Biology Mini-Exam

Section A. Multiple choice

1. At which stage of mitosis are chromosomes usually photographed in the preparation of a karyotype?

a. Prophase b. Metaphase	c. Anaphase d. Telophase

2. Human plasma proteins do not include which of the following?

a. Fibrinogen b. Haemoglobin	c. Immunoglobulin d. Albumin

Section B. Fill the gaps.

1. All skeletal muscle fibres are striated and _____. Cardiac muscle is striated and _____. Skeletal muscle cells contain contractile filaments made of _____ and _____.

2. Ribosomes consist of two major components: the _____ ribosomal subunit, which reads the RNA, and the _____ subunit, which joins amino acids to form a polypeptide chain. Each subunit is composed of one or more _____ molecules and a variety of _____.

Section C. Match the terms in pairs.

1. cell membrane 2. Ribosome 3. Lysosome 4. Nucleus 5. Mitochondrion	a. intracellular digestion b. hereditary information c. selective permeability d. cellular respiration e. protein synthesis
1. Metaphase 2. Anaphase 3. Telophase 4. Cytokinesis 5. Prophase	a. First b. Second c. Third d. Fourth e. Fifth

Section D. True or false?

1. Sex-linked traits may be defined as those traits that affect the development of sex organs

2. The nerve tube derives from the ectoderm.

Section E. Open questions.

1. Explain the different structural levels of organisation of proteins.

2. What are the main types of numerical disorders (mutations) in the human genome? Give the genotypes.

Chemistry Mini-Exam

Section A. Multiple choice.

1. What are the products of the reaction Zn + CuSO4⟶?

a. Zinc sulphate and copper b. Zinc oxide and copper oxide	c. Zinc oxide, copper oxide, and sulphur dioxide d. Zinc oxide, copper oxide, and oxygen

2. The electrons in a nonpolar covalent bond are:

a. Gained b. Lost	c. Shared equally d. Shared unequally

Section B. Fill the gaps.

1. Amino acids are linked together by a(n) _____ bond, created when the carboxylic acid group of one amino acid reacts with the amine group of another amino acid to form a(n) _____ functional group. Condensation is a chemical reaction in which two substances combine to form a larger molecule with the release of a small molecule, such as _____. Protein molecules are described in terms of their primary, _____ and tertiary structures.

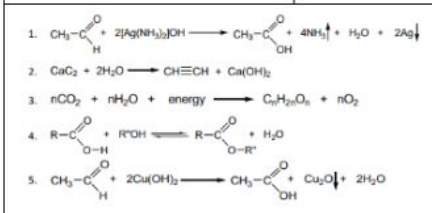
2. Rate of reaction is the change in _____ of a reactant or product per time unit. For a chemical reaction:

$$nA + mB \rightarrow C + D$$

the rate equation or rate law is given by: _____. The main factors that affect the reaction rate are concentration and temperature. The higher the reactants' concentration, the _____ the reaction rate. Usually, an increase in temperature is accompanied by _____ in the reaction rate.

Section C. Match the terms in pairs.

1. Na2S 2. O2 3. Br2	a. Covalent polar bond, double bond b. Covalent nonpolar bond, single bond c. Covalent nonpolar bond, double bond
4. NH3 5. SO2	d. Covalent polar bond, single bond e. Ionic bond



Section D. True or false?

1. The rate constant is the rate of reaction at a constant temperature.

2. CH3CH2CH2CH3 is the formula for a saturated hydrocarbon.

Section E. Open questions.

1. Define electrolytic dissociation. Explain the difference between weak and strong electrolytes. Give two examples of each.

2. Give a definition for esterification. Explain chemical conditions and present an example with a chemical equation.