

IIT JAM 2026 Biotechnology Question Paper(Memory Based)

Time Allowed :3 Hours	Maximum Marks :70	Total questions :5
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General Instructions

Read the following instructions very carefully and strictly follow them:

1. Each activity has to be answered in full sentence/s. One word answers will not be given complete credit. Just the correct activity number written in case of options will not be given credit.
2. Web diagrams, flow charts, tables, etc. are to be presented exactly as they are with answers.
3. In point 2 above, just words without the presentation of the activity format, will not be given credit. Use of colour pencils/pens etc. is not allowed. (Only blue/black pens are allowed.)
4. Multiple answers to the same activity will be treated as wrong and will not be given any credit.
5. Maintain the sequence of the Sections/Question Nos./Activities throughout the activity sheet.

1. Which membrane protein requires ATP to transport?

- (A) Antiporter
- (B) Symporter
- (C) Pumps
- (D) Ion channels

2. Which is not a second messenger?

- (A) Ca^{2+}
- (B) DAG

(C) cAMP

(D) K⁺

3. Which is the most abundant phospholipid in the *E. coli* membrane?

(A) Phosphatidylcholine

(B) Serine

(C) Inositol

(D) Ethanolamine

4. Incorrect statement:

(A) IgM is pentamer

(B) IgA is dimer

(C) IgD is most abundant

(D) IgE is involved in allergic reactions

5. Which of the following is NOT an essential amino acid?

(A) Valine

(B) Threonine

(C) Tyrosine

(D) Tryptophan

6. Coenzyme A is a cofactor derived from:

(A) Riboflavin

(B) Folic acid

(C) Pyridoxine

(D) Pantothenic acid

7. Which of the following is characteristic of the CD spectrum of an α -helix?

(A) Negative peak at 220 nm

(B) Negative peak at 195 nm

- (C) Negative peak at 210 nm
 - (D) Positive peak at 195 nm
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8. Methods used in local alignment of nucleotide/protein sequences include:

- (A) Needleman–Wunsch
 - (B) BLAST
 - (C) Smith–Waterman
 - (D) Neighbor-Joining (NJ)
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9. Match the vitamins with their deficiency diseases.

Vitamins: VIT A, VIT D, VIT B₆, VIT C, VIT K

Deficiencies: Prolonged wound repair, Night blindness, Bone softening, Anaemia

10. Which of the following processes causes the founder effect?

- (A) Mutualism
 - (B) Genetic drift
 - (C) Natural selection
 - (D) Genetic recombination
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11. Which of the following is/are found in the human brain?

- (A) Microglial cells
 - (B) Astrocytes
 - (C) Podocytes
 - (D) Oligodendrocytes
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