

**POST BASIC
BACHELOR OF SCIENCE (NURSING)**

Term-End Examination,
June, 2010

02623

**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 :*

<i>Part A : Biochemistry</i>	<i>-</i>	<i>18 marks</i>
<i>Part B : Biophysics</i>	<i>-</i>	<i>17 marks</i>
<i>Part C : Microbiology</i>	<i>-</i>	<i>18 marks</i>
<i>Part D : Nutrition and Dietetics</i>	<i>-</i>	<i>17 marks</i>
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

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- *Attempt all the questions.*
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- (a) Give any two important physiological functions of electrolytes. **1+2=3**
 - (b) Define hypotonic solution ? Under what conditions would it be recommended for a patient.

- (a) Explain the term poly unsaturated fatty acids. Give one example of a poly unsaturated fatty acid. **1½+1½=3**
 - (b) Define nucleic acids ? Name the pentose sugar found in RNA.

- (a) Give two functions of amino acids. **1+2=3**
 - (b) Define denaturation of proteins ? Name any two agents that may cause denaturation of proteins.

- (a) Explain why a patient having 'AB' blood group is said to be universal acceptor ? **1+2=3**
 - (b) What is CSF ? Write two functions of CSF.

5. (a) The urine analysis of a non-diabetic patient showed a higher than normal levels of ketone bodies. Give the name of the specific disease associated with this situation. **1+2=3**
- (b) Describe glucose tolerance test.
6. (a) Name the pathway associated with the catabolism of fatty acids. **1+2=3**
- (b) What is hyper cholesteromia ? Give any two pathological conditions under which it is observed.

PART-B Biophysics

- *Attempt all questions.*
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1. Define the term Humidity. Give two examples of importance of maintaing humidity level for the patients. 1+1=2

2. Describe the three characteristics of sound and its importance when you are using stethoscope. 3

3. Define the following : 1x5=5
 - (a) Motion
 - (b) Force
 - (c) Gravity
 - (d) Density
 - (e) Power

4. Define Doppler effect. Give two examples from the medical field about Doppler shift. 2

5. Fill in the blanks : 1x5=5
 - (a) While measuring any thing, the common types of errors made are _____, and _____ errors.

- (b) The use of water mattress and air rings work on the principle of _____.
- (c) The B.P. apparatus work on the principle of _____ law.
- (d) The capacity of doing work is defined as _____.

PART-C Microbiology

- Attempt all questions. Illustrate the answers wherever necessary.

1. Fill in the blanks : 6x $\frac{1}{2}$ =3

- (a) The hair like processes present outside the cell wall is known as _____.
- (b) Syphilis is caused by a spirochaete named _____.
- (c) Mycotoxins are toxins produced by _____.
- (d) Gram negative cocci occurring in pairs is _____.
- (e) The virus responsible for AIDS (Acquired immuno deficiency syndrome) is called _____.
- (f) Malarial parasites are transmitted by _____ mosquito.

2. Define the following terms in *one* sentence each :

6x $\frac{1}{2}$ =3

- (a) Sterilization
- (b) Culture medium
- (c) Tetanus
- (d) Thrush
- (e) Virulence
- (f) Epidemic

3. Distinguish between *any three* of the following :

- (a) Hook worm and Round worm. $3 \times 2 = 6$
- (b) Subcutaneous and systemic mycosis
- (c) Typhus fever and typhoid fever
- (d) Acute infection and chronic infection
- (e) Endogenous and exogenous infection
- (f) Bacillary dysentery and Amoebic dysentery

OR

Malarial parasite and its four species. Briefly describe the life cycle of this parasite. How do you diagnose malaria in a patient.

4. Write on *any three* of the following : $3 \times 1 = 3$

- (a) Innate immunity
- (b) Dengue fever
- (c) Autoclave
- (d) Modes of transmission of Hepatitis B virus
- (e) Acid fast staining technique
- (f) Bacteriophage

5. Briefly describe the life cycle of Malaria parasite.
How do you diagnose malaria in a patient. $2 + 1 = 3$

OR

Define an antigen and antibody. Name five classes of immunoglobulins. $1\frac{1}{2} + 1\frac{1}{2} = 3$

PART-D Nutrition and Dietetics

- *Attempt all the questions.*
 - *Attempt all parts of the questions at one place.*
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1. (a) Define the following terms : $\frac{1}{2}+\frac{1}{2}+2=3$
- (i) Micronutrients
- (ii) Macronutrients
- (b) List the functions of proteins
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2. (a) List any four major steps in planning balanced diet. $2+3=5$
- (b) Explain the difference between Enteral and Parenteral feeding with example.
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3. Describe the dietary management of a patient with Irritable colon syndrome/irritable Bowel syndrome and pancreatitis. $2\frac{1}{2}+2\frac{1}{2}=5$
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4. (a) Name four agricultural pollutants in food.
- (b) List any four food sanitation measures to prevent food illness. $2+2=4$
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