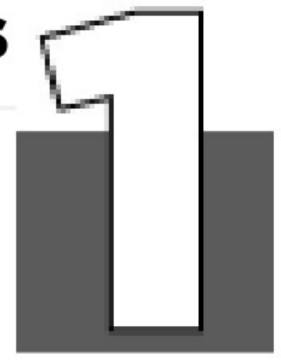


Section 'A'

AI **1.** The numerical ratio of displacement and distance for a moving object is

(a) Always less than 1 **(b)** Always equal to 1

(c) Always more than 1 **(d)** Equal or less than 1

2. Elements with valency 1 are

(a) Always metals **(b)** Always metalloids

(c) Either metals or non-metals **(d)** Always non-metals

OR

An atom with 3 protons and 4 neutrons will have a valency of

(a) 3 **(b)** 7

(c) 1 **(d)** 4

3. A mixture of sulphur and carbon disulphide is

(a) Heterogeneous and shows Tyndall effect

(b) Homogeneous and shows Tyndall effect

(c) Heterogeneous and does not show Tyndall effect

(d) Homogeneous and does not show Tyndall effect

4. When we change feeble sound to loud sound we increase its

(a) Frequency **(b)** Amplitude

(c) Velocity **(d)** Wavelength

5. The gravitational force between two objects is F. If masses of both the objects are halved without changing the distance between them, then the gravitational force would become

(a) $\frac{F}{4}$ **(b)** $\frac{F}{2}$

(c) F **(d)** $2F$

OR

AI An apple falls from a tree because of gravitational attraction between the earth and apple. If F_1 is the magnitude of force exerted by the earth on the apple and F_2 is the magnitude of foce exerted by apple on earth, then

(a) F_1 is very much greater than F_2 **(b)** F_2 is very much greater than F_1

(c) F_1 is only a little greater than F_2 **(d)** F_1 and F_2 are equal

AI **6.** Which cell does not have perforated cell wall ?

(a) Tracheid **(b)** Companion cells

(c) Sieve tubes **(b)** Vessels

OR

Cartilage is not found in

(a) Nose **(b)** Ear

(c) Kidney **(d)** Larynx

7. Which one of the following sets of phenomena would increase on raising the temperature?

(a) Diffusion, evaporation, compression of gases

(b) Evaporation, compression of gases, solubility

(c) Evaporation, diffusion, expansion of gases

(d) Evaporation, solubility, diffusion, compression of gases

AI **8. Which one of the following disease is caused by protozoans?**

(a) Malaria **(b)** Influenza

(c) AIDS **(d)** Cholera

9. Note is a sound

(a) of a mixture of several frequencies **(b)** of a mixture of two frequencies only

(c) of a single frequency **(d)** always unpleasant to listen

10. Living cells were discovered by

(a) Robert Hooke **(b)** Purkinje

(c) Leeuwenhoek **(d)** Robert Brown

11. **List two human activities that would lead to air pollution.** 1

AI 12. **Arrange the following substances in the increasing order of force of attraction between their particles:**

Oxygen, salt, milk. **1**

OR

A substance has no mass; can we consider it as matter ? **1**

13. **Name the anion and cation that constitute the molecule of magnesium oxide.** **1**

OR

An element 'X' has a valency 3. Write the formula of its oxide. **1**

AI 14. **A ball is thrown vertically upwards. What is its momentum at the highest point ?** **1**

15. What are photoperiods related to ? **1**

OR

Name the internal parasites which affect stomach, intestine and liver in cattle. **1**

DIRECTIONS (Qs. 16 to 20) : In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:

(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).

(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).

(c) Assertion (A) is true but reason (R) is false.

(d) Assertion (A) is false but reason (R) is true.

16. **Assertion :** The effect of thrust on sand is larger while standing than while lying.

Reason : Thrust is a force acting on an object perpendicular to the surface. **1**

17. **Assertion :** The loudness or softness of a sound is determined by its pitch.

Reason : Frequency of the emitted sound that is interpreted by the brain is called pitch. **1**

18. **Assertion :** To separate a mixture of two or more miscible liquid having the difference in boiling point less than 25 K, distillation process is used.

Reason : Distillation is a purification technique of separation of two or more miscible liquids. **1**

19. **Assertion :** Atom is electrically neutral.

Reason : Equal number of protons and electrons are present in an atom. **1**

20. **Assertion :** System of scientific naming is binomial nomenclature.

Reason : Carl Linnaeus gave a binomial nomenclature system. **1**

Section 'B'

21. A man's weight when taken at the poles is 600 N. Will his weight remain the same when measured at the equator ? Will there be an increase or decrease in his weight ? Explain. **3**

Give reasons :

(i) A piece of paper takes much longer to fall than a stone through the same distance, when both are dropped simultaneously from roof.

(ii) The mass is constant everywhere the weight keeps changing.

(iii) The value of 'g' keeps changing as we move away from the earth whereas value of 'G' remains constant all over the universe. **3**

22. **(i)** What is one vibration in a second called as ?

(ii) A tuning fork produces 256 waves in four seconds. Calculate the frequency of the tuning fork. **3**

23. **Write answer in one word :**

(i) The process by which the solid directly changes into gases without liquefying.

(ii) Energy required to change 1 kg of a liquid to gas at atmospheric pressure at its boiling point.

(iii) The property of gases which makes it possible to inflate a large number of balloons from a small cylinder of hydrogen gas. **OR**

Give three reasons to justify that water is a liquid at room temperature. **3**

AI **24. (i)** Name one indigenous and one exotic breed of domestic fowl.

(ii) What are the two main products obtained from raising domestic fowl ?

(iii) Name two vitamins that should be included in high amount in poultry feed. **3**

OR

Mention three different ways in which crop plants can be attacked by insect pests. Also suggest one control measure and two preventive measures against pests.

AI **25.** State the law of conservation of energy. With the help of an example explain the law of conservation of energy. **3**

26. (a) What is the relationship between two elements X and Y whose atomic numbers are 18 and 20 respectively, but their mass numbers remain same as 40 ?

(b) Which has more number of electrons : Na or Na^+ ? Why ?

(c) Name the isotope used to treat :

(i) Goitre, **(ii)** Cancer. **3**

27. A cubical block of side 2 cm is lying on a table. If the mass of the material of the cube is 2 kg, find the pressure exerted by the block on the table. ($g = 9.8\ m/s^2$) **3**

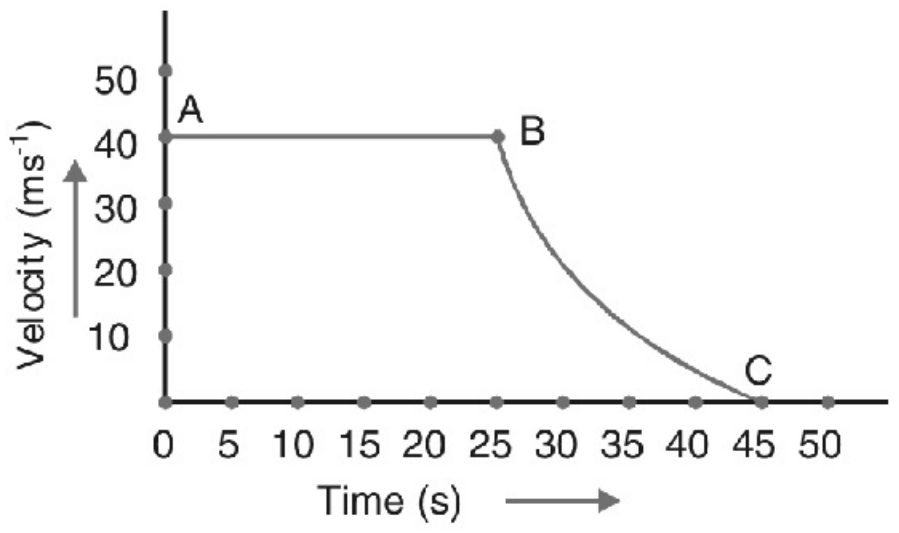
28. (i) Which of these is an acute ailment and why ?

Tuberculosis, Cancer, Diarrhoea, Elephantiasis.

(ii) State any two internal, non-infectious causes of a disease.

(iii) Name the organ that is targeted by the virus that causes jaundice. **3**

29. The velocity-time graph of an object is shown in the following figure :



(i) State the kind of motion that the object has from A to B and from B to C.

(ii) Identify the part of graph where the object has zero acceleration. Give reason for your answer.

(iii) Identify the part of graph where the object has negative acceleration. Give reason for your answer. **3**

30. (a) Write two points of difference between nuclear region of a bacterial cell and nuclear region of an animal cell.

(b) Which structure present in the nuclear region of a living cell bear genes ? **3**

Section 'C'

31. (a) State two ways by which you can change a saturated solution to unsaturated solution.

(b) Distinguish between homogeneous and heterogeneous mixture by giving one example of each. **5**

32. (a) Write the chemical formulae of :

(i) Silver nitrate **(ii)** Magnesium sulphate

(iii) Potassium carbonate **(iv)** Barium chloride

(v) Sodium phosphate **(vi)** Sulphur dioxide

(b) Define Avogadro Number. Convert 2 moles of Magnesium sulphate sample into number of molecules present in the sample. **2**

OR

(a) Write the formula of the compounds formed by the following ions:

(i) Cr^{3+} and SO_4^{2-} **(ii)** Pb^{2+} and NO_3^{1-}

(b) State the significance of one mole.

(c) Which has more number of atoms: 100 g of sodium or 100 g of iron.
(At. mass : Na = 23 u, Fe = 56 u) **5**

33. (i) How is gaseous nitrogen fixed by the plants?

(ii) Schematically depict nitrogen cycle in nature.

AI **(iii)** Mention any one difference between nitrogen fixation and nitrification. **5**

34. Describe the structure of bone and cartilage. **5**

35. (i) To which division of plantae do algae belong? Write one characteristic of the division. Give two examples.

(ii) Name the group :

(a) which includes unicellular eukaryotic organisms.

(b) in which mode of nutrition is saprophytic.

(c) in which seeds are not closed in fruit.

AI **(iii)** Classify flowering plants on the basis of the number of cotyledons present in the seed ? **5**

OR

(a) State two characteristic features of group Mollusca.

(b) Identify the organisms on the basis of the following features :

(i) A Reptile with four chambered heart

(ii) An Egg laying mammal

(iii) An Autotrophic Moneran **5**

36. What is meant by 'inertia' ? What are different types of inertia ? Give two examples in each case. **5**

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