BNS-102

**POST BASIC
BACHELOR OF SCIENCE (NURSING)
B.Sc. (N) (PB)**

Term-End Examination

02653   **December, 2016**

**BNS-102 : APPLIED SCIENCE (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) **For 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 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

(Biochemistry)

*Answer **all** the questions. The choice is internal. Each question carries 3 marks.*

1. (a) Distinguish between physical and chemical change. *2*

    (b) In the following, indicate whether it is a physical or a chemical change : *1*

    (i) Making bread from wheat dough.

    (ii) Evaporation of water from sea.

2. What is Biochemistry ? Name four important biomolecules in the liquid food — Milk. *1+2=3*

OR

    (a) Name the two important polynucleotides. *1*

    (b) Give the name of the test used to detect glucose in urine and write the name of the reagent used. *1+1=2*

3. (a) Mention the three sources which contribute to form glucose in blood. $1\frac{1}{2}$

(b) Name any three abnormal constituents of urine. $1\frac{1}{2}$

4. (a) Distinguish between Catabolism and Anabolism. *1*

(b) Explain Glucose Tolerance Test. *2*

5. (a) Define Biocatalysts. *1*

(b) Name the four factors which affect the activity of biocatalysts. *2*

OR

(a) What are lipids ? How are they classified ? *2*

(b) Write any two biological functions of lipids. *1*

6. Give the meaning of the following keywords, in one sentence each : $6\times\frac{1}{2}=3$

(a) Atherosclerosis

(b) Metabolism

(c) Coenzyme

(d) Dialysis

(e) Antigen

(f) Extracellular fluid

PART B

(Biophysics)

*Attempt **all** questions.*

7. (a) Define Random Error.

   (b) Explain how you will minimize random error. Support your answer with an example. $1+1+1=3$

8. Define Force as per Newton's First Law of Motion. Explain with example from hospital setting. 3

9. State the application of atmospheric pressure for any three patient care procedures in the hospital setting. $1+1+1=3$

10. Enlist the useful effects of Ultra-Violet Radiation for human beings. Support your answer with examples from the field. 3

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

   (a) When a person is standing, his/her centre of gravity is located in the _____ .

   (b) The eye has a self-regulating pressure system that maintains _____ pressure to keep it in good shape.

BNS-102   4

(c) Electric current flowing in a conductor wire produces _____ field.

(d) Displacement and velocity are the examples of _____ quantities in physics.

(e) The Least Distance of Distinct Vision for normal human eye is _____ cm.

12. Read the following statements and write 'T' if the statement is *true* and 'F' if it is *false*. $5 \times \dfrac{1}{2} = 2\dfrac{1}{2}$

(a) Water seal drainage used after thoracic surgery works on the principle of controlled suction and gravity. [T/F]

(b) One gram of protein yields approximately 4 k calories. [T/F]

(c) A high humidity needs to be maintained in operation theatre to prevent drying of exposed tissues. [T/F]

(d) The lever action of Jaw bone is based on Class-III lever. [T/F]

(e) Gases and air are good conductors of heat. [T/F]

PART C

(Microbiology)

*Attempt **all** questions. Attempt all parts of a question at one place.*

13. Briefly explain the classification of Microbes.   *5*

14. Define any *four* of the following :   *4×1=4*

    (a)   Cross infection

    (b)   Nosocomial infection

    (c)   Secondary infection

    (d)   Acute infection

    (e)   Endogenous infection

    (f)   Exogenous infection

15. Describe any four ways (methods) of transmission of human virus.   *2*

16. (a)   Why are mycobacteria called as acid fast bacteria ?

    (b)   Name the diseases caused by pathogenic mycobacteria.

    (c)   Write the investigations you will carry out to identify the mycobacteria.   *1+1+1=3*

17. Write 'T' if the statement is *true* and 'F' if the statement is *false* in your answer book against each statement.   *4×1=4*

(a) Staphylococcus is a gram negative bacteria.
[T/F]

(b) An organism that derives its nourishment from a living plant or an animal host is a parasite. [T/F]

(c) Immunity is defined as the ability of the body to recognize, destroy and eliminate antigenic material foreign to its own. [T/F]

(d) Immunity which results from an attack of disease is an artificially acquired immunity.
[T/F]

PART D
(Nutrition and Dietetics)

*Attempt **all** questions.*

18. (a) Discuss the role of food in prevention of disease.

    (b) List the sources of food of the following :

       (i) Folic acid

       (ii) Vitamin K   *2+2=4*

19. (a) Discuss the concept of balanced diet.

    (b) Explain body building foods with the help of examples.   *2+2=4*

20. Describe any ***three*** of the following :   *3×3=9*

    (a) Rationale for assessment of nutritional status

    (b) Diet Therapy in Protein Energy Malnutrition (PEM)

    (c) Dietary Management of Gluten Enteropathy

    (d) Measures to promote food safety

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