B.Sc. Biotech Part I Examination, 2016

Faculty of Science

(Cell Biology)

Time: 3 Hours **Maximum Marks: 50**

Note: Question 1 is compulsory, Attempt five questions in all, selecting at least one question from each section.

Q1. (i).The Main difference between animal & plant cell is that:

a). animal cell lack rigid cell wall

b). animal cell have vacuoles

c). plant cell lack rigid cell wall

d). plant cell have small vacuole

(ii). Mitochondria have first seen by:

a)Robert Hook

b) Robert Brown

c). Linmann

d). Altmann

(iii) Plasma membrane is composed of:

a). protein

b). Lipid

c). Cellulose

d). protein & Lipid

(iv). Food is converted to energy in

a). Nucleus

b). Nucleolus

c). Chloroplast

d). Mitochondria

(v) Ribosome are made up of……..subunit

a). 0 b) 2 c). 3 d).4

(vi). The non sister chromatid twist around and exchange segment with each other during

A) leptotene

b) diakinesis

c) diplotene

d). pachytene

(vii). Synapsis occurs between:

a) mRNA and ribosome

b) male and female gamete

c) two homologous chromosome

d) spindle fibre and centromere

(viii). Which of following is not a neurotransmitter?

a). acetylcholine

b). cyclic AMP

c). noradrenaline

d). dopamine

(ix)Which of the following is not a typical messenger for a tyrosine kinase linked receptor?

a) insulin

b) acetylcholine

c) growth Factor

d) cytokines

(x). When hormone insulin is released into bloodstream, what form of cell signaling is used?

a) endocrine

b) paracrine

c) neuronal

d) contact dependent

Section A

Q2. What is Chloroplast? Describe the ultrastructure of the chloroplast? What are the obvious similarties and difference between chloroplast and Mitochondria?

Q3. Compare the characteristic features of prokaryotic and eukaryotic cells?

Section B

Q 4. What is active transport? How does it differ from passive transport? Explain in detail?

Q5. Write short note on:

a). Endocytosis

b). nuclear membrane receptor

Section C

Q6. Write short note on:

a). cyclic AMP

b). Protein Kinases

Q7. What is the role of inositol phosphatase in signal amplification?

Section D

Q8. Write short note on:

a) Cell Lines

b) immunochemistry

Q9. Explain the following:

a). cell culture

b) tissue culture

c). organ culture

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Q1. Answer the following

i) What does a target cell require to respond to an an extracellular signal molecule?

a) acess to signal molecule

b) presence of appropriate receptor for signal molecule

c) appropriate intracellular signaling pathway

d) all of above

ii) Which type of receptor do steroid hormone employ?

a) cell surface receptor

b) Ion channel

c) nuclear receptor

iii) What is diffusion?

iv) What is concentration gradient?

v) What is osmotic pressure?

vi) What are the types of passive transport?

vii) What are the main types of endocytosis?

viii) How do plant cell walls react when placed in hypotonic solution?

ix) Define Primary culture?

x) Why the mitochondria known as “factory of power house”?

Section A

Q2. What is cell cycle? Explain mitosis in detail?

Q3. Write short note on:

a). cell theory

b). cytoskeleton elements

Section B

Q4. What is active transport? Explain Na-K Pump in detail?

Q5. Write short note on:

a). Endocrine model of action

b). Endocytosis & Exocytosis

Section C

Q6. What is signal amplification? Describe different models of signal amplification?

Q7. Write an essay on cyclic GMP and glycoprotein in signal transduction?

Section D

Q8. Write short notes on:

i) Three dimension culture
ii) Maintenance of stock cells

Q9. Write a detailed account on techniques of propagation of prokaryotic and eukaryotic cells?