

Please check whether you have got the right question paper

N.B.

1. All questions are compulsory.
2. Figures to right indicate full marks.
3. Draw neat and labeled diagrams wherever necessary.

Q.1 A Choose the correct option from the following

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1. The site of aerobic respiration in eukaryotic cells is _____.
a. Peroxisome b. Plastid c. Mitochondria d. Cilia
2. DNA synthesis takes place during _____ phase.
a. M phase b. G2 phase c. G1 phase d. S phase
3. RNA contains Uridine, it is a _____.
a. Pyrimidine b. nucleotide c. purine d. nucleoside
4. Select the type of inversion, if the inverted segment includes the region of the centromere.
a. duplication c. pericentric inversion
b. translocation d. paracentric inversion
5. Inheritance of streptomycin resistance or sensitivity in *Chlamydomonas* is an example of _____ inheritance.
a. Uniparental b. lysosome c. biparental d. nuclear
6. _____ is an example of hermaphrodite plant having bisexual flowers.
a. maize b. castor c. hibiscus d. papaya
7. _____ is an example of heterogametic females which shows the ZZ-ZO mechanism of sex determination.
a. birds b. grasshopper c. butterflies d. humans
8. DNA polymerase synthesizes _____ direction.
a. DNA in 5'-3' b. DNA in 3'-5' c. mRNA in 3'-5' d. mRNA in 5'-3'
9. During replication, Okazaki fragments elongate on the _____ strand.
a. Leading b. Lagging c. Dispersive d. None of the above
10. Which of the following enzymes separates the two strands of DNA during replication?
a. Gyrase b. Topoisomerase c. Helicase d. DNA polymerase

Q.1 B Answer the following in one /two sentences each

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- What is a cell cycle?
- Give the types of DNA.
- What is Sex-influenced inheritance? give an example.
- What is the sex of the drosophila if the ratio is 1, 0.5, between 0.5 to 1, and above 1?
- State the role of enzyme Ligase in DNA Replication.

Q.2 Answer any two from the following

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- Differentiate between Mitosis and Meiosis.
- What is RNA? Explain types of RNA.
- Explain Ultrastructure of Mitochondria with a neat and labeled diagram.
- What are peroxisomes? Explain their structure in detail.

Q.3 Answer any two from the following

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- Explain the mechanism of heterogametic males with suitable examples.
- Concerning chromosomal aberrations give the types of deletion and duplication.
- Explain Hemophilia Genetic Inheritance,
 - When the father has hemophilia and the mother is unaffected.
 - When the mother carries the altered gene causing hemophilia (carrier) and the father is unaffected.
- Carry out the following crosses to obtain percentages of progenies.
 - Carrier female and Normal male.
 - Normal female and Colorblind male.

Q.4 Answer any two from the following

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- Explain the DNA Replication in prokaryotes with a neat labeled diagram.
- Describe the three models of DNA replication.
- Explain the process of transcription in eukaryotes.
- Give an account of m-RNA Processing in eukaryotes.

Q.5 Write short notes on any four from the following

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- Z-DNA.
- Structure of Nucleus.
- ZZ-ZW mechanism.
- Lyon Hypothesis – Dosage compensation.
- Messelson and Stahl Experiment.
- Central Dogma of protein synthesis.

XXXXX All the Best XXXXX