

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

**Term-End Examination**

**June, 2010**

**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 which have not been successfully completed.*

**PART - A : CHEMISTRY**

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*Note : Attempt all questions. Choice wherever is indicated in the question itself.*

*All questions carry equal marks.*

*Attempt all parts of a question in **one** place.*

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1. Write *any three* differences between compounds and mixtures. 3

**OR**

Define physical change and chemical change.

Give any two examples for each.

2. (a) Why does the food cook faster in a pressure cooker ? 1+2=3  
(b) Define hard water and name *any two* substances which may be used for softening of hard water.
3. Classify lipids on the basis of their composition and write down *one* example for each class of lipid. 3
4. Boiled egg is an example of denaturation of egg protein : 1+2=3  
(a) Define denaturation.  
(b) List any four agents that can cause protein denaturation.

5. (a) Define the following : 2+1=3
- (i) Glycolysis
  - (ii) Hypercholesterolemia
- (b) Give *any two* conditions in which hyper cholesterolemia is observed.
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6. State whether **True** or **False** of the following :  $\frac{1}{2} \times 6 = 3$
- (a) Sucrose is a disaccharide made up of one glucose molecule and one fructose molecule.
  - (b) Vitamin B<sub>6</sub> is a fat-soluble vitamin.
  - (c) The mineral element potassium helps in water retention in the body.
  - (d) High Density Lipoprotein (HDL) recovers excess cholesterol from blood and returns it to liver.
  - (e) Acetyl coenzyme A is the precursor for the formation of ketone bodies in the body.
  - (f) Urea is a highly toxic waste product in the body.

**PART - B : PHYSICS**

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*Note : Attempt all questions.*

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1. Diagrammatically explain the correction of Myopia and Hypermetropia. 2
  
2. Describe the principles involved in giving cold sponge bath to a patient with high fever. 3
  
3. Explain *two* factors on which the flow of I/V fluid would depend. 2
  
4. Give one example from nursing situation for Newton's First, Second and Third law of motion. 3
  
5. List two common types of errors in measurement while taking temperature of patients. 2
  
6. Fill in the blanks : 1x5=5
  - (a) To remove the splinter of iron (steel) from the eye \_\_\_\_\_ is used.
  - (b) Electric activity and condition of muscles can be determined by \_\_\_\_\_.

- (c) Defect of eye due to irregularity in the curvature of cornea is called \_\_\_\_\_.
- (d) Water seal drainage after the surgery works due to controlled \_\_\_\_\_ and \_\_\_\_\_.

## PART - C : MICROBIOLOGY

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

1. (a) Fill in the blanks : 6x½=3
- (i) The bacterium that causes plague is called \_\_\_\_\_.
  - (ii) Ribosomes are the centre of \_\_\_\_\_ in bacteria.
  - (iii) \_\_\_\_\_ stain is used for staining bacteria that cause tuberculosis.
  - (iv) Human diseases caused by fungi are collectively called as \_\_\_\_\_.
  - (v) A type of infection in which clinical effects are not apparent is called \_\_\_\_\_ infection.
  - (vi) The apparatus used for sterilizing employing steam under pressure is called \_\_\_\_\_.
- (b) Define the following in one sentence each : 6x½=3
- (i) Staphylococci
  - (ii) Antigen
  - (iii) Bacterial capsule
  - (iv) Symbiosis
  - (v) Retrovirus
  - (vi) Antiseptic

2. Distinguish between *any three* of the following :
- (a) Humoral Immunity and Cell Mediated Immunity. 3x2=6
  - (b) Exotoxin and Endotoxin
  - (c) Innate and adaptive immune system
  - (d) Pasteurization and Fractional sterilization
  - (e) Selective and differential media
  - (f) Hepatitis A and Hepatitis B viruses
3. Define virus. Name three methods by which viruses can be transmitted from one individual to another, giving one example of virus in each case. What vaccines are in use to prevent poliomyelitis in children ? 1½+3+1½=6

OR

Define culture medium. List any six types of culture media. State the characteristics of a good culture medium. 1+3+2=6

**PART - D : NUTRITION AND DIETETICS**

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*Note : Attempt all questions.*

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1. Discuss the dietary management of a patient with cancer having following side effects :  $2\frac{1}{2}+2\frac{1}{2}=5$ 
  - (a) Nausea and vomiting
  - (b) Dry mouth
  
2. List any *five* food sanitation measures. 5
  
3. Describe the guidelines you will follow in planning balanced diet. 5
  
4. Give *two* examples of sources of the following Nutrients :  $2 \times 1 = 2$ 
  - (a) Carbohydrates
  - (b) Fats
  - (c) Proteins