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Question Paper Code:U3D04

B.E./B.Tech. DEGREE EXAMINATION, NOV 2024

Third Semester

Biotechnology

21UBT304- CELL BIOLOGY

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer All Questions

PART A - (10x 2 = 20 Marks)

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| 1. The largest membrane-bound organelle in eukaryotic cell is? Justify your answer | CO2- App |
| 2. Name examples of prokaryotic and eukaryotic organisms. | CO1- U |
| 3. What are the different types of transport across cell membranes? | CO1- U |
| 4. Explain Ca-ATPase pump. | CO1- U |
| 5. Describe chiasmata formation. | CO1- U |
| 6. Define apoptosis | CO1- U |
| 7. What is the role of MAPK pathway | CO1- U |
| 8. What is the role of cAMP in signal transduction | CO1- U |
| 9. What are the limitations of the confocal microscopy? | CO1- U |
| 10. What are the types of cell culture media? | CO1- U |

PART – B (5 x 16= 80Marks)

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|---|----------|------|
| 11. (a) Analyze structure and functions of various cellular organelles present in the eukaryotic cells with neat diagram | CO2- App | (16) |
| Or | | |
| (b) Compare and contrast the similarities and differences between eukaryotes and prokaryotes. | CO2- App | (16) |
| 12. (a) Describe in detail about the two types of vesicle transport with neat diagram. Which type moves substances out of the cell? | CO1- U | (16) |

Or

- (b) Define active transport. Explain in detail about the primary and secondary active transport CO1- U (16)
13. (a) Describe in detail about stages of cell cycle. How long does the cell cycle take? Write short notes on check points in cell cycle regulation. CO2- App (16)
- Or
- (b) How does cell division occur in gamete cells? Explain it with neat diagram CO2- App (16)
14. (a) Write a detailed note on cell surface receptors pathway CO1- U (16)
- Or
- (b) Write a detailed note on intracellular receptors pathway CO1- U (16)
15. (a) Discuss in detail about the cell fractionation and steps involved in it with neat diagram CO1- U (16)
- Or
- (b) Illustrate in detail about methodology and instrumentation of flow cytometry with neat diagram. Write short notes on application of flow cytometry CO1- U (16)