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Question Paper Code: U3D04

B.E./B.Tech. DEGREE EXAMINATION, NOV 2023

Third Semester

Biotechnology

21UBT304 - CELL BIOLOGY

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer All Questions

PART A - (10x 2 = 20 Marks)

1. Relate fimbriae and Pili. CO1-U
2. Predict the suicide bags in a cell. CO1-U
3. Infer Ca-ATPase pump based on the ideas about ATPase mediated pumps. CO4-Ana
4. Summarize the tonicity concept in water movement. CO1-U
5. Articulate the role of stem cells. CO2-App
6. Classify the stages of meiosis. CO1-U
7. Generalize the role of calcium-binding proteins such as calmodulin in eliciting a response? CO1-U
8. Show the mechanism of formation of the second messenger IP₃? CO2-App
9. 'Confocal microscopy is not an acceptable tool for nuclear level study'. Restate. CO1-U
10. Trace the methods by which proteins can be localized in a cell. CO2-App

PART – B (5 x 16= 80Marks)

11. (a) Predict structure and functions of various cellular organelles present in the eukaryotic cells with neat diagram. CO1-U (16)
- Or
- (b) Elaborate extracellular matrix and the cell-cell junction. CO1-U (16)

12. (a) Articulate ABC super family and ATP powered channels across cell membrane. CO2- App (16)
- Or
- (b) Illustrate active transport. Explain in detail about the primary and secondary active transport CO2- App (16)
13. (a) Illustrate cell division in gamete cells highlighting different stages CO3- App (16)
- Or
- (b) Choose the major techniques involved in cell culture CO3- App (16)
14. (a) Predict the role of MAP kinase cascade that alter the transcriptional activity of a cell. CO2- App (16)
- Or
- (b) Develop a relationship between phosphatidylinositol, diacylglycerol, calcium ions and protein kinase C in signal transduction. How do phorbol esters interfere with signal pathways involving DAG? CO2 -App (16)
15. (a) Explain Immunostaining and the limitations in this technique CO5- Ana (16)
- Or
- (b) Separate embryonic stem cells from adult cells using cell sorting method. CO5- Ana (16)