

**POST BASIC
BACHELOR OF SCIENCE (NURSING)
Term-End Examination
June, 2008**

**HS1T2 : APPLIED SCIENCE (CHEMISTRY,
PHYSICS, MICROBIOLOGY, NUTRITION
AND DIETETICS)**

Time : 3 hours

Maximum Marks : 70

Instructions :

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

Part A : Chemistry	— 18 marks
Part B : Physics	— 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
(Chemistry)

- Answer **all** questions; choice is internal.

1. (a) Classify the elements in four groups.
(b) Give two examples of elements of any two groups. 1+2=3
2. (a) Write your observations when normal blood sample is diluted with
(i) physiological saline
(ii) distilled water
(b) Name the process. 2+1=3
3. (a) Explain the process of fermentation. 2
(b) Which monosaccharides are present in lactose ? 1

OR

- Write any six biological functions of carbohydrates. 3
4. Name any three water-soluble vitamins and their deficiency disorder. (one each) 3

5. Define the following terms and give one example of each :

$$1\frac{1}{2} + 1\frac{1}{2} = 3$$

(a) Anabolism

(b) Catabolism

6. List any six general functions of proteins.

3

PART B
(Physics)

Answer all questions.

1. X-rays pass through body tissues, they ionise matter and produce changes which can destroy the cells. How is this property put to use in medical practice ? 2

2. A child sitting on the last bench in a classroom cannot see the writing on the blackboard clearly. Name the defect of vision. How can it be corrected ? 2

3. Define Electromyography (EMG). Give its medicinal applications. 2

4. Define Suction. Give two applications in nursing situation. 2

5. Fill in the blanks : 4×1=4
 - (i) Injecting radio-sodium helps in detecting _____ in blood vessels.

 - (ii) When a body is wholly or partially immersed in a fluid, it experiences an apparent loss in its weight, which is _____ to the weight of the fluid displaced.

 - (iii) The error while measuring the height of a child to make a mark slightly above or below the child's head is called _____ error.

 - (iv) While biting, human jaw acts as a _____ lever.

6. Name the principle of physics applied in each of the following : 5×1=5

- (i) Working of a thermometer
- (ii) Use of spirit on the arm
- (iii) Transmission of sound through a stethoscope
- (iv) The foetus inside the amniotic fluid in the uterus is protected till its birth.
- (v) Flexibility of Trapezius muscle action.

PART C
(Microbiology)

Answer **all** questions. Illustrate the answers wherever necessary.

1. (a) Fill in the blanks :

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

- (i) The causative agent of gonorrhoea is a diplococcus named _____ .
- (ii) Fungi that grow as yeast cells in the host tissue and as filaments in soil are named as _____ fungi.
- (iii) Both dengue fever and yellow fever are transmitted through the bite of _____ mosquito vector.
- (iv) The ability of a microbe to produce disease in a host is called _____ .
- (v) The principal sites of respiratory enzymes in a bacterial cell are _____ .
- (vi) The most common method of reproduction in bacteria under favourable conditions is by _____ .

(b) Define the following terms in one sentence each :

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

- (i) Staphylococci
- (ii) Antibody
- (iii) Parasite

- (iv) Acute infection
- (v) Bacterial capsule
- (vi) Serology

2. Distinguish between any **three** of the following : 3×2=6

- (i) Autoclave and Hot air oven
- (ii) Differential media and Selective media
- (iii) Bacteria and Viruses
- (iv) Taenia solium and Taenia saginata
- (v) Exotoxins and Endotoxins in bacteria
- (vi) Auto infection and Cross infection

3. Name four disease producing helminths. Write briefly about the life cycle of any one of them. How do you diagnose this condition ? 2+3+1=6

OR

- (a) Write about retrovirus.
- (b) Draw a labelled diagram of Human Immunodeficiency Virus (HIV).
- (c) Explain various modes of its transmission.

$$1+2\frac{1}{2}+2\frac{1}{2}=6$$

PART D

(Nutrition and Dietetics)

Answer **all** the questions.

1. (a) Give three rich sources of carbohydrates.

(b) Give three rich sources of vitamins.

(c) Write the functions of proteins.

$$1\frac{1}{2} + 1\frac{1}{2} + 2 = 5$$

2. (a) Give two examples each of the three types of dietary modifications.

(b) Describe the dietary management of a patient with hypertension.

$$1\frac{1}{2} + 2\frac{1}{2} = 4$$

3. (a) Name any two examples of food-borne infections.

(b) Explain how the chemicals enter food from production up to the stage of storage.

$$1 + 3 = 4$$

4. Match Column A with Column B and write appropriate answer (alphabet) in your answer book. 4×1=4

<u>Column A</u>	<u>Column B</u>
(i) Leucine	(a) Constipation
(ii) Increased intake of fibre and fluids	(b) Skin folds
(iii) Measure of fat stores in body	(c) Catabolism
(iv) Breakdown of complex substances into simple substances	(d) Amino acid
	(e) Low purine diet
	(f) Anabolism
	(g) Diarrhoea
	(h) Jaundice

