

No. of Printed Pages : 9 **BNS-102/BNS-202**

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

Term-End Examination

December, 2023

**BNS-102/BNS-202 : APPLIED SCIENCES
(BIOCHEMISTRY, BIOPHYSICS, MICROBIOLOGY,
NUTRITION AND DIETETICS)**

Time : 3 Hours

Maximum Marks : 70

Instructions :

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 of all the four parts in separate answer*

P. T. O.

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 the six questions.*

(ii) *Each question carries 3 marks.*

(iii) *Choice is internal.*

Follow the word limit in answering the question as given below :

3 marks — within 200 words

2 marks — 50 words

1 mark — 20-30 words

1. (a) Identify physical/chemical change in all of the following : $1\frac{1}{2}$
- (i) Erosion of rocks into soil by water
 - (ii) Decaying of leaves by bacteria
 - (iii) Fermentation of grape juice
- (b) Identify Mixtures/Compounds in all of the following : $1\frac{1}{2}$
- (i) Sand and salt in a dish
 - (ii) Crystals of table sugar—sucrose
 - (iii) Glucose dissolved in water
2. (a) Differentiate between hypertonic, hypotonic and isotonic solutions. $1\frac{1}{2}$
- (b) Define Buffer Solution. Give *one* example each of the *two* types of buffer solution. $1\frac{1}{2}$
3. (a) List any *four* functions of carbohydrates. 2
- (b) Explain 'Rancidity'. 1
4. (a) Name any *three* essential amino acids. Why are they called 'essential' ? 2
- (b) Explain peptide bond formation. 1

Or

Distinguish between globular and fibrous proteins. Give *one* example of each. 2+1

5. (a) Mention any *three* functions of blood. $1\frac{1}{2}$
- (b) Distinguish between Blood, Plasma and Serum. $1\frac{1}{2}$

Or

- (a) Explain 'Blood Clotting'. 1
- (b) Why does the blood inside our body not clot ? $\frac{1}{2}$
- (c) Describe the formation of urine through the kidney function. $1\frac{1}{2}$
6. Distinguish between any *three* the following : $1 \times 3 = 3$
- (i) Diabetes mellitus and Diabetes insipidus
- (ii) Hemolytic and Obstructive jaundice
- (iii) Transcription and Translation
- (iv) Bad and Good Cholesterol

BNS-102-B**Part-B**

(Marks : 17)

APPLIED SCIENCES : BIOPHYSICS

Note : (i) Attempt *all* questions.

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

1. (a) Differentiate Systematic errors and Random errors in measurement. 2
- (b) Give *one* example for each. 1
2. Define frictional force. Give *two* clinical situations in which the patient may have problems due to frictional force. 1+2
3. Give *two* nursing procedures in which the suction is applicable. 2
4. Differentiate between conduction and convection giving suitable examples from nursing situation. 1+1+1

P. T. O.

5. Read the following statements carefully and write 'T' if the statement is true and 'F' if it is false : 1×6=6

- (a) Doppler shift is commonly used to detect the fetal heart sound. (True/False)
- (b) The hearing aids are based on the principle of moving the inflexible ossicles in the middle ear. (True/False)
- (c) Magnetic field can be created by passing current through a coil. (True/False)
- (d) Resting potential is the conduction of impulses over nerves and muscles. (True/False)
- (e) Radioisotopes are produced artificially and are used clinically for diagnostic as well as therapeutic applications. (True/False)
- (f) Infrared waves are used in the heating of deep tissues of body. (True/False)

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

(Marks : 18)

APPLIED SCIENCES : MICROBIOLOGY

Note : (i) *Attempt all questions.*

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

1. Describe the modes of direct transmission of infection. 5

2. Write in brief about the following : 2×4=8
 - (a) Vaccine and Vaccination
 - (b) Endogenous and Exogenous infection
 - (c) Active and Passive Immunity
 - (d) Algae and Fungi

3. Fill in the blanks : 5×1=5
 - (a) A person who harbours the pathogenic organisms without suffering from disease is called

 - (b) An infectious disease that attacks many people and has high mortality is called

P. T. O.

- (c) A period between the entry of organism and appearance of clinical symptoms is called period.
- (d) Physical and chemical methods are commonly used to destroy
- (e) Mechanical barriers, phagocytes and antibody which do not permit the organism to enter the body are called of the body.

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.

1. Explain various food groups. Give *one* example of each food group. 4
2. (a) Explain symptoms and treatment in the following vitamin deficiency diseases : 2×3=6
 - (i) Scurvy
 - (ii) Beri-Beri
 - (iii) Rickets
- (b) Describe dietary management of *Diarrhoea* and *Constipation*. 3
3. Describe the food safety measures to prevent food borne infections and intoxications. 4