

**B.Sc. BIOTECHNOLOGY
SIXTH SEMESTER
ANIMAL BIOTECHNOLOGY
BBT – 604**

(Use Separate Answer Scripts for Objective & Descriptive)

Duration : 3 hrs.

Full Marks : 70

(PART-A: Objective)

Time : 20 min.

Marks : 20

Choose the correct answer from the following:

1X20=20

- The physiological process of aging can be studied in a
 - Youth mouse
 - Mouse with low body temperature
 - αMUPA mouse
 - All of the above
- _ virus carry enzyme _ to infect cells because their genome is RNA
 - Retro; reverse transcriptase
 - Baculo; polymerase
 - Class 1; invertase
 - All of the above
- Ultrasonication is used for transient transfection
 - True
 - False
 - Maybe
 - Can't say
- In vector recombinant vaccine, plasmid insertion vector incorporates its genes into _ virus genome at a place that encodes for _ enzyme
 - Baculovirus; HbSAg
 - Vaccinia; HbS
 - Vaccinia; thymidine kinase
 - Baculovirus; TK
- Stem cells present in the inner cell mass of blastocyst are
 - Totipotent
 - Pluripotent
 - Multipotent
 - All of the above
- In IVF during ovarian stimulation, trigger shot is given by
 - LH
 - hCG
 - Both 1 and 2
 - FSH
- Biolistics is also known as
 - Microparticle carrier
 - Gene gun
 - Particle bombardment
 - All of the above
- Recombinant Factor VIII protein is industrially produced in
 - E. coli cells
 - Hamster kidney cells
 - Embryonic stem cells
 - None
- Cell lines have not been established from avian tissues
 - True
 - False
 - Maybe
 - Can't say

10. Most common method of semen collection from bull is
 a. AV
 b. Artificial vagina
 c. Both 1 and 2
 d. Electroejaculation
11. Human Genome Project, a breakthrough in biotechnology was published in
 a. 2000
 b. 1999
 c. 2002
 d. 2001
12. Hepatitis vaccine, a _ vaccine, is produced by cloning _ gene in yeast cells
 a. Attenuated; HbS
 b. Subunit; HbS
 c. Subunit; HbSAg
 d. Attenuated, HbSAg
13. HeLa cell line is
 a. Suspension cell line
 b. Anchored cell line
 c. Continuous cell line
 d. Both 1 and 3
14. TPA is a thrombolytic agent
 a. True
 b. False
 c. Maybe
 d. Cant say
15. Which of these statements regarding stem cells are FALSE?
 a. They are blank cells
 b. Practically divide in unlimited
 c. Found in embryos and adults
 d. All
16. _ is added to anchored cell lines for _
 a. Trypsin; subculturing
 b. Collagenase; subculturing
 c. Collagenase; passaging
 d. None
17. Production of biopharmaceuticals is branch of _ biotechnology
 a. Medical
 b. Industrial
 c. Recombinant
 d. All of the above
18. Most common method opted to suppress menstrual cycle in females for IVF is
 a. OCP
 b. Oral contraceptive
 c. Both 1 and 2
 d. Subcutaneous injection
19. _ can solve the problem food scarcity in the world
 a. Super pig
 b. SCID mouse
 c. Xenotransplanters
 d. None of the above
20. Non viable cells get colored by
 a. Trypan blue
 b. Coomassie blue
 c. Bromophenol blue
 d. Giemsa

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(PART-B : Descriptive)

Time : 2 hrs. 40 min.

Marks : 50

[Answer question no.1 & any four (4) from the rest]

1. Expand ICSI. What are ZIFT and GIFT and the difference between?
Describe the process of IVF with all the steps in detail 1+2+7
=10
2. Differentiate between 5+5=10
 - a. Conventional and recombinant vaccines
 - b. Biological and conventional drugs
3. Write short notes on 5+5=10
 - a. Instruments of cell culture lab
 - b. Cell culture media
4. a. What are the biological approaches of gene transfer in animal cells? 2
b. Explain in brief the working of gene gun and electroporation. 4+4=8
5. a. What are hybridomas? Describe the process of production and selection of hybridomas. 1+5=6
b. Differentiate between monoclonal and polyclonal antibodies? How is recombinant erythropoietin produced? 2+2=4
6. a. What are stem cells? Write about their important features. Give the unique properties of ESC and ASC. 1+2+2=5
b. Differentiate between a stem cell and progenitor cell. Give the different classifications of stem cell. Draw types of stem cells during development 2+2+1=5
7. a. Describe the different process of semen collection in bulls? How is it packaged for transportation? 3+2=5
b. How is heat detected in a cow and why is it important? Briefly write about the factors affecting conception in cows after AI 2+3=5

8. a. What is Dolly. Explain the process of its production? Why pigs are used as xenotransplanters.

1++3+1
=5

b. Diagrammatically explain the production of cholera vaccine.

2+3=5

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[4]