

Q.P-Code

53499

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S4BSc

Sem III

Botany Paper - II

Oct. 2018

SET-II: Solution

Q.1 (A) Choose the correct option from the following and rewrite the sentence. 1 mark each

- i) S-Phase
- ii) Peroxisomes
- iii) Polyribosomes
- iv) Fatty acids to carbohydrates
- v) 15th
- vi) X- chromosome
- vii) Plasmon
- viii) Conservative
- ix) Primase
- x) dNTP

Q.1 (B) Answer the following in one or two sentences: 2m each

- i) Functions of mitochondria:
Generate ATP/ ATP transport/ lipid synthesis/
elongation of fatty acids (Any two)
- ii) Translocations : Definition and names of any two types
- iii) Sex linked inheritance: Definition
- iv) Semi-conservative mode of DNA replication: Definition
- v) Pribnow box: Location and function

Q.2 Answer any two of the following:

- i) Structure of mitochondrion:
 - Description 6m
 - Labelled diagram 4m
- ii) Structure of DNA: Description and diagram 8m
Function of DNA: genetic information, replication, regulate protein
synthesis, cause mutations. 2m
- iii) Mitosis: Definition 1m
Stages of mitosis: Karyokinesis(prophase, metaphase, anaphase,
telophase) 6m
Cytokinesis 3m
- iv) Clover Leaf model of t-RNA- its arms and their functions 10m

Q.3 Answer any two of the following:

- i) Chromosomal aberrations: Definition 1m
 Inversions- their origin: Description with diagram 3m
 Inversions- cytological significance: Crossing over in paracentric inversion 3m
 Crossing over in pericentric inversion 3m
- ii) Sex determination in *Drosophila*: 1m
 Karyotype 3m
 Significance of sex chromosomes 3m
 Autosome to X chromosome ratio 3m
 Non-disjunction of X chromosome and its effects 3m
- iii) ^{Haemophilia} Sex linked inheritance: Definition 1m
 Sex-linked genes ~~1m~~
 Holandric genes 3m
 Example: Inheritance of haemophilia 7m
- iv) Cytoplasmic inheritance: definition and identifying traits controlled 3m
 Example:, Male sterility in maize 7m

Q.4 Answer any two of the following:

- i) DNA replication in prokaryotes: Type of replication-Semiconservative 5m
 Initiation and synthesis of RNA primer 5m
 Elongation of New DNA strands 10
- ii) ~~Semi-conservative, Conservative and Dispersive~~ ^{Meselson's & Stahl's Expt.} m
- iii) Transcription in prokaryotes: 1m
 Description of transcription 3m
 Initiation 3m
 Elongation of polynucleotide chain 3m
 Termination
- iv) RNA processing: 5' capping 2m
 Poly A tail 4m
 Splicing- removal of introns and ligation of exons 4m

Q.5 Write short notes. (Any Four)

- i) Metaphase: Description 3m
 Diagram 2m
- ii) A- DNA:characterstics 5m
- iii) Colour Blindness: Definition 1m
 Cause 4m
- iv) Sex determination in *Melandrium*: XX-XY pattern 5m
- v) Plastid transmission in *Mirabilis jalapa* 5m
- vi) Eukaryotic RNA polymerases: RNA polymerase I, RNA polymerase II,

3

RNA polymerase III

5m