

00301

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

Term-End Examination

December, 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.*

Note : Attempt all questions. Attempt all parts of a question at one place.

1. Define physical change and chemical change.
Give one example of each type of change. 2+1=3

2. Name *any three* mineral elements and give *one* physiological function of each one of the mineral elements. 1½+1½=3

3. (a) Give *one* deficiency disease of each of the following vitamins. 1½
 - (i) Vitamin A
 - (ii) vitamin B₁₂
 - (iii) Vitamin E.

- (b) Define metabolism and name the metabolic pathway by which glucose breaks down into two molecules of pyruvate. 1½

4. (a) Define hormones ? Name the hormone responsible for lowering the blood glucose level. 1+½=1½

- (b) Write the meaning of hypercholesteremia ?
Give any two pathological conditions in which it is observed. ½+½+½=1½

5. State *true* or *false* in the following 6x½=3

- (i) A compound can be separated into constituent elements by physical or mechanical means.
- (ii) Isotopes have same atomic number but different mass numbers.
- (iii) Permanent hardness of water can be removed by boiling.
- (iv) Maltose is a reducing disaccharide.
- (v) Acetone is an example of a ketone body.
- (vi) Vitamin E is a fat soluble vitamin .

6. Give *any six* biological functions of carbohydrates or proteins. 3

PART - B : PHYSICS

45 minutes

17 Marks

Note : Attempt all questions.

1. List the two common types of Errors in measurement. Give one example of each. 1+1=2

2. Define the following terms and give one example of its applicability in nursing. 1x5=5
 - (i) Force
 - (ii) Gravity
 - (iii) Lever as machine
 - (iv) Fluid pressure
 - (v) Suction

3. Define conduction and insulation. Give one example from nursing where the principle of conduction and insulation are used. 2+1=3

4. Explain about the following 2+2=4
 - Electroencephalography (EEG)
 - Electrocardiography (ECG)

5. Write 'T' if you find the statement *true* and 'F' if it is *false* in your answer sheet : 3

(i) A person with Hypermetropia cannot see nearer objects clearly. T/F

(ii) A person with myopia should use convex lens to correct the defect. T/F

(iii) Cardiac pacemaker can remove a block in the artery leading to heart. (Incomplete) T/F

PART - C : MICROBIOLOGY

45 minutes

18 Marks

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

1. (a) Fill in the blanks 6x $\frac{1}{2}$ =3
- (i) The bacterium which causes enteric (typhoid) fever is called _____ .
 - (ii) Mesosomes are the principal sites of - _____ in bacteria.
 - (iii) _____ Stain is used to stain the primitive nucleus in bacteria.
 - (iv) _____ is an example of bacteria that don't have the cell walls.
 - (v) If infection occurs in hospitals, it is called as _____ infection.
 - (vi) The apparatus used for sterilization using dry heat at 160°C is called _____
- (b) Define the following in one sentence each 6x $\frac{1}{2}$ =3
- (i) gonococci
 - (ii) antibody
 - (iii) bacterial spore
 - (iv) commensalism
 - (v) bacteriophage
 - (vi) antibiotic

2. Distinguish between *any three* of the following- $3 \times 2 = 6$
- (a) Primary immune Response and Secondary Immune Response
 - (b) T-lymphocyte and B-lymphocyte
 - (c) Anopheles and Culex mosquitoes
 - (d) Sterilization and Disinfection
 - (e) Aerobic and Anaerobic bacteria.
 - (f) HIV and AIDS

3. Name two DNA and Two RNA viruses of medical importance. List the disease caused by them. Mention their modes of transmission . How do you prevent their spread in the community

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

Name *three* medically important helminths. List the diseases caused by them. Briefly give the life cycle of any one of them. $(1\frac{1}{2} + 1\frac{1}{2} + 3)$

PART - D : NUTRITION AND DIETETICS

45 minutes

17 Marks

Note : Attempt all questions.

1. Explain the dietary management for a patient in Chronic Renal failure. 5

 2. (i) Define the term adulteration of food 2+3=5
(ii) Give *any three* examples of disease due to adulteration of food and their signs and symptoms.

 3. (i) Define therapeutic diet. 1+4=5
(ii) Explain the points you will keep in mind while planning therapeutic diet.

 4. Write *any two* functions of the following Minerals : 2x1=2
 - (i) Calcium
 - (ii) Iron
 - (iii) Phosphorus.
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