'समानो मन्त्रः समितिः समानी'

UNIVERSITY OF NORTH BENGAL

B.Sc. Honours 2nd Semester Examination, 2022

GE1-P2-ZOOLOGY

Time Allotted: 2 Hours   Full Marks: 40

The figures in the margin indicate full marks..
All symbols are of usual significance.

The question paper contains Groups A, B, C and D. The students are required to answer any *one* group. Candidates should mention it clearly on the Answer Book

GROUP-A

HUMAN PHYSIOLOGY

1.	Answer any *five* questions:	$1 \times 5 = 5$
	(a) Name the digestive enzyme present in saliva.	1
	(b) Expand ECG.	1
	(c) What is cardiac cycle?	1
	(d) Name one enzyme secreted from pancreas.	1
	(e) What is myelin?	1
	(f) Name one hormone secreted from testes.	1
	(g) Name two digestive glands in humans.	1
	(h) What are polar bodies?	1

2.	Answer any *three* questions:	$5 \times 3 = 15$
	(a) Describe the role of Calcium ions (Ca^{2+}) in muscle contraction.	5
	(b) What is 'All-or-none' Law?	5
	(c) What is Glomerular filtration?	5
	(d) Give the name of any hormone secreted from the Pituitary gland and state its functions.	$1+4 = 5$
	(e) What is menstruation? Describe the menstrual cycle in humans in brief.	$1+4 = 5$

3.	Answer any *two* questions:	$10 \times 2 = 20$
	(a) Describe the process of Carbon dioxide (CO_2) transport in mammalian blood.	10
	(b) What is gametogenesis? Describe the process of Oogenesis.	$2+8 = 10$
	(c) Describe the structure of a neuron with a suitable diagram. Explain the mechanism of saltatory conduction of nerve impulse.	$3+7 = 10$
	(d) Describe the physiology of urine formation with suitable, neat illustrations.	10

GROUP-B

FOOD, NUTRITION AND HEALTH

1. Answer any *five* questions: $1\times5 = 5$

   (a) What are the building blocks of proteins?   1

   (b) State the deficiency disease of vitamin A.   1

   (c) Name the causative agent and vector of Dengue.   1

   (d) Expand AIDS.   1

   (e) What is a balanced diet?   1

   (f) What is Diabetes melitus?   1

   (g) Name one fat-soluble and one water-soluble vitamin.   1

   (h) Name one disease resulting from protein energy malnutrition in infants. 1

2. Answer any *three* questions: $5\times3 = 15$

   (a) Name the deficiency disorder of Iodine. What are the symptoms associated with the disease? $1+4 = 5$

   (b) Distinguish between malaria and dengue on the basis of causative organism, vector and symptoms. $1+1+3 = 5$

   (c) What is the causative agent of AIDS? Describe the preventive measures of the disease. $1+4 = 5$

   (d) Mention the dietary source and importance of the mineral Zinc (Zn) in our body. $1+4 = 5$

   (e) What are carbohydrates? Why is it necessary in our diet? $2+3 = 5$

3. Answer any *two* questions: $10\times2 = 20$

   (a) Describe the causes, symptoms and preventive measures of Amoebiasis. $1+2+7 = 10$

   (b) Describe the causes, symptoms, treatment and control measures of Typhoid. $1+2+1+6 = 10$

   (c) How are vitamins classified? State their dietary source, functions, and deficiency disorders. $2+2+4+2 = 10$

   (d) What are the different components of a balanced diet? Why is it necessary to take a balanced diet? Briefly state the dietary sources of the different components of a balanced diet. $3+2+5 = 10$

GROUP-C

ENVIRONMENT AND PUBLIC HEALTH

1. Answer any *five* questions: $1\times5 = 5$

   (a) Name the causative agent of tuberculosis.   1

   (b) What is medical waste?   1

   (c) Name two green house gases. $\frac{1}{2} + \frac{1}{2} = 1$

(d) Define Pollution.   1

(e) Name two heavy metals that act as water pollutants. $\frac{1}{2} + \frac{1}{2} = 1$

(f) What are solid wastes?   1

(g) Name one water-borne disease that you have studied and its causative agent. $\frac{1}{2} + \frac{1}{2} = 1$

(h) Define acid rain.   1

2.   Answer any *three* questions: $5 \times 3 = 15$

(a) Comment on the impact of urban waste with respect to water pollution.   5

(b) Distinguish between primary and secondary air pollutants.   5

(c) Describe the effect of climate change on human health in brief.   5

(d) What is Biomagnification? Explain the phenomenon citing example of a pollutant. $2+3 = 5$

(e) Name the causes and symptoms of Minamata disease. $1+4 = 5$

3.   Answer any *two* questions: $10 \times 2 = 20$

(a) Describe the causes, symptoms and control measures of Typhoid fever. $1+4+5 = 10$

(b) State the major reasons of ozone hole formation. State the adverse effects of ozone hole on the environment and human health. Add a note on the measures for reduction of green house gases. $3+4+3 = 10$

(c) Describe with the help of illustrations the modes of water treatment released from industries.   10

(d) What is water pollution? State the major causes of water pollution. Comment on the possible remedial measures of water pollution. $2+4+4 = 10$

GROUP-D

ANIMAL CELL BIOTECHNOLOGY

1.   Answer any *five* questions: $1 \times 5 = 5$

(a) What is Vaccination?   1

(b) Expand PCR.   1

(c) Define a cloning vector.   1

(d) Name one restriction endonuclease.   1

(e) Define Biotechnology.   1

(f) Define stem cell.   1

(g) What is cDNA?   1

(h) What do you mean by the term transgenic?   1

2.   Answer any *three* questions: $5 \times 3 = 15$

(a) Describe briefly any cloning vector studied by you.   5

(b) Write a short note on Southern Blotting. $\frac{1}{2} + \frac{1}{2}$ 5

(c) Briefly describe the technique and uses of agarose gel electrophoresis.   3+2 = 5

(d) What is gene therapy? Explain.   1+4 = 5

(e) Distinguish between submerged and solid state fermentation.   5

3.   Answer any *two* questions: 10×2 = 20

(a) Describe the different strategies of gene transfer in mammals.   10

(b) Briefly describe the steps of Polymerase Chain Reaction. Mention its uses.   8+2 = 10

(c) Describe the methodology of cDNA library generation. State the uses of such library.   8+2 = 10

(d) What is a recombinant vaccine? Describe the steps of creating a recombinant vaccine.   2+8 = 10

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