

UG 5th Semester Examination 2021

ZOOLOGY (Honours)

Paper : DSE-1 (A/B)

(Animal Biotechnology / Microbiology)

[CBCS]

Full marks: 25

Time: Two Hours

The figures in the margin indicate full marks.

Candidates are required to give answers (by selecting either DSE-1 A: Animal Biotechnology Or DSE-1 B: Microbiology) with their own words as far as practicable.

DSE 1-A: Animal Biotechnology

1. Answer any *eight* questions:

$\frac{1}{2} \times 8 = 4$

- a) In bacteria, where the antibiotic resistance genes are located?
- b) Name the microorganism from where *Taq* polymerase can be obtained.
- c) Gel electrophoresis is used for separation of DNA fragments according to their molecular size. (True/False)
- d) Covaxin is an example of _____ vaccine.
- e) _____ are the autonomously replicating extrachromosomal DNA found in bacteria (Fill in the blank).
- f) In hybridoma technology aminopterin blocks _____ DNA synthesis (Fill in the blank).
- g) Klenow fragment is derived from _____ (Fill in the blank).
- h) The human genome project was launched in the year _____ (Fill in the blank).
- i) Ct value in real time PCR stand for _____ (Fill in the blank).
- j) The DNA fragments have sticky ends due to _____ (Fill in the blank).
- k) The expression of a transgene in the target tissue is identified by a _____ (Fill in the blank).
- l) The most effective type of restriction enzyme used in biotechnology is _____ (Fill in the blank).

2. Answer any two questions:

$2 \frac{1}{2} \times 2 = 5$

- a) Describe briefly on restriction endonucleases.
- b) How attenuated vaccine is prepared?
- c) Write a brief note on HAT selection.
- d) Mention the application of DNA fingerprinting.

3. Answer any *four* questions:

$4 \times 4 = 16$

- a) Write about the procedure of PCR.
- b) Draw a flow diagram for construction of cDNA library.
- c) Define cloning vector. What are the criteria of a cloning vector? $2+2=4$
- d) Explain the “chain termination method” of DNA sequencing.
- e) Briefly describe the diagnosis process of sickle cell anemia.
- f) Write a short note on primary cell culture.
- g) Describe the application of transgenic animal in pharmaceutical industry.

Or

DSE 1-B: Microbiology

1. Answer any *eight* questions:

$\frac{1}{2} \times 8 = 4$

- a) Write the full form AIDS.
- b) Who was involved in determining rRNA sequences and proposed breaking prokaryotes into two groups?
- c) Give an example of enveloped positive-sense (+) RNA virus.
- d) Prokaryotic cells that are rod-shaped are called _____. (Fill in the blank)
- e) Give an example of bacterial normal flora of skin.
- f) In which part of the cell you can find mesosomes?
- g) Which part of the bacteria is responsible for multiple antibiotic resistance?
- h) Name a bacterium lacking cell wall.
- i) Name the dengue vector?
- j) Reduction of virulence is known as _____. (Fill in the blank)
- k) A population of cells derived from a single cell are called _____ (Fill in the blank).
- l) _____ can be viewed as genetic information, either DNA or RNA, contained within a protective protein coat. (Fill in the blank)

2. Answer any *two* questions:

$2 \frac{1}{2} \times 2 = 5$

- a) Write a short note on prion.
- b) Give a brief idea of retrovirus.
- c) Distinguish between Gram-positive and Gram-negative bacteria.
- d) Briefly describe the acid-fast staining procedure.

3. Answer any *four* questions:

$4 \times 4 = 16$

- a) Write briefly on Koch's postulate.
- b) Explain different growth phases of bacteria with suitable diagram.
- c) Give a brief idea on *Hfr* conjugation.
- d) What is pandemic? How is it different from epidemic?
- e) Write a short note on enriched media.
- f) Briefly describe how HIV infects T_H cells.
- g) Write a note on staphylococcal food poisoning.

$2+2=4$