Section – B

Marks: 32

Answer any EIGHT parts. Each part carries FOUR marks.

Q.1 How many grams are present in 4 moles of Potassium and 3 moles oaf Magnesium?

Q.2 Why did Rutherford's atomic model need to be replaced?

Q.3 Compare alkali and alkaline earth metals with reference to their location in periodic table.

Q.4 Which rule is followed by Oxygen and Helium to complete their valence shell and why they do so?

Q.5 With the help of dot cross structure show the formation of CH_4 and NH_3.

Q.6 A sample of Helium has an initial temperature of 0°C with initial volume of 153cm^3. The temperature is raised to 52°C. Calculate new volume of Helium.

Q.7 Identify the types of solution in the following examples:

(i) Alcohol in Water

(ii) Sterling Silver

(iii) Mercury Amalgam

(iv) Hydrogen gas absorbed at Palladium

Q.8 What molarity fo KNO_3 needed to make from 2 molar solution from 0.1 molar in 500ml.

Q.9 Write chemical reaction for ionization of Brine. Also write overall reaction when electrodes are connected to battery in Nelson's Cell.

Q.10 Explain the chemical reaction of electroplating. 0.077

Q.11 (a) Write any two uses of Gold Alloy.

(b) What do you know about Nobel metals?

Section – C

Marks: 21

Note: Attempt any THREE questions. All questions carry equal marks.

Q.12 (a) Find out formula mass of $NH_4H_2PO_4$ in a.m.u and also express it into grams? (3)

(b) Draw the atomic structure of: $^{238}_{92}U$, $^{35}_{17}Cl$, $^{14}_{6}C$ and $^{12}_{6}C$. (4)

Q.13 (a) Which group is known as Boron family in periodic table? Write the names of elements present in this group? (3)

(b) What is the role of electronegativity in the formation of bonds? (4)

Q.14 (a) Calculate the initial pressure of a sample of gas that is changed from 7.55dm^3 to 14.3dm^3 at 300 mm of Hg. (3)

(b) Differentiate between saturated and super saturated solution with the help of example. (4)

Q.15 (a) What is the purpose of sodium vapour lamp and desulphurization? (3)

(b) What are three main components of dry cell? (4)

Time: 15 Min **SECTION-A** Marks: 12

1) The number of protons in chlorine atom is:
○ 12 ○ 6 ● 17 ○ 11

2) The relative atomic mass of oxygen atom is:
● 15.998 amu ○ 16.998 amu
○ 14.998 amu ○ 17.998 amu

3) The f-subshell can accommodate a maximum of:
● 14 electrons ○ 10 electrons
○ 06 electrons ○ 02 electrons

4) Which group of elements contains incomplete s-subshell?
○ Group I-A ○ Group II-A ● Group III-A ○ Group IV-A

5) Helium obeys duplet rule. How many electrons are in its valance shell:
○ 1 ● 2 ○ 3 ○ 4

6) Which of the given two elements will form ionic bond;
○ Na and K ○ K and Ca ● Ca and Cl ○ Cl and C

7) Mobility of particles in solid, liquid and gas depends on:
● Kinetic energy ○ Diffusion
○ Density ○ Volume

8) Substance present in larger amount in a solution is called;
○ Solute ○ Salt ○ Solution ● Solvent

9) Particle of which settle down at bottom on standing for some time:
○ Dispersion ○ Solution ○ Colloids ● Suspension

10) Which one of the given acts as oxidizing agent in the given reaction? $Br_2 + H_2S \rightarrow 2HBr + S$
● Br_2 ○ H ○ S ○ H_2S

11) Reduction of alkali metals ion take place at:
○ Anode ○ Walls of cell ○ Battery ● Cathode

12) Elements above calcium in IIA of periodic table with symbol and atomic number is:
○ Na=11 ● Mg=12 ○ C=13 ○ N=14

SECTION-A Marks: 12

1) Type of cell division that maintain chromosome number in daughter cell is:
● Mitoses ○ Meiosis ○ Meiosis-I ○ Anaphase-I

2) In the presence of enzymes, chemical reactions proceed at a:
○ Faster rate ○ Slower rate
○ Constant rate ● Medium rate

3) If the reactants of chemical reactions are ATP+H2O → ... then the products will be;
○ AMP+Pi+7.3Kcal ● ADP+Pi+7.3Kcal
○ ATP+Pi+7.3Kcal ○ ADP+7.3Kcal

4) Very intense light is:
○ Useful for chlorophyll ● Increase photosynthesis
○ Damages chlorophyll ○ Help chlorophyll formation

5) Which of the given vitamin is needed for the growth and repair of body tissues?
○ Vitamin A ○ Vitamin B ● Vitamin C ○ Vitamin D

6) Lungs are responsible for adding oxygen to the deoxygenated blood that they receive from;
○ Hepatic artery ○ Renal artery
○ Coronary artery ● Pulmonary artery

7) The study of form, shapes and structure of organisms is;
● Morphology ○ Anatomy ○ Histology ○ Physiology

8) Collected data is analyzed by using;
○ Biological method ● Statistical method
○ Mathematical method ○ Ecological method

9) Which of the given is an example of Protista?
○ Penicillium ○ Mosses ○ Smut ● Euglena

10) Mathias Schleiden claimed that;
○ Nucleus is spherical body in plant cell
○ All plants are made up of cells
○ All living organisms are made of cellular tissues
● Every cell comes from a cell

11) Which substance is present in higher concentration after the food is digested in small intestine?
● Glucose ○ O_2 ○ CO_2 ○ Glycogen

12) In which of the given phase, neurons cells remain for indefinite period of time?
○ G 1-Phase ○ G 2-Phase ● G 0-Phase ○ S-Phase

SECTION-B

Q2: Attempt any EIGHT parts. Each part carries FOUR marks.

1) Give correct sequence of biological organization?
2) Write the names of two mammals and two fish species which are over hunted in Pakistan?
3) Briefly explain smooth endoplasmic reticulum?
4) Briefly write the structure and function of fibrous connective tissue?
5) Explain the role of mitosis in growth of organism with an example?
6) Define necrosis. How it causes inflammation?
7) Briefly explain activators. Give TWO examples as well?
8) Define electron transport chain in aerobic respiration.
9) Write the components of saliva and gastric juice.
10) How does the high and low solute concentration in stomata affect the rate of transpiration?
11) Define the "Dubb" sound produced in the heart emphasizing on the opening and closing of different valves.

SECTION-C Marks: 24

Note: Attempt any THREE questions. All questions carry equal marks.

Q3: (a) Ratio and proportion are used in solving biological problems. Briefly explain.

(b) Define classification. Write the taxonomic hierarchy of man (human being).

Q4: (a) What is cytoplasm? Write down its TWO functions.

(b) List THREE events that occur in anaphase-1.

Q5: (a) Explain induced fit model with the help of diagram.

(b) Explain the role of chlorophyll in photosynthesis.

Q6: (a) Write causes and symptoms of Anaemia.

(b) Write down the steps of translocation of food in plants.

Answer any EIGHT parts. Each part carries FOUR marks.

Q.1 How many grams are present in 4 moles of Potassium and 3 moles oaf Magnesium?

Q.2 Why did Rutherford's atomic model need to be replaced?

Q.3 Compare alkali and alkaline earth metals with reference to their location in periodic table.

Q.4 Which rule is followed by Oxygen and Helium to complete their valence shell and why they do so?

Q.5 With the help of dot cross structure show the formation of CH_4 and NH_3.

Q.6 A sample of Helium has an initial temperature of 0°C with initial volume of 153cm^3. The temperature is raised to 52°C. Calculate new volume of Helium.

Q.7 Identify the types of solution in the following examples:

(i) Alcohol in Water

(ii) Sterling Silver

(iii) Mercury Amalgam

(iv) Hydrogen gas absorbed at Palladium

Q.8 What molarity fo KNO_3 needed to make from 2 molar solution from 0.1 molar in 500ml.

Q.9 Write chemical reaction for ionization of Brine. Also write overall reaction when electrodes are connected to battery in Nelson's Cell.

Q.10 Explain the chemical reaction of electroplating. 0.077

Q.11 (a) Write any two uses of Gold Alloy.

(b) What do you know about Nobel metals?

Section – C

Marks: 21

Note: Attempt any THREE questions. All questions carry equal marks.

Q.12 (a) Find out formula mass of $NH_4H_2PO_4$ in a.m.u and also express it into grams? (3)

(b) Draw the atomic structure of: $^{235}_{92}U$, $^{35}_{17}Cl$, $^{14}_{6}C$ and $^{12}_{6}C$. (4)

Q.13 (a) Which group is known as Boron family in periodic table? Write the names of elements present in this group? (3)

(b) What is the role of electronegativity in the formation of bonds? (4)

Q.14 (a) Calculate the initial pressure of a sample of gas that is changed from 7.55dm^3 to 14.3dm^3 at 300 mm of Hg. (3)

(b) Differentiate between saturated and super saturated solution with the help of example. (4)

Q.15 (a) What is the purpose of sodium vapour lamp and desulphurization? (3)

(b) What are three main components of dry cell? (4)