

Registration No. :

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Total number of printed pages – 2

B. Tech
PCBT 7202

Special Examination – 2012

CELL BIOLOGY AND GENETICS

Full Marks – 70

Time : 3 Hours

Answer Question No. 1 which is compulsory and any **five** from the rest.

The figures in the right-hand margin indicate marks.

1. Answer the following questions : 2 × 10
 - (a) What is DNA acetylation ?
 - (b) Which cell component is responsible for the acrosome formation in sperm ?
 - (c) Why mitochondria is called as the power house of cell ?
 - (d) Differentiate between paracrine signaling and endocrine signaling.
 - (e) What is transposition ?
 - (f) What is genetic drift ?
 - (g) Describe the RNA components in 70S ribosomes.
 - (h) What is the genetic basis of haemophilia ?
 - (i) What is pleiotropism ?
 - (j) Explain the function of golgi bodies.
2. (a) Explain the structure of nucleosomes with proper diagram. Describe the protein components that are found associated with nucleosome. 6
(b) Explain Cytoplasmic inheritance with proper examples. 4
3. What is cell cycle ? Describe the prophase-1 of meiosis with proper diagram. 4+6

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4. (a) Explain epistasis with proper example. 6
(b) Explain the structure of ATPase complex. 4
5. (a) What are QTL ? Describe the methods of their detection and application. 6
(b) Explain Hardy-Weinberg's law. 4
6. (a) Describe the ultra structure of cell wall. 4
(b) Explain receptor mediated cell-cell signaling. 6
7. Differentiate between : 5×2
(a) Euchromatin and Heterochromatin
(b) Euploidy and aneuploidy
8. Write notes on : 2.5×4
(a) Explain hybrid vigour and heterosis.
(b) Cytoskeleton
(c) Explain genic theory of sex determination
(d) G protein