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| Total printed pages : | 07 |
| Total printed questions : | 36 |

General Instructions :

- i) This question paper comprises of three sections A and B. You are to attempt both the sections.
- ii) All questions are compulsory.
- iii) There is no overall choice.
- iv) **In Section A**
 - Question nos. 1 to 3 carry one mark each.
 - Question nos. 4 to 6 carry two marks each.
 - Question nos. 7 to 18 are three marks questions.
 - Question nos. 19 to 22 are five marks questions.
 - Question nos. 23 & 24 are OTBA based questions.
- v) **In Section B**
 - Question nos. 25 to 33 are multiple choice questions based practical skills, and carry one mark each. You are to select one most appropriate response out of the four provided to you. Write the answer in the answer sheet.
 - Question nos. 34 to 36 are two marks questions based on practical skills.

SECTION A

1. a) An element has 8 electrons in its valence shell. What is its general name?
b) Who discovered neutrons? (1)
2. a) Define 1 mole.
b) Give example for a tri atomic molecule. (1)
3. Give two advantages of classifying organisms. (1)
4. Relative density of a substance is 2.5. Find its density if the density of water is 1000kg/m^3 . (2)
5. a) If chlorine atom is available in the form of two isotopes $^{35}_{17}\text{Cl}$ (75%) and $^{37}_{17}\text{Cl}$ (25%). Calculate the average atomic mass of chlorine atom.
b) Write any two uses of isotopes. (1+1)
6. What is binomial system of nomenclature? Explain with the help of example. (2)
7. Differentiate between infrasonic wave, ultrasonic wave and audible range for humans. (3)

8. Define amplitude. A person is listening to a tone of 500 Hz sitting at a distance of 450m, from the source of sound. What is the time between successive compressions for the source? (3)
9. A pump delivers 1000 liters of water in a tank at a height of 15m in 120s. Find the work done by the pump and its power (take $g = 10\text{m/s}^2$ and 1litre = 1kg) (3)
10. Define potential energy and derive its formula. (3)
11. An object of mass 40kg is raised to a height of 5m above the ground. What is its potential energy? If the object is allowed to fall find its kinetic energy half way down. (3)
12. A man whose mass is 50kg climbs up 30 steps of the stairs in 30 seconds. If each step is 20cm high calculate the power used in climbing the stairs. (3)
13. a) Write down the chemical formula of:
 i) Ammonium carbonate ii) Sodiumchloride.
 b) Name the following compound: i) Al_2O_3 ii) $\text{Ca}(\text{NO}_3)_2$
 c) Calculate the percentage of oxygen in CaCO_3 .
 (At. Mass of Ca = 40, C = 12, O = 16) (1+1+1)
14. a) What is the mass of 0.5mole of HCl molecule?
 b) Calculate the number of particles present in 8g of O_2 molecule.
 c) Find out the number of moles present in 20g of water. (1+1+1)
 (At. Mass of O = 16, H = 1, Cl = 35.5)
15. Identify and name the following:
 a) Organisms that use dead and decaying organic material as food;
 b) Cell walls of fungi are made up of this special type of sugar;
 c) The kingdom to which *Amoeba* belongs;
 d) An example of a Moneran;
 e) An animal with the pseudocoelom;
 f) A group which has an open circulatory system. (3)
16. Distinguish between acute diseases and chronic diseases. (any three points) (3)
17. Answer the following questions regarding AIDS: (3)
 a) What causes this disease?
 b) List three ways by which this disease spreads.
 c) What happens to the person who is infected with this disease?
18. Preeti was down with an attack of Bronchitis. The atmosphere was full of smoke and noise as Diwali was nearing when her parents explained to the ill effects of burning crackers to neighbourhood kids. They agreed not to burn crackers anymore.
 a) It is observed that when a cracker is burnt its light reaches us first and then we hear its sound, why?
 b) Any three ill effects that Preeti's parents might have explained to kids.

- c) Do you support kid's decision of not burning crackers? Which qualities do you identify in those kids? (3)
19. Differentiate between:
- a) speed for a soft and loud sound (only diagrams)
 - b) high pitched and low pitched sound (only diagrams)
 - c) Why are ceilings of concert halls curved? (5)
20. State any condition when
- a) work done is positive
 - b) work done is negative
 - c. work done is zero. Give an example for each too. (5)
21. a) Write any two postulates of Bohr's Model of atom. (1+1+3)
- b) What was the drawback of Rutherford's atomic model?
- c) For a given element ${}_{13}^{27}\text{X}$, answer the following questions:
- i) Find the number of protons.
 - ii) Find the number of neutrons.
 - iii) Write the electronic configuration.
 - iv) Identify the valence shell.
 - v) What is the valency of element X?
 - vi) Why is it called a metal?
22. Answer the following: (5)
- a) Antibiotics are successful in curing bacterial infections but do not cure viral infections. Why?
 - b) Which system of our body is activated in response to infection and how it responds?
 - c) Name any two organisms from which antibiotic could be extracted.
 - d) List two conditions essential for good health.
 - e) Healthy balanced diet helps in preventing diseases. How?