TELANGANA UNIVERSITY
S.S.R. DEGREE COLLEGE, NIZAMABAD (C.C:5029)
IV SEMESTER INTERNAL ASSESSMENT-II EXAMINATIONS
DEPARTMENT OF ZOOLOGY
(PAPER – I ANIMAL BIOTECHNOLOGY)
QUESTION BANK

I) CHOOSE THE CORRECT OPTIONS :

1) A transgenic animal contains: [B]
A. No DNA B. Foreign DNA introduced into its genome
C. Only mutant genes D. Only viral RNA

2) Embryonic stem cells are typically derived from the: [C]
A. Morula stage B. Zygote stage
C. Inner cell mass of blastocyst D. Trophoblast layer

3) The most commonly used animals in the production of transgenic models are: [C]
A. Goats B. Sheep C. Mice D. Fish

4) Golden rice is an example of a crop genetically engineered for improved: [C]
A. Protein content B. Pest resistance
C. Vitamin A production D. Drought tolerance

5) The use of microbes to clean up environmental pollutants is called: [D]
A. Bioreactor design B. Bioconversion C. Biodegradation D. Bioremediation

6) Transgenic animals used as bioreactors produce valuable proteins in: [C]
A. Skin cells B. Blood C. Milk D. Urine

7) Growth hormone gene transfer in fish results in: [C]
A. Smaller fish B. Reduced fertility C. Faster growth rate D. Color change

8) RFLP is used in forensic science primarily for: [B]
A. Antibiotic resistance B. DNA fingerprinting C. Cloning D. Gene therapy

9) One of the challenges in large-scale production of genetically engineered animals is: [B]
A. Short lifespan B. Ethical concerns and regulatory issues
C. Overpopulation D. Low nutritional value

10) "Pharming" refers to: [B]
A. Growing fish in bioreactors
B. Using transgenic animals to produce pharmaceutical proteins
C. Mass culture of plant cells
D. Fermentation in yeast

11) RFLP is a type of [C]
a) Variation b) Polymorphism c) a & b d) None

12) Hybridoma technology developed by [C]

a) G.Kohler `b) C.Milstein c) a & b d) None

13) Bioassay is used to determine [C]
a) Potency of drug b) Chemicals c) a & b d) None

14) Biosensor converts biological signal into [B]
a) Chemical b) Physical c) a & b d) Mechanical

15) Biosensor should be [C]
a) Large b) Costly c) small & cheap d) None

16) Cell culture refers to removal of [A]
a) Cell b) Tissue c) Organ d) All

17) Cell separation is based on [C]
a) Cell density b) Cell size c) a & bd) None

18) The instrument involved in FACS [A]
a) Flow cytometer b) Centrifuge c) only b d) a & b

19) The purpose of downstream processing is [A]
a) Purify the drug b) Separate the drug c) Mixing the drug d) None

20) Bioleaching is the extraction of [C]
a) Ion b) electrons c) metals d) None

II) FILL IN THE BLANKS :

1) The technique used to clone Dolly was **Somatic Cell Nuclear Transfer**

2) A transgenic animal contains **foreign** DNA that has been artificially inserted into its genome.

3) Transgenic mice are commonly used to study **gene** expression and disease models.

4) In microinjection, DNA is injected into the **pronucles** of a fertilized egg.

5) Microinjection is a method used for producing **transgenic** animals.

6) **chimeric** animals are generated when modified ES cells are injected into a blastocyst.

7) Recombinant insulin is produced using **recombinant DNA** technology.

8) Genetically engineered bacteria can be used to degrade **hydrocarbons** in oil spills.

9) The **Beta-casein** promoter is commonly used in transgenic animals for milk-specific gene expression.

10) Large-scale production of genetically modified animals requires efficient **breeding** and rearing systems.

11) Zebra fish models are developed by **George streisinger**

12) **Blastocyst** is implanted to uterus of pseudopregnant female

13) Transgenic cow can produce blood coagulation factors **VIII & IX**

14) Bacillus thuringiensis is **Insecticidal** protein

15) Cry – III proteins are active against **beetles**

16) **Cry-5**is active against nematodes

17) **Leland C. Clark** is father of biosensors

18) Penicillin is effective against **gram-positive bacteria**.

19) HAT **hypoxanthine aminopterin thymidine.**

20) RFLP **Restriction Fragment Length Polymorphism**

III) ANSWER THE FOLOWING QUESTIONS :

1) Which bacterial gene is used to develop insect-resistant crops?
Answer: cry gene from Bacillus thuringiensis

2) Name a commonly used model organism in transgenic research?
Answer: Mice are widely used in transgenic research due to their short life cycle. They serve as models to study gene function and human diseases.

3) Why is microinjection used in creating transgenic animals?
Answer: It allows direct introduction of DNA into the embryo. This is one of the earliest and simplest methods to produce transgenic organisms.

4) What is gene therapy used for in biotechnology?
Answer: It treats genetic disorders by inserting functional genes. This helps correct defective or missing genes in a patient's cells.

5) Name one genetically modified organism used in environmental clean-up?
Answer: GM Pseudomonas is used to degrade oil and petroleum waste. It breaks down hydrocarbons into less harmful components.

6) Bioassay?
Answer: Bioassay is a biological method used to determine the concentration, potency, or effect of a drug, chemical, or hormone by its effect on living cells or tissues. It is especially useful when chemical analysis is not possible.

7) Cell culture?
Answer: Cell culture is the process of growing cells in a controlled artificial environment. It is used to study cell biology, produce vaccines, and develop biotechnology products.

8) Bioleaching?
Answer: Bioleaching is a technique that uses microorganisms, typically bacteria like Thiobacillus ferroxidans, to extract metals like copper and gold from ores, offering an eco-friendly alternative to traditional mining.

9) Knockout model?
Answer: A knockout model is a genetically engineered organism, usually a mouse, in which a specific gene has been made inoperative ("knocked out"). This helps in studying gene function and related diseases.

10) Animal bioreactor?

Answer: An animal bioreactor refers to a transgenic animal that is genetically engineered to produce pharmaceuticals or biologically active substances (like proteins or antibodies) in their milk, urine, or blood for therapeutic use