



'समानो मन्त्रः समितिः समानी'

UNIVERSITY OF NORTH BENGAL

B.Sc. Honours 4th Semester Examination, 2022

GE2-P2- ZOOLOGY

Time Allotted: 2 Hours

Full Marks: 40

The figures in the margin indicate full marks.

The question paper contains four parts: GROUP-A, GROUP-B, GROUP-C and GROUP-D.

The candidates are required to answer any *one* from *four* groups.

Candidates should mention it clearly on the Answer Book.

GROUP-A

HUMAN PHYSIOLOGY

1. Answer any *five* questions: 1×5 = 5
 - (a) What is Zymase?
 - (b) What is Cushing Syndrome?
 - (c) What is Myogenic heart?
 - (d) What is Gluconeogenesis?
 - (e) What is respiratory quotient?
 - (f) What are renal pyramids?
 - (g) What is resting potential?
 - (h) Name the types of salivary glands found in human beings.

2. Answer any *three* questions: 5×3 = 15
 - (a) Tabulate the major enzymes of protein digestion, mentioning their substrates and site of action.
 - (b) Point out the histological structure of adrenal gland with suitable diagram.
 - (c) Describe hormonal regulation of spermatogenesis.
 - (d) Explain the antagonistic role of insulin and glucagon.
 - (e) What are the factors affecting the transport of gases in blood?

3. Answer any *two* questions: 10×2 = 20
 - (a) Draw the structure of a nephron and describe the physiology of urine formation. 3+7 = 10
 - (b) Write the basic principles of ECG. Mention the important events of Cardiac Cycle. 3+7 = 10

- (c) Discuss the process of propagation of nerve impulse with reference to myelinated and non-myelinated neurons. 7+3 = 10
- (d) Differentiate Spermatogenesis and Oogenesis.

GROUP-B

FOOD, NUTRITION AND HEALTH

1. Answer any *five* questions: 1×5 = 5
- (a) What are metalloproteins? Give examples.
 - (b) Name the most abundant monosaccharide and polysaccharide found in nature.
 - (c) Which vitamin helps in blood clotting?
 - (d) Why is smoking an addiction?
 - (e) Define Kwashiorkor.
 - (f) Cholera is a protozoan infection. (True / False).
 - (g) Taeniasis is caused by _____ (Fill in).
 - (h) Define malignant malaria.
2. Answer any *three* questions: 5×3 = 15
- (a) Write the major food components and mention food nutrients.
 - (b) Write a short note on diabetes mellitus.
 - (c) Describe the structure of HIV.
 - (d) Distinguish between Starch and Glycogen.
 - (e) State the role of Vitamin A in vision.
3. Answer any *two* questions: 10×2 = 20
- (a) Write down the causes, symptoms, treatment and prevention of marasmus. 2+3+2 $\frac{1}{2}$ +2 $\frac{1}{2}$
 - (b) Name the causative agent of amoebiasis and mention its mode of transmission along with treatment and preventive measures. 1+3+3+3
 - (c) Briefly describe the causes, mode of transmission, treatment and prevention of AIDS.
 - (d) Describe causative agent, mode of transmission and prevention of dengue.

GROUP-C

ENVIRONMENT AND PUBLIC HEALTH

1. Answer any *five* questions: 1×5 = 5
- (a) Define PAN.
 - (b) Mention the component that destroys the ozone layer.

- (c) What is smog?
- (d) Name the most potent green house gas.
- (e) Define eutrophication.
- (f) Mention the symptoms of Cholera.
- (g) Mention the agents responsible for the cause of acid rain.
- (h) Name the causative agent of typhoid.

2. Answer any *three* questions: 5×3 = 15
- (a) Discuss the impact of water pollution on human health.
 - (b) Distinguish between biodegradable and non-biodegradable pollutants.
 - (c) Write a short note on biomagnification.
 - (d) Give an account of symptoms, and control measures of minamata disease.
 - (e) Discuss about the solid waste disposal.

3. Answer any *two* questions: 10×2 = 20
- (a) Elaborate the concept of bioaccumulation and biomagnification with respect to pollutants. Define B.O.D. and correlate the same with dissolved oxygen in aquatic body. 5+2+3
 - (b) Considering automobiles as the source of pollutants, briefly state the types of pollutants added to nature and their effect on environment and human health. 5+5
 - (c) Mention the sources of water pollution and its impact on human health.
 - (d) Discuss the causes, symptoms and remedy of tuberculosis.

GROUP-D

ANIMAL CELL BIOTECHNOLOGY

1. Answer any *five* questions: 1×5 = 5
- (a) What is secondary cell culture?
 - (b) What is SDS-PAGE?
 - (c) What is genomic DNA library?
 - (d) What is Cosmid?
 - (e) What is stem cell?
 - (f) What is meant by Cryopreservation?
 - (g) What is Cell Line?
 - (h) Define Marker.
2. Answer any *three* questions: 5×3 = 15
- (a) Write a short note on Northern blotting.
 - (b) Write a short note on different types of fermentation.

- (c) Write a short note on electroporation.
- (d) Give a short note on pBR322 with suitable diagram.
- (e) Write a short note on agarose gel electrophoresis.

3. Answer any *two* questions: 10×2 = 20
- (a) Describe in brief the basic steps of cloning strategy of DNA. 5+5
 - (b) Write an essay on application and impact of gene therapy. 5+5
 - (c) Describe the procedure of Southern blotting and mention its significance.
 - (d) Give the procedure for production of transgenic animals. What is its significance? 8+2

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