



**CRAWFORD UNIVERSITY
FAITH CITY, IGBESA, OGUN STATE**

2012/2013 HARMATTAN SEMESTER EXAMINATIONS

COLLEGE: NATURAL AND APPLIED SCIENCES

DEPARTMENT: BIOLOGICAL SCIENCES

PROGRAMME: B.Sc BIOCHEMISTRY

COURSE CODE: BCH 213

UNIT:2

COURSE TITLE: INTRODUCTION TO CELLULAR BIOCHEMISTRY.

STATUS: COMPULSORY.

INSTRUCTIONS: Answer ALL questions in Part A, and 2 questions from Part B.

PART A

1 Fill in the appropriate answers in the blank spaces.

- (i) The cytoplasm of a prokaryotic cell lacks a well defined
- (ii) is employed by all cells as their genetic material.
- (iii) The shaped of nucleus varies from to
- (iv) In most somatic cells are the typical nucleus. Here, the nucleus is normally in the stage.
- (v) Protein for use in side of the cell are synthesized at
- (vi) The nucleolus particles are
- (vii) Filaments in the nucleolus are
- (viii) The rough endoplasmic recticulum generally functions in proteins synthesis at the ribosomal sites, then find their way into the cisternae by means of to the Golgi apparatus.
- (ix) Mitochondria have two external envelopes, each of which is a membrane.
- (x) Mitochondria are the "power plants" or "power house" that by release the energy contained in the fuel molecules and make other forms of chemical energy.

2 Write True, if the statement is correct and False, if it is wrong.

- (i) The angular particles of ribosomes comprise of two units mainly made up of RNA and proteins.
- (ii) Chromatin materials are made up of DNA and carbohydrates.
- (iii) The matrix of lysosomes can be identified under the light microscope by positive acid phosphatase reaction.
- (iv) The convex phase of the Golgi apparatus is the mature phase.
- (v) The inner matrix of the mitochondria is rich in one type of phospholipid called cardiolipid which makes the membrane impermeable to a variety of ions and small molecules.
- (vi) Besides porin, other proteins of the mitochondrial outer membrane includes enzymes in mitochondrial lipid synthesis.

- (vii) Golgi apparatus is involved in protein synthesis.
- (viii) Eukaryotic cells are generally smaller and simpler than the prokaryotic cells.
- (ix) There are five types of endoplasmic reticulum.
- (x) Cells that have secretory functions have prominent Golgi apparatus.

3 Put a circle round the most correct answers from the following statements provided:

- (i) Multivesicular bodies are:
 - (a) primary lysosomes (b) secondary lysosomes (c) residual bodies (d) lipofuscin granules.
- (ii) Primary lysosomes could be:
 - (a) coated only (b) uncoated (c) coated or uncoated (d) none of the above.
- (iii) Chloroplasts (also transducing agents), are present in:
 - (a) animal cells (b) animal and plant cells (c) plant cells (d) all of the above.
- (iv) The perinuclear cisternae are:
 - (a) electron lucent (b) electron dense (c) about 80 angstrom in diameter (d) none of the above.
- (v) Secondary lysosomes are made up of the following:
 - (a) autosomes, hemosiderin granules, microtubules.
 - (b) microfilaments, residual bodies, phagosomes.
 - (c) phagosomes, pinocytic vesicles and centrioles.
 - (d) multivesicular body, residual bodies, autosomes, hemosiderin granules and lipofuscin granules.
- (vi) Microtubules functions as:
 - (a) cellular cytoskeleton (b) intercellular transport (c) all of the above (d) none of the above.
- (vii) Carbohydrate is stored in the form of :
 - (a) glycogen particles (b) lipid vacuoles (c) secretory granules (d) all of the above.
- (viii) Inside the matrix of the melanosomes are:
 - (a) fine amorphous granules (b) large granules (c) RNA , DNA and enzymes for Krebs' cycle (d) all of the above.
- (ix) In cytoplasmic inclusions, proteins are stored in:
 - (a) vacuoles (b) secretory vessels (c) glycogen particles (d) none of the above.
- (x) Primary lysosome functions in internal digestion by fusing with:
 - (a) residual bodies (b) autosomes (c) phagosomes (d) none of the above.

PART B

Answer any TWO questions.

- 1 Write brief notes on the following:
 - (i) Chromatin materials.
 - (ii) Rough endoplasmic reticulum.
 - (iii) Ribosomes.
 - (iv) Golgi Apparatus.
- 2 Describe the chemical composition and enzymes in the various components and layers of the mitochondrion.
- 3 Describe lysosomes with emphasis on the primary lysosomes.
- 4 Describe the structure and function of the nucleolus.