



UNIVERSITY OF NORTH BENGAL

B.Sc. Honours Part-II Examination, 2020

PHYSIOLOGY

PAPER-IV

Time Allotted: 2 Hours

Full Marks: 37.5

The figures in the margin indicate full marks.

GROUP-A

1. Answer any **six** questions: 2×6 = 12
- (a) Briefly write on frame-shift mutation.
 - (b) What is diuresis? Explain.
 - (c) Explain the genetic basis of Turner's syndrome.
 - (d) Give a brief idea of Northern Blotting.
 - (e) Discuss the procedure of lung function test.
 - (f) Briefly write on antigen-antibody reaction.
 - (g) Mention the hazards of transplantation.
 - (h) Give an account of inulin clearance test.
 - (i) Mention the significance of electric organ of fishes.
 - (j) What do you know about retrovirus?

GROUP-B

Answer any *one* question

2. (a) Discuss the neural mechanism of regulation of respiration. $10\frac{1}{2} \times 1 = 10\frac{1}{2}$
(b) Describe the effects of different factors on oxygen dissociation curve. $6\frac{1}{2} + 4 = 10\frac{1}{2}$
3. (a) Describe countercurrent multiplication and exchange mechanism for the formation of urine. $7 + 3\frac{1}{2} = 10\frac{1}{2}$
(b) Briefly write on abnormal constituents of urine.
4. Write short notes on: $3 + 2\frac{1}{2} + 2\frac{1}{2} + 2\frac{1}{2}$
- (a) Human gene therapy
 - (b) RT-PCR
 - (c) Albinism
 - (d) Lyon's hypothesis.

5. Discuss the role of cytokines in the body defense mechanism. What is primary and secondary immune response? Explain the pathological basis of autoimmune diseases. $3+3+4\frac{1}{2}=10\frac{1}{2}$
6. (a) Compare the mechanism of nitrogen catabolism in reptiles, birds and mammals. $8+2\frac{1}{2}=10\frac{1}{2}$
(b) What is ABO blood grouping system?
7. Write short notes on: $5+5\frac{1}{2} = 10\frac{1}{2}$
(a) Renal dialysis
(b) Immunodiffusion.

GROUP-C

Answer any one question

$15 \times 1 = 15$

8. (a) Describe the transport of CO₂ in the body. $6+4+5=15$
(b) Describe the structure of urinary bladder.
(c) Mention the role of phosphate buffer and ammonia buffer in pH regulation.
9. (a) Explain the different phases of bacterial growth curve. $5+5+5=15$
(b) Discuss the biochemical pathway of fermentation.
(c) Briefly discuss the process of bacterial conjugation.
- 10.(a) Discuss the mechanism of protein biosynthesis in prokaryotes. $8+3+4=15$
(b) What is Lac operon?
(c) Discuss different types of gene mutation.
- 11.(a) Write down the principle and basis of vaccination. $4+7+4=15$
(b) Describe the classical pathway of complement activation.
(c) Discuss the role of cytotoxic T-cell in body defense.

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