QP CODE: UV25C010

Reg No: …………………………

Name : …………………………

ST MARY'S COLLEGE (AUTONOMOUS), THRISSUR-20

III SEMESTER (CBCSS-VUG) DEGREE EXAMINATIONS, OCTOBER 2025

B. Voc Applied Biotechnology

SDC3APB13: Cell Biology

2024 Admission Onwards

Time: 2.5 Hours **Maximum Marks: 80**

Section A

Short answer type carries **2** *Marks each.* ***(Ceiling 25)***

1.List the main differences between rough ER and smooth ER.

2.Name one biosynthetic process occurring in Golgi apparatus.

3.Define necrosis.

4.Explain why mitochondria are called the "powerhouse of the cell."

5.Describe on stroma and grana.

6.Explain why endosomes are considered "sorting stations."

7.Apply why does a raisin swell when placed in water.

8.Apply how does apoptosis help prevent cancer?

9.Apply the knowledge of karyotyping to predict Down Syndrome.

10.Analyse the role of cyclins in cell cycle checkpoints.

11.Examine the role of ER in protein synthesis and folding.

12.Compare the biosynthesis of mitochondria and chloroplast.

13.Analyze how checkpoints prevent uncontrolled cell division.

14.Evaluate the significance of cell junctions in tissue integrity.

15.Assess which type of membrane transport is more energy efficient. Why?

Section B

Paragraph types carries **5** *Marks each.* ***(Ceiling 35)***

16.Define Euchromatin.

17.List the components of cell cycle control system.

Turn Over

18. Explain the difference between single-stranded and multistranded hypotheses.
19. Apply the concept of karyotyping to identify chromosomal abnormalities.
20. Apply how chromosome number used in identifying species.
21. Analyse the role of Euchromatin in active gene transcription.
22. Compare prokaryotic and eukaryotic chromosome organization.
23. Analyze how cyclin-CDK complexes interact to regulate different phases of the cell cycle.

Section C

*Essay-type carries **10** Marks. Answer **any two**.*

24. Define on Lamp brush chromosomes, polytene chromosomes and their function.
25. Explain the process of autophagy and the role of lysosomes in it.
26. Compare different types of cell signaling with examples.
27. Compare the folded-fiber model and nucleosome model of chromosome structure.

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