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BNS-102/202

**POST BASIC BACHELOR OF SCIENCE
(NURSING) [B. SC. (N) PB]**

Term-End Examination

June, 2023

BNS-102/202 : APPLIED SCIENCES

Time : 3 Hours

Maximum Marks : 70

Instruction :

1. *Applied Science Course comprises of the following four parts :*

Part A : Biochemistry *18 marks*

Part B : Biophysics *17 marks*

Part C : Microbiology *18 marks*

Part D : Nutrition and Dietetics *17 marks*

2. *Students appearing for Applied Science Course Examination should follow the relevant instructions given below :*

(a) *Four those appearing for the first time for the examination of Applied Science Course :
The students should answer the questions*

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of all the four parts in separate answer sheets provided. On the top of each answer sheet the student should enter the Enrolment No., Course Code, Course Title and Parts.

- (b) For those who are reappearing for the examination of Applied Science Course : The students need to answer only those parts, on separate answer sheets, which have not been successfully completed.*

BNS-102-A

Part-A

(Marks : 18)

APPLIED SCIENCES—BIOCHEMISTRY

Note : (i) *Answer all questions.*

(ii) *Choice is internal.*

(iii) *Each question carries 3 marks.*

(iv) *Follow the word limit for answering questions as given below : 3 marks within **200** words; 2 marks within **50** words and 1 mark within **20-30** words.*

1. (a) Find the number of electrons, protons and neutrons of an element whose Mass Number is 23 and Atomic Number is 11.

$1\frac{1}{2}$

- (b) What is the type of bond in NaCl, NH₃, H₂O ?

$1\frac{1}{2}$

Or

- (a) Explain "Water Balance". 2
- (b) What is the range of pH of blood ? 1
2. (a) What are glycolipids ? Name any *one* type. 2
- (b) What are Disaccharides ? 1
3. (a) What is meant by 'Denaturation' of proteins ? $1\frac{1}{2}$
- (b) Discuss the difference between Plasma and Serum. $1\frac{1}{2}$
4. (a) Explain why persons with type O blood group are called Universal Donors. 2
- (b) What is 'Micturition' ? 1

5. (a) How do Anabolism and Catabolism depend on each other ? 2

(b) What is Malabsorption Syndrome ? 1

Or

(a) Why are Ketone Bodies important ? $1\frac{1}{2}$

(b) Distinguish between “Good cholesterol” and “Bad cholesterol”. $1\frac{1}{2}$

6. Define any **three** of the following keywords, in one sentence each : 3

(a) Antigen

(b) Colloid

(c) Valency

(d) Emulsion

(e) Pernicious anaemia

(f) Osmosis

BNS-102-B

Part-B (Marks : 17)

APPLIED SCIENCES : BIOPHYSICS

Note : Attempt all questions.

1. Write in brief about the following (any **three**)
(word-limit 50 words) : 3×2=6

- (a) Radioisotopes
- (b) Defibrillator
- (c) Conduction
- (d) Electrostatic

2. Explain the following (word-limit 50 words) :
3×2=6

- (a) Myopia and its correction
- (b) Doppler effect and its use
- (c) Effect of gravitational force on human body.

3. Fill in the blanks : 5×1=5

- (a) A process of heat by actual movement of molecules is called

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- (b) The record of action potential of neurons which appear on the surface of brain is called
- (c) Measure of thermal state of body is called
- (d) Capacity to do work is referred as
- (e) A simple device to move a liquid from higher to a lower level is referred as

BNS-102-C**Part-C**

(Marks : 18)

APPLIED SCIENCES : MICROBIOLOGY

Note : Attempt *all* questions.

1. Write in *two to three* lines about the following :

4×2=8

 - (a) Direct transmission and Indirect transmission
 - (b) Endogenous and Exogenous infection
 - (c) Systemic Mycoses and Subcutaneous Mycoses
 - (d) Candidiasis and Mycosis
2. Differentiate between active and passive acquired immunity. 5
3. Fill in the blanks : 5×1=5
 - (a) A problem caused due to reaction of an antigen which may be harmless to other is known as

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- (b) The insect which transmits filarial and viral encephalitis in a person is known as
- (c) The insect which harbours the larval stage of parasite is referred as host.
- (d) The antibodies which neutralize the toxins of bacteria are known as
- (e) An epidemic occurring world wide is called

BNS-102-D**Part-D**

(Marks : 17)

APPLIED SCIENCES—NUTRITION AND DIETETICS

Note : (i) Attempt all questions.

(ii) Attempt all parts of a question at one place.

*(iii) Follow the word limit for answering questions as given below : 4 marks within **300** words; 3 marks within **200** words; 2 marks within **50** words.*

1. (a) List any *six* essential amino acids. 2
- (b) State the functions of proteins. 4
2. Discuss how the disease affect the nutritional requirements. 4
3. Describe dietary management in fever and infections. 4
4. List the food sanitation measures. 3