

Q.P. Code :19593

[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 the right indicate marks.
 3. Draw neat and labelled diagrams wherever necessary.

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

- The two sub units of prokaryotic ribosomes are _____.
a) 60 S & 40 S b) 50 S & 30 S c) 60 S & 30 S d) 70 S & 30 S
- During which stage of prophase-I, crossing over takes place _____.
a) Leptotene b) Zygotene c) Pachytene d) Diplotene
- Which of the following type of DNA is left handed helix _____.
a) A b) Z c) B d) C
- Crossover suppressing characteristic is shown by _____ chromosomal aberration.
a) deletion b) duplication c) Inversion d) Translocation
- In reptiles and fishes _____ method of sex determination is found.
a) XX-XO b) XX-XY c) ZW-ZZ d) ZO-ZZ
- The daughters of a man who is colour blind and a woman who is homozygous dominant normal vision will be _____.
a) Colour blind b) Carrier c) Normal vision d) Colour blind and carrier
- Evidence of cytoplasmic inheritance in *Mirabilis jalapa* was first reported by _____.
a) Nass b) Correns c) Rhoades d) Sonneborn
- Messelson & Stahl used _____ bacterium in their experiments.
a) *E.coli* b) *Salmonella typhi* c) *Streptococcus pneumoniae* d) *Salmonella typhimurium*
- _____ protein binds to single – stranded DNA, and prevents it from forming duplex DNA.
a) DSB b) SSB c) TSB d) PSB
- Synthesis of _____ strand of DNA involves formation of series of discontinuous short segments of nucleotides called okazaki fragments.
a) Leading b) Lagging c) Parental d) Primer

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

- What is karyokinesis ?
- What is the function of peroxisome?
- Name the two types of inversion.
- What is the significance of cytoplasmic male sterility?
- What do you mean by replicon?

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- Q. 2** Answer **any two** of the following: (20)
- Describe the ultra structure of mitochondria. Add a note on its function.
 - Describe the structure of t-RNA. Add a note on its function.
 - Describe B and C forms of DNA.
 - Define meiosis. Give a detailed account of prophase – I of meiosis – I.
- Q. 3** Answer **any two** of the following: (20)
- What are chromosomal aberrations? Discuss duplication with reference to their origin and genetic significance in *Drosophila*.
 - Explain the methods of sex determination in homogametic females with the help of a suitable examples.
 - What is sex-linked inheritance? Explain it with reference to haemophilia in human beings.
 - Explain Cytoplasmic inheritance in *Mirabilis jalapa*.
- Q. 4** Answer **any two** of the following: (20)
- Explain the role of various enzymes involved in Eukaryotic DNA replication.
 - Describe how Messelson-Stahl's experiment proved that DNA replication is semi-conservative.
 - Describe briefly the molecular mechanism of DNA replication in prokaryotes.
 - Explain the process of transcription in eukaryotes.
- Q. 5** Write short notes on **any four**. (20)
- Telophase
 - Z-DNA
 - ZO-ZZ type of sex determination
 - Lyon's hypothesis
 - Translocations
 - Central Dogma
