

PG (CBCS)
M.SC. Semester- IV Examination, 2026
ZOOLOGY
PAPER: ZOO 405C
(HUMAN DISEASE AND MOLECULAR ANALYSIS)



Full Marks: 20

Time: 1 Hour

The figures in the right-hand margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

GROUP-A

Answer any **TWO** of the following questions: 2×2=4

1. What are TaqMan and SYBR Green Probes?
2. State one PCR based DNA marker.
3. Why is oxidative stress increased in patients with defective haemoglobin synthesis?
4. Draw complete map of an expression vector.

GROUP-B

Answer any **TWO** of the following questions: 2×4=8

5. Briefly describe the TA cloning method. What do you mean by 'terminal transferase activity' of Taq polymerase? 3+1
6. Describe the molecular pathogenesis of Cystic fibrosis with emphasis on ion transport abnormalities.
7. What are the properties of primers considered during primer designing? What is homopolymer tailing? 3+1
8. Describe the principle of luminescence. How fluorescence differs from Phosphorescence? 2+2

GROUP-C

Answer any **ONE** of the following questions: 1×8=8

11. Describe the pyrosequencing method and its advantages over Sanger's dideoxy sequencing. 6+2
12. Briefly describe the cDNA microarray technique. What is CRISPR/Cas9 genome editing system? 6+2

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