



VIT[®]

Vellore Institute of Technology
(Approved as a University under section 3 of the UGC Act, 1956)

Final Assessment Test – November 2022

Course: BBIT204L - Cell Biology and Genetics

Class NBR(s): 1448 / 1453

Time: Three Hours

Slot: B2+TB2

Max. Marks: 100

KEEPING MOBILE PHONE/SMART WATCH, EVEN IN 'OFF' POSITION IS TREATED AS EXAM MALPRACTICE
General Instructions: Draw neat diagram wherever necessary

Answer any TEN Questions
(10 X 10 = 100 Marks)

- 2 ① Give detailed account on mitochondria emphasising its function.
- ~~2~~ Draw and discuss the components of fluid mosaic model of cell membrane and their functions.
3. Compare the structure and functions of various cytoskeletal elements. 4-5
- 1 4. Explain cyclins-CDKs and their control in cell cycle.
5. Write a brief summary on the following:
 - a) Na⁺ driven antiporter. [5]
 - b) Role of the gap junction of hepatic cells in maintaining blood glucose level. [5]
- ~~6~~ Illustrate the structure and functions of ion-channel-coupled and enzyme-coupled receptors present on the cell membrane.
- 10 ~~7~~ Explain with example two phenomena that are exception to Mendel's rule. 10
- 10 ~~8~~ a) How do the mechanisms that compensate for different doses of the X chromosome in the two sexes differ between humans and Drosophila? [5]
10
- ~~8~~ b) Does environment influence sex determination of certain organisms? Explain [5]
with example.
- 4-5 ~~9~~ What is chromosome deletion and translocation? Discuss with examples. 4-5
- 8 ~~10~~ Discuss an experiment which proves the presence of X-linked genes in fruit fly. 8-9
- 7 ~~11~~ Explain Hardy and Weinberg's principles and equilibrium. 7-8
- 12 ~~12~~ Compare euphenics, eugenics and euthenics. 3-4

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