Register Number.....

B.TECH. DEGREE EXAMINATIONS: NOVEMBER 2009

Third Semester

BIOTECHNOLOGY

U07BT302: Cell Biology

Time: Three Hours **Maximum Marks: 100**

Answer ALL the Questions:-

PART A (10 × 1 = 10 Marks)

1. Unit membrane model was proposed by .....

A. Robertson B. Watson C. Sanger D. Korenberg

2. The organelle which is known is power house of the cell is .....

A. Mitochondria B. Vesicle C.Ribozome D.Nucleus

3. The enzyme which is present in phagocytes is .....

A. Lyzozyme B. Lysosome C. Topoisomerase D. Gyrase

4. HAT medium is ..

A. Hypoxanthine Aminopterin Thymidine B. Hypothymidine Aminoacid Thymidinate

C. Hypovaline Aminopterin Thiamine D. Hypoxanthine Aminopterin Thyroxine

5. The separation of the sister chromatids takes place during

A. Anaphase B. Telophase C. Interphase D. Prophase

6. Which among the following is correct?

A. Active transport requires ATP B. Passive transport requires ATP

C. Active transport involves channels D. Both B and C

7. During Sodium Potassium pump

A. 3 Na^+ ions out of the cell and in exchange takes 2 K^+ ions into the cell

B. 2 Na^+ ions out of the cell and in exchange takes 3 K^+ ions into the cell

C. 4 Na^+ ions out of the cell and in exchange takes 3K^+ ions into the cell

D. 4 Na^+ ions out of the cell and in exchange takes 2 K^+ ions into the cell

8. DNA replication occurs in the

A. S phase B. M Phase C. G1 Phase D. G2 Phase

9. The division of nucleus is called

A. Karyokinesis B. Cytokinesis C. Both A and B D. Diploidization

10. Movement of water across a semi-permeable membrane from an area of high water potential (low solute concentration) to an area of low water potential (high solute concentration) is called

A. Diffusion B. Osmosis C. Tonicity D. Phagocytosis

PART B (10 x 2 = 20 Marks)

11. Explain the functions of actin and myosin?
12. Differenciate between uniport, symport and antiport?
13. What is meant by facilitated diffusion?
14. Give two examples of membrane phospholipids?
15. What are carrier proteins?
16. Mention the functions of Cyclic GMP
17. What is meant by suspension culture?
18. Comment on G_0 Phase?
19. What is meant by monolayer culture?
20. Comment on MTT assay.

PART C (5 x 14 = 70 Marks)

21 (a) (i) Comment on the various stages involved in meiosis?

(ii) Give an account of check points in cell cycle?

(OR)

(b) (i) Differenciate between prokaryotic and eukaryotic cells?

(ii) Briefly explain fluid mosaic model of plasma membrane?

22 (a) (i) Comment on – Transmembrane coupled ATP generation?

(ii) Differentiate between active and passive transport?

(OR)

(b) (i) Differenciate between Phagocytosis and pinocytosis with a suitable diagram?

(ii) Briefly explain Ca2+ ATPase pump?

23 (a) (i) Explain membrane receptors with suitable diagrams?

(ii) Briefly explain cytosolic receptors?

(OR)

(b) (i) Briefly explain the role of receptors in signaling?

(ii) Comment on Nuclear receptors

24 (a) (i) Role of G proteins in signal transduction?

(ii) Comment on the role of protein kinase in signaling?

(OR)

(b) (i) What are Second messengers? Explain the role of inositol triphosphate as second messenger?

(ii) Explain the role of cAMP in signaling?

25 (a) (i) Comment on immunochemistry?

(ii) Explain the role of matrix in cell growth?

(OR)

(b) (i) Explain a) Primary culture b) Three dimensional cultures.

(ii) Briefly explain about the strategies involved in the maintenance of cell lines?

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