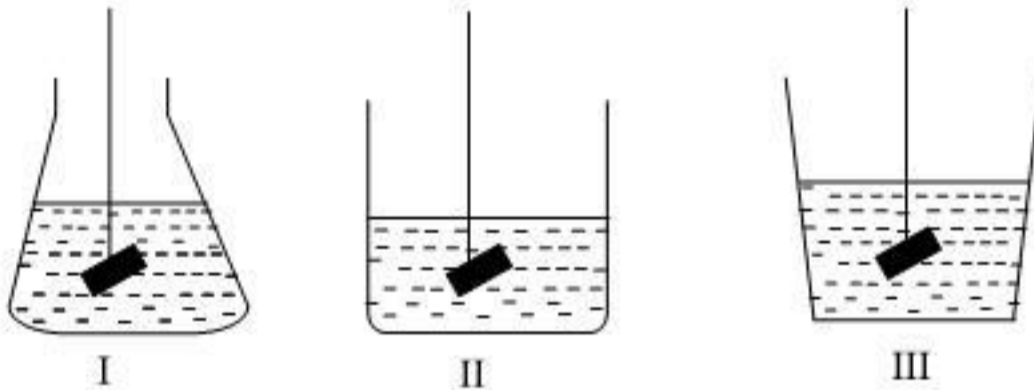
34. For studying the reflection of sound, the best reflector out of the following would be :
- (a) A thermocole sheet      (b) A cushioned sheet  
 (c) A polished metallic sheet      (d) A thick and rough curtain

35. Observe the figure below :



The volume of stone immersed in the liquid is :

- (a) 1 mL      (b) 2 mL      (c) 3 mL      (d) 5 mL
36. An object weighing 5 N in air, weighs 4.5 N in a liquid. The buoyant force experienced by the object is :
- (a)  $5/4.5$  N      (b)  $4.5/5$  N      (c) 0.5 N      (d)  $(5 + 4.5)$  N
37. A body is weighed in liquid by immersing it fully in each of the three containers shown. The apparent weight of the solid will be :



- (a) Least in I      (b) Least in II      (c) Least in III      (d) Equal in all
38. Narrow tubes are used in the verification of laws of reflection of sound. The narrow tubes are used because they make sound waves to :
- (a) Move in a straight line  
 (b) Concentrate into a powerful beam  
 (c) Have multiple reflections and prevent spreading of sound  
 (d) None of these

39. A pulse was created in a stretched string of length 5 m by four students A, B, C and D. They observed that the pulse returned after reflection at the point of creation 5 times in 10 seconds and calculated the speed as given in the table below.

Student	A	B	C	D
Speed m/s	0.5	2.5	5	10

The student who has reported the speed correctly is :

- (a) A      (b) B      (c) C      (d) D

40. To observe and compare the pressure exerted by three different faces of a cuboid on sand, the following Cuboid is available to you :

- (A) wooden cuboid of dimension  $20\text{ cm} \times 30\text{ cm} \times 50\text{ cm}$
- (B) aluminium cuboid of dimension  $3\text{ cm} \times 6\text{ cm} \times 12\text{ cm}$
- (C) Iron cuboid of dimensions  $5\text{ cm} \times 10\text{ cm} \times 15\text{ cm}$
- (D) Iron cuboid of dimensions  $20\text{ cm} \times 30\text{ cm} \times 50\text{ cm}$

The best choice from the practical point of view would be :

- (a) A      (b) B      (c) C      (d) D

41. A student placed an iron cuboid of dimensions  $4\text{ cm} \times 6\text{ cm} \times 10\text{ cm}$  on a tray containing fine sand. He placed the cuboid in such a way that it was made to lie on the sand with its faces of dimension (a)  $4\text{ cm} \times 6\text{ cm}$  (b)  $6\text{ cm} \times 10\text{ cm}$  (c)  $4\text{ cm} \times 10\text{ cm}$ . If the density of iron is nearly  $8\text{ gcm}^{-3}$  and  $g = 10\text{ ms}^{-2}$  the minimum and maximum pressure as calculated by the student should be :

- (a)  $16\text{ Nm}^{-2}$ ,  $40\text{ Nm}^{-2}$                       (b)  $32\text{ Nm}^{-2}$ ,  $80\text{ Nm}^{-2}$   
(c)  $640\text{ Nm}^{-2}$ ,  $1600\text{ Nm}^{-2}$                       (d)  $3200\text{ Nm}^{-2}$ ,  $8000\text{ Nm}^{-2}$