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Total Number of Pages: 02

B.TECH
PBT31102

3rd Semester Regular Examination 2016-17

CELL BIOLOGY
BRANCH: BIOTECH

Time: 3 Hours

Max Marks: 100

Q.CODE: Y576

Answer Part-A which is compulsory and any four from Part-B.
The figures in the right hand margin indicate marks.

Part – A (Answer all the questions)

Q1 Answer the following questions: *multiple type or dash fill up type* (2 x 10)

- a) Synaptonemal complex is formed between two _____.
- b) Division of a body cell into two daughter cells of equal size and containing the same number of chromosomes as the parent cell is called _____.
- c) DNA is complexed with protein in a structure called _____.
- d) If ribosomes of a cell are destroyed _____.
 - a. Respiration will not occur
 - b. Protein synthesis will not occur
 - c. Photosynthesis will stop
 - d. It will have no effect.
- e) Three membranous components of Golgi are _____, _____ and _____.
- f) Endoplasmic reticulum mainly concerned with _____.
 - a. Cholesterol synthesis
 - b. Fatty acid synthesis
 - c. Protein synthesis
 - d. Peptide bound synthesis.
- g) Inner membrane of a mitochondrion is covered internally by _____ or _____ particles.
- h) Chromosomes reach on equator during cell division at _____.
 - a. Prophase
 - b. Metaphase
 - c. Anaphase
 - d. Telophase
- i) Write the name of two genes that express themselves early during development of *Drosophila*.
- j) Number of chromosomes in human genome is _____.

Q2 Answer the following questions: *Short answer type* (2 x 10)

- a) Write the names of proteins which form cytoskeletal structures.
- b) What are two heritable properties of cancer cell?
- c) What are extrinsic and intrinsic proteins?

- d) Why polar substances are impermeable to plasma membrane?
- e) What is paracrine signaling?
- f) Write the function of 16srRNA.
- g) Write the role of mitochondria in apoptosis?
- h) What is oncogene?
- i) What is Na⁺-K⁺ ATPase.
- j) Which stage of mitosis is of longest duration?

Part – B (Answer any four questions)

- Q3** a) Draw and describe the structure of prokaryotic and eukaryotic cell? **(10)**
- b) Describe different models of plasma membrane structure. **(5)**
- Q4** a) What is cytoskeleton? What are the different types of cytoskeleton structure? **(10)**
- b) What is metastasis of cancer cell? **(5)**
- Q5** a) What do you mean by apoptosis? Describe the molecular mechanism of apoptosis? **(10)**
- b) Draw and describe the nucleosome model of chromosome? **(5)**
- Q6** a) Describe the structure and mechanism of action of G-protein coupled receptors? **(10)**
- b) Write short notes on chemical composition of plant and animal cell. **(5)**
- Q7** a) Explain the structure and function of mitochondria? **(10)**
- b) How cell –cell communication or cell signaling helps in cell differentiation? **(5)**
- Q8** a) Give a list of different of type of stem cells on the basis of their origin? **(10)**
- b) Write the structure and function of plant cell wall? **(5)**
- Q9** a) Describe the various phases involved in the mitotic division of an animal cell. **(10)**
- b) Briefly describe the mechanism of protein sorting? **(5)**