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M.Sc.-CBCS/IIIS/BOT/PG/301/21 (Th)

Raja N. L. Khan Women's College (Autonomous)

End Semester Examinations-2021

BOTANY [PG-CBCS]

[M. Sc] (Theory)

PAPER-BOT 301

Cell Biology Genetics and Biotechnology

Full Marks: 40

Time: 02 Hrs

Answer all questions

*The figures in the right hand margin indicate marks
Answer should be given within 8 pages of A4 size.*

Unit-I

F.M=20

Group-A

[Answer any FOUR Questions]

1x4=04

1. What are the functions of telomere?
2. Give example of one sex limited character.
3. What is the significance of degeneracy of codons?
4. When the SOS repair system is activated?
5. State the importance of crossing over in creating variation.
6. What is Programmed Cell Death?
7. What type of inheritance does variegated leaves of *Mirabilis sp.* show?

(2)

Group-B

[Answer any TWO Questions] **4x2=08**

8. State the Hardy-Weinberg hypothesis. What are the assumptions or conditions under which it holds true?
9. What is Barr body? Discuss the Lyon hypothesis.
10. Write in short about the characteristic features of Transposons. What is Copia element? (3+1)
11. Discuss the ultrastructure of mitochondria.

Group-C

[Answer any ONE Question] **8x1=08**

1. Discuss the types of mutation due to change in chromosome structure with labelled diagrams. 8
2. Write a brief note on M13 replication. What are proof reading enzymes? (6+2)

Unit-II

F.M=20

Group-A

[Answer any FOUR Questions] **1x4=04**

1. Distinguish between dominant and co-dominant markers.
2. Define cellular totipotency.
3. Mention the characteristics of yeast artificial chromosome [YAC].
4. What does a lower Ct value indicate?
5. What is the function of capping and tailing?

(3)

6. What is meant by organogenesis?

7. What are phagemids?

Group-B

[Answer any TWO Questions] **4x2=08**

8. Discuss briefly the Blue and White selection of clones.
9. Briefly discuss the steps of Microarray.
10. Differentiate RFLP from RAPD. (2+2)
11. Distinguish between Mass selection and Pureline selection. Define Apomixis (3+1)

Group-C

[Answer any ONE Question] **8x1=08**

1. Write a brief note on cDNA library. What do you mean by post transcriptional modifications? Write two examples of transcription inhibitors. (4+2+2=8)
2. With proper diagram discuss principle and advantages of Real time PCR with Taqman probe. Why is the alkali treatment important in southern blotting? Mention one importance of embryo culture. (5+2+1)
