K22U 0366

Reg. No. : .....

Name : .....

VI Semester B.Sc. Degree (CBCSS – OBE – Regular) Examination, April 2022
(2019 Admission)
CORE COURSE IN BIOTECHNOLOGY
6B12BTC : Animal Cell Biotechnology

Time : 3 Hours Max. Marks : 40

PART – A

Write short notes on **each** of the following in **2** or **3** sentences. **Each** question carries **1** mark. **(6×1=6)**

1. Interferon.
2. Natural media.
3. Cell strains.
4. Passaging cells.
5. Transgenic animals.
6. Recombinant vaccines.

PART – B

Write notes on **any six** of the following. **Each** question carries **2** marks. **(6×2=12)**

7. Explain the enzymatic method of tissue disaggregation.
8. Comment on sterile handling practices in animal cell culture laboratory.
9. What are the basic components of a complete media ?
10. Explain cell synchronization.
11. Comment on various growth factors used in cell culture studies.

P.T.O.

12. Give a note on Recombinant insulin production.

13. Briefly explain the physiochemical properties of culture media.

14. Write notes on animal cell growth kinetics.

PART – C

Write short essay on **any four** of the following. **Each** question carries **3** marks. **(4×3=12)**

15. Comment on various aseptic techniques practised in animal cell culture.

16. Define various media components for cellular growth.

17. Write about Somatic Cell Nuclear Transfer.

18. Write short note on the equipment and materials used in Animal cell culture technology.

19. What are bioreactors ? Explain the common types of bioreactors used in animal cell culture.

20. Discuss about the advantages and disadvantages of serum-free media.

PART – D

Write essay on **any two** of the following. **Each** question carries **5** marks. **(2×5=10)**

21. Explain hybridoma technology and the production of monoclonal antibodies in detail.

22. Comment on transgenic animals as bioreactors.

23. Write about animal cloning. Explain its application in the field of biotechnology.

24. Explain the application of Animal cell culture technology in the production and development of vaccine.

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VI Semester B.Sc. Degree (CBCSS – OBE – Regular) Examination, April 2022
(2019 Admission)
CORE COURSE IN BIOTECHNOLOGY
6B13BTC : Industrial Biotechnology

Time : 3 Hours Max. Marks : 40

PART – A

Write short notes on **each** of the following in **2** or **3** sentences. **Each** question carries **1** mark. **(6×1=6)**

1. Kimchi
2. Biosensors
3. Inactive Yeast
4. Blue Cheese
5. Malting
6. Chemostat.

PART – B

Write notes on **any six** of the following. **Each** question carries **2** marks. **(6×2=12)**

7. Single Cell Protein
8. HACCP
9. Fed batch fermentation
10. Starter Culture
11. Enzyme Immobilization

P.T.O.

12. BOD

13. Air Lift Fermenter

14. Marmite.

PART – C

Write short essay on **any four** of the following. **Each** question carries **3** marks. **(4×3=12)**

15. Discuss the effect of pH and nutrient concentration of bacterial growth.

16. Distinguish between High temperature short time (HTST) pasteurization and Ultra-high-temperature (UHT) pasteurization.

17. Outline the wine making process.

18. Are probiotics safe for the people with compromised immune system ? Discuss.

19. Distinguish solid state and submerged fermentation.

20. Mention the various methods used for the preservation of industrially important micro-organisms.

PART – D

Write essay on **any two** of the following. **Each** question carries **5** marks. **(2×5=10)**

21. Describe the design of a bioreactor and mention the different types of bioreactors.

22. List and discuss various types of fermented milk products.

23. Describe the microbial production of α-amylases enzyme with its applications in industry.

24. Define downstream process with various steps involved in it.

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VI Semester B.Sc. Degree (CBCSS – OBE – Regular)
Examination, April 2022
(2019 Admission)
CORE COURSE IN BIOTECHNOLOGY
6B14BTC : Environmental Biotechnology

Time : 3 Hours Max. Marks : 40

PART – A

Write short notes on **each** of the following in **2** or **3** sentences. **Each** question carries **1** mark. **(6×1=6)**

1. Biohydrogen
2. Acid rain
3. Ozone depletion
4. Symbiotic nitrogen fixation
5. Biopesticides
6. Biofertilizers.

PART – B

Write notes on **any six** of the following. **Each** question carries **2** marks. **(6×2=12)**

7. Bioleaching
8. Green house effects
9. Soil quality
10. Causes of air pollution
11. Leghemoglobin
12. Environmental impact of modern fuels

P.T.O.

13. Effect of pollution on plants

14. Plant based petroleum industry.

PART – C

Write short essay on **any four** of the following. **Each** question carries **3** marks. **(4×3=12)**

15. Discuss major causes of water pollution. Suggest measures to reduce water pollution.

16. Explain use of conventional fuels and their environmental impact.

17. Biotechnological approaches in the production of cotton fibers.

18. Effect of air pollution on human health.

19. Nitrogenase structure.

20. Non-renewable resources.

PART – D

Write essay on **any two** of the following. **Each** question carries **5** marks. **(2×5=10)**

21. Explain *nif* gene organization and its regulation process.

22. Discuss on disaster management strategies to various forms of natural disasters.

23. Give an elaborate account on various bioremediation process.

24. Describe various types of renewable resources. Add a note on environmental significance of renewable resources.

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VI Semester B.Sc. Degree (CBCSS – OBE – Regular) Examination, April 2022
(2019 Admission)
CORE COURSE IN BIOTECHNOLOGY
6B15BTC : Developmental Biology

Time : 3 Hours

Max. Marks : 40

PART – A

Write short notes on **each** of the following in **2** or **3** sentences. **Each** question carries **1** mark : **(6×1=6)**

1. Parthenogenesis.
2. Difference between Blastula stage and zygote.
3. Allantoic stalk.
4. Basic difference between primary and secondary growth.
5. Stem cells.
6. Neural crest.

PART – B

Write notes on **any six** of the following. **Each** question carries **2** marks : **(6×2=12)**

7. Explain how chemodifferentiation initiates gastrulation.
8. What happens when the two male gametes enter the embryosac ?
9. What is the role of egg yolk in embryo development ?
10. How is the anterior and posterior polarity achieved during organism development ?
11. What is the mechanism of stem cell differentiation ?

P.T.O.

12. What is paracrine signaling ?

13. Explain how morphogenesis occurs in plant tissue culture systems.

14. Describe why some pollen grains are inhibited at the stigmatic surface during pollination.

PART – C

Write short essay on **any four** of the following. **Each** question carries **3** marks : **(4×3=12)**

15. What are the G-protein coupled receptors ?

16. Describe the anatomy of the anther.

17. What is the difference between holoblastic and meroblastic cleavage ?

18. Write an account on embryonic folding.

19. Explain cell lineage and differentiation in *Drosophila*.

20. Discuss the three main steps in the signal transduction pathway.

PART – D

Write essay on **any two** of the following. **Each** question carries **5** marks : **(2×5=10)**

21. With the help of illustrations, describe the process of microsporogenesis.

22. Describe the mechanism of fertilization starting from sperm-egg recognition until the fusion of the genetic material.

23. Discuss the role of nucleocytoplasmic interactions during development in *Acetabularia*.

24. How is co-ordinated development achieved in multicellular organisms ?

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