

Q.P. Code : 19590

[Time: Three Hours]

[Marks:100]

Please check whether you have got the right question paper.

- N.B:
1. All questions are compulsory.
 2. Figures to right indicate marks.
 3. Draw neat and labelled diagrams wherever necessary.

Q.1. A) Choose the correct option from the following:**(10)**

- The organelle which deals with formation and decomposition of hydrogen peroxide is called _____.
a) Peroxisome b) Ribosome c) Oxysome d) Glyoxisome
- DNA replication occurs in _____.
a) S Phase b) G1 Phase c) G2 Phase d) M Phase
- A nucleoside is composed of _____.
a) Base + Sugar b) Base + Sugar + Phosphate c) Base + Phosphate
d) Sugar + Phosphate
- Barred eye of *Drosophila* is an example of _____ chromosomal aberration.
a) Deletion b) Duplication c) Inversion d) Translocation
- _____ is an example of sex influenced character.
a) Colour blindness b) Haemophilia c) Baldness d) Eye Colour
- Domestic fowl, reptiles and some fishes show _____ method of sex determination.
a) XX-XO b) XX-XY c) ZW-ZZ d) ZO-ZZ
- Chloroplast inheritance in *Mirabilis jalapa* is an example of _____ inheritance.
a) Extra nuclear b) X-linked c) Multiple allele d) Polygenic
- _____ is the process by which the DNA makes an exact and accurate copy of itself.
a) Replication b) Transcription c) Translation d) Polymerization
- _____ enzyme is also known as Kornberg's enzyme / fragment.
a) DNA Polymerase I b) DNA Polymerase -II c) DNA Polymerase III
d) DNA Polymerase β
- The pre-m RNA is modified by the addition of a cap of 7 - methyl guanosine (m⁷G) to the terminal 5' end is called _____.
a) Splicing b) Capping c) Polyadenylation d) Terminalization

B. Answer the following in one or two sentences :**(10)**

- What happens during Metaphase -I.
- Name the Purines and Pyrimidines.
- What are inversions with reference to chromosomal aberrations?
- Write two examples of XX-XY type of sex determination.
- What do you mean by replicon.

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- Q.2.** Answer **any two** of the following : (20)
- Explain the structure and functions of Mitochondria.
 - Describe the structure and functions of t-RNA.
 - Describe the stages of prophase I of Meiosis.
 - Describe the double helical structure of DNA.
- Q.3.** Answer **any two** of the following : (20)
- What are chromosomal aberrations? Describe Deletion with reference to their cytological and genetic significance.
 - Explain the Genic balance theory of sex determination in *Drosophila*.
 - What is sex linked inheritance? Explain it with reference to colour blindness in human beings.
 - What is cytoplasmic inheritance? Explain it with reference to plastid transmission in *Mirabilis jalapa*.
- Q.4.** Answer **any two** of the following : (20)
- Explain Messelson's and Stahl's experiment to prove that DNA replication is Semi-conservative.
 - Explain the steps involved in DNA replication in prokaryotes.
 - Explain the process of transcription in eukaryotes.
 - Explain the role of various enzymes in eukaryotic DNA replication.
- Q.5.** Write Short notes on **any four** : (20)
- Glyoxysomes
 - Telophase
 - Translocation
 - ZO-ZZ type of sex determination
 - Lyon's Hypothesis
 - Polyadenylation of mRNA.
