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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
MID SEMESTER EXAMINATION-2015
B.Tech. VIth SEMESTER

COURSE CODE: 10B11BT613 MAX. MARKS: 30
COURSE NAME: Cell and Developmental Biology
COURSE CREDITS: 4 MAX. TIME: 2HRS

Note: All questions are compulsory.

Section A (Marks: 6)

1. Name the two types of sugar moieties present in the prokaryotic cell walls.
2. Define 'Protein zip codes'.
3. Giemsa staining is utilized for karyotyping. Define the principle of this staining technique.
4. Why oil filled objectives are better than normal objective lenses?
5. Give an experimental method for determining Protein-DNA interactions.
6. Give an experimental method for separation of Smooth endoplasmic reticulum and rough endoplasmic reticulum in a given mixture.

Section B (Marks: 9)

1. Endo-symbiosis is generally observed in eukaryotic cells. Name two organelles which show lineage of endo-symbiosis. Also, give justification to prove this phenomenon.
2. If you want to study the anatomical structures in a given specimen, which type of electron microscopy will be utilized and why? Also, define the working principle of this microscopy method.
3. Design an experimental proof to show that transcriptional active genes are more susceptible than inactive genes to DNaseI digestion.

P.T.O.

Section C (Marks: 15)

1. A double membrane organelle is involved in the addition of sugar moieties to the nascent polypeptide. Name this organelle and define the different types of linkages. Also explain the role of dolichol phosphate and process of different sugars attachment to the polypeptide.
2. Nucleosome architecture is required for proper folding and maintenance of genetic material as chromatin in eukaryotic cell. Define various important constituents of nucleosome assembly and explain the effect of different levels of packaging in chromosomal organizations?
3. Hutchinson-Gilford Progeria syndrome is due to the alteration in the mesh like network present in the confined region of cell center.
   a) Name and define the role of this region in cell and explain the possible complication occur due to alteration these structures in Progeria. (2.5)
   b) Justify the statement: "RAs-related Nuclear protein is an important factor in nuclear transport". (2.5)