

No. of Printed Pages : 10

BNS-102

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

Term-End Examination

June, 2020

**BNS-102 : APPLIED SCIENCE
(BIOCHEMISTRY, BIOPHYSICS, MICROBIOLOGY,
NUTRITION AND DIETETICS)**

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 :

P. T. O.

The students should answer the questions 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.*
-
-

Part-A (Marks : 18)

APPLIED SCIENCES—BIOCHEMISTRY

Note : (i) *Answer all the six questions.*

(ii) *Each question carries 3 marks.*

(iii) *Choice is internal.*

1. (a) Define Osmosis. 1
- (b) Discuss the role of dialysis in patients with kidney damage. 2

Or

Explain the meaning of ionisation. Differentiate between strong acid and weak acid. Give *one* example of each. 1 + 2

2. (a) Explain Benedict's test. 1
- (b) Define lipoproteins and list the types of lipoproteins. 1 + 1
3. (a) Name *four* agents which cause 'denaturation'. 2
- (b) Distinguish between 'coenzyme' and 'cofactor'. 1
4. (a) Define micturition. 1
- (b) Explain, how is toxic ammonia removed from the body. 2

5. Write a short note on blood clotting. 3
6. Explain why blood type O is a universal donor while blood type AB is universal recipient. 3

Or

Define the following key words : $\frac{1}{2}$ each

- (a) Electrolyte
- (b) Fermentation
- (c) Protein
- (d) Hemolytic jaundice
- (e) Edema
- (f) Plasma

Part-B

(Marks : 17)

APPLIED SCIENCES : BIOPHYSICS

Note : Attempt all questions.

1. Explain with examples random error in measurement of physical quantities. 3
2. (i) Where is the centre of gravity located in a person while in standing position ? $\frac{1}{2}$
(ii) Explain the effects of gravitational force on human body. $2\frac{1}{2}$
3. What is turbulent flow of fluid ? Explain the connection between high blood pressure and thickening of arteries in the light of turbulent flow of fluid concept. $\frac{1}{2} + 2\frac{1}{2}$
4. What is Stethoscope ? Explain its parts and functioning. $\frac{1}{2} + 2\frac{1}{2}$

5. Fill in the blanks in the following statements : $\frac{1}{2}$ each

- (i) Ultraviolet rays have less than visible light.
- (ii) The human eye behaves like a lens in producing image.
- (iii) The capacity of eye lens to change its focal length to see the objects at varying distances from the eye is called
- (iv) Visible light is used in to view internal body cavities.
- (v) Microscopes are enable to obtain image of an object.

6. Read the following statements carefully and write 'T' if the statement is true and 'F' the statement is false : $\frac{1}{2}$ each

- (i) Magnetic field is produced when electric current flows through a coil having large number of turns. (T/F)

- (ii) Substances which do not allow electrons to move freely through them are good conductor of electricity. (T/F)
- (iii) Microphone is transducer which converts sound energy into electrical energy. (T/F)
- (iv) Cardiac pacemaker helps in removing clot from the coronary artery. (T/F)
- (v) Radioisotope of iodine (131) is used in locating deep seated brain tumor and malignant thyroid tumors. (T/F)

Part-C

(Marks : 18)

APPLIED SCIENCES : MICROBIOLOGY

Note : (i) Attempt *all* questions.

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

1. Write in *two* or *three* lines on any *four* of the following : 2 each
 - (a) Cross infection and nosocomial infection.
 - (b) Dry heat and moist heat—a method for destruction of microbes.
 - (c) Vaccine and Vaccination
 - (d) Immediate allergy and delayed allergy.
 - (e) Parasites and vectors.
2. Explain the sources of infections in humans. 5
3. Match the following : 1 each

A**B**

- | | |
|------------------|----------------------------|
| (a) Tuberculosis | (i) <i>Vibrio cholerae</i> |
| (b) Leprosy | (ii) Fungi |
| (c) Cholera | (iii) <i>Candida</i> |

(d) **Mycosis**

(iv) **Mycobacterium
tubercle**

(e) **Whooping
Cough**

(v) **Mycobacterium
leaprae**

(vi) **Virus**

(vii) **Pertusis
(Bordetella)**

APPLIED SCIENCES—NUTRITION AND DIETETICS

Note : (i) Attempt all questions.

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

(iii) Answer at separate answer sheet.

1. (a) Explain the influence of disease on food intake and dietary patterns. 3
(b) List any *three* types of dietary modifications. 3
2. (a) List specific anthropometric indices. 3
(b) Describe any *one* of anthropometric indices. 3
3. (a) Differentiate between food infection and food intoxication. 2
(b) List the food sanitation measures. 3