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2 0 1 3

(May)

BOTANY

(Major)

Course : 403

(Cell Biology and Modern Laboratory Technique)

Full Marks : 48

Pass Marks : 19

Time : 2 hours

*The figures in the margin indicate full marks
for the questions*

1. (a) Write correct answers of the following :

1×3

(i) Which is an exception to cell theory? (Bacteria / Viruses / Lichens / Fungi)

(ii) Pairing of homologous chromosomes take place in Leptotene / Zygotene / Pachytene / Diplotene.

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(Turn Over)

(2)

(iii) Genetic code is Singlet / Doublet / Triplet / None of these,

(b) Fill in the blanks :

- (i) When nitrogenous bases join with the pentose sugar, they form 1×2 .
(ii) CPU is the abbreviated form of .

2. Write short accounts on any two of the following : $4 \frac{1}{2} \times 2$

- (a) Different types of RNA present in the living system
(b) Significance of mitosis
(c) Cell cycle
(d) G proteins

3. Distinguish between cell wall and plasma-membrane. Give a detailed account of the structure, chemical composition and functions of plasma membrane. $3+3+2+2$

Or

What do you mean by the terms chromosome, gene and DNA? Describe with diagrams the various steps in the mechanism of semiconservative replication of DNA. $3+7$

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(Continued)

(3)

4. Give an account of the structure, origin and function of mitochondria. $4+3+3$

Or

Describe with diagrams the various sub-phases of prophase-I of 1st meiotic division. $4+6$

5. (a) Describe the principle and applications of electron microscope. Compare electron microscope with compound microscope. $2+2+4$

Or

Define chromatography. Write principle, types and applications of paper chromatography. $2+2+2+2$

(b) Write short notes on (any two) : 3×2
(i) Autoradiography
(ii) Centrifuge
(iii) Autoclave
(iv) Colorimeter

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