



INDIAN INSTITUTE OF INFORMATION TECHNOLOGY UNA [HP]

An Institute of National Importance under MoE

Saloh, Una (HP) – 177 209

Website: www.iiitu.ac.in

AY 2021-22

School of Basic Sciences

CURRICULUM: IIITUGCSE20

Cycle Test – II

29, Mar.'22

| | | | |
|---------------------|---------------------------------------|--------|-------------------|
| Degree | B. Tech. | Branch | CSE |
| Semester | I | | |
| Subject Code & Name | BIC104: Introduction to Biotechnology | | |
| Time: 60 Minutes | Answer All Questions | | Maximum: 20 Marks |

| Sl. No. | Question | Marks |
|---------|---|-------|
| 1.a | Define bioterrorism and identify microorganisms that may be used as bioweapons. | (1) |
| 1.b | Outline the role that microorganisms play in the development and production of vaccines; provide suitable examples of different vaccines. | (2) |
| 1.c | Develop a hybrid plant regeneration system using protoplast fusion technology. | (2) |
| 2.a | Relate the term “plant as totipotent” with the term “animal as pluripotent”. | (1) |
| 2.b | Summarize the environmental benefits from plant biotechnology. | (2) |
| 2.c | Explain how some biotechnology companies produced antibodies that do not stimulate a HAMA-like response? | (2) |
| 3.a | List two biotechnological products that can be produced using transgenic animals as bioreactors. | (1) |
| 3.b | Model the block diagram for nuclear reprogramming of somatic cells to produce induced pluripotent stem cells. | (2) |
| 3.c | Construct the ex vivo and in vivo gene therapy regimens, and give an example of a human genetic disease treated by each approach. | (2) |
| 4.a | What is the specific activity of a therapeutic protein if its enzyme activity and protein content are 8000 IU and 20 mg respectively? | (1) |
| 4.b | Examine the bioremediation process of aerobic and anaerobic biodegradation with suitable examples. | (2) |
| 4.c | Construct the pattern and fragments obtained after treating the peptide “Cys-Tyr-Phe-Gln-Asn-Cys-Pro-Arg-Gly” with enzyme “chymotrypsin” and chemical “cyanogen bromide”, respectively. | (2) |

****GOOD LUCK****