

POST BASIC
BACHELOR OF SCIENCE (NURSING)

Term-End Examination

June, 2009

00122

HSIT2 : 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

Note : Attempt all questions.

1. (a) Give two functions of elements in the body. 1
(b) Classify the following as physical or chemical change. $4 \times \frac{1}{2} = 2$
(i) Drying of wet shirt in air
(ii) Curdling of milk on addition of lemon juice to it.
(iii) Decaying of food.
(iv) Healing of wound.
2. (a) Give one important physiological function for each of following vitamins : $3 \times \frac{1}{2} = 1\frac{1}{2}$
(i) Vitamin A (ii) Vitamin K
(iii) Vitamin C
(b) Give one deficiency diseases for each of the following mineral elements : $3 \times \frac{1}{2} = 1\frac{1}{2}$
(i) Calcium (ii) Copper
(iii) Zinc
3. (a) What are peptides ? 1
(b) Name any two essential amino acids. 1
(c) Give any two toxic effects of ammonia in the body. 1
4. (a) What is metabolism ? 1
(b) Give the names for the following metabolic pathways. $\frac{1}{2} \times 4 = 2$
(i) Glucose \rightarrow Pyruvic acid
(ii) Palmitic acid \rightarrow Acetyl-CoA
(iii) Acetyl CoA \rightarrow Carbondioxide and water
(iv) Glucose \rightarrow Glycogen

5. Fill in the blanks.

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

- (a) Two compounds having same molecular formulae but different structural formulae are called _____.
- (b) _____ compounds are formed as a result of transfer of an electron from a metal atom to a non-metal atom.
- (c) The decomposition of monosaccharides into alcohol and carbon dioxide is called _____.
- (d) Swelling of dry seeds and fruits on soaking in water is due to the phenomenon of _____.
- (e) Protein molecules that act as biochemical catalysts are called _____.
- (f) _____ are organic molecules that are not soluble in water but are soluble in organic solvents like ether or chloroform.

6. Give any six biologically important functions of lipids : 3

OR

- (a) Define Lipoproteins. State the role of Low Density Lipoproteins (LDL) and High Density Lipoproteins (HDL) in the human body. $\frac{1}{2}+\frac{1}{2}+\frac{1}{2}=1\frac{1}{2}$
- (b) What is Ketosis ? Name two Ketone bodies. $\frac{1}{2}+\frac{1}{2}+\frac{1}{2}=1\frac{1}{2}$

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PART - B : PHYSICS

Note : Attempt all questions. Answer on separate sheet.

1. State the meaning of frictional forces. Give any two uses of frictional forces in nursing. 2

2. Write in two lines about any two of the followings : 2x2=4
 - (a) Use of ultraviolet radiation.
 - (b) Advantage of mercury as thermometric substance.
 - (c) Use of cardiac pacemaker.

3. Define Laser. Give two uses of laser in medicine. 2

4. Write the principles of physics applicable in the following : 1x4=4
 - (a) Biting with jaw.
 - (b) Use of water mattress.
 - (c) Use of Pressure cooker /autoclave.
 - (d) Filling up of Syring with medicine.

5. Fill in the blanks : 1x5=5
 - (a) Water seal drainage used after thoracic operation is based on principle of _____.
 - (b) Force is a _____ quantity.

- (c) Translatory, circular and oscillatory are the classification of _____.
- (d) To every action there is always equal and opposite reaction is based on Newton's _____ law of motion.
- (e) An external force that changes or tends to change the state of rest or uniform motion of body is called _____.

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PART - C : MICROBIOLOGY

Note : Answer all questions. Illustrate the answers wherever necessary. Attempt all the parts of a question at one place.

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

- (a) Ribosomes are the centre of _____ synthesis.
- (b) Feulgen stain is a dye used for staining the _____.
- (c) Gonorrhoea is a _____ disease.
- (d) Toxin produced in the bacterial cell is called _____.
- (e) An organism living on dead organic matter is called _____.
- (f) The temperature at which bacteria grows best is called _____.

2. Define any three of the followings terms : $1 \times 3 = 3$

- (a) Streptococci
- (b) Microbes
- (c) Swab
- (d) Nosocomial infection
- (e) Anaerobes

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

2x3=6

- (a) Pneumococcus and Plague bacillus.
- (b) Bacteriostatic and Bacteriocidal.
- (c) Simple and differential stain.
- (d) Mechanical and Nutritional injury.
- (e) Diphtheria and Anthrax bacillus.
- (f) Antigen and Antibody.

4. Describe with the help of labelled diagrams the anatomy and method of reproduction in bacteria. 6

OR

Explain the direct methods of transmission by which the pathogenic organisms pass from the patient to the healthy man. 6

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PART - D : NUTRITION AND DIETETICS

Note : Attempt all questions.

1. What is the difference between micro nutrients and macro nutrients and write their sources. 2+2=4

2. (a) List **any four** methods used to assess the nutritional status of a patient. 2+3=5
(b) Describe **any one** of the methods in detail.

3. Describe dietary management in **any four** complications of Pregnancy. 4

4. Match column A with column B and write appropriate answer (alphabet) in your answer sheet. 1x4=4

(a) Peptic ulcer	(i) Raw foods
(b) Low cholestrol, low sodium and high potassium	(ii) Contaminated pork
(c) Taenia sodium (Tapeworm)	(iii) Growth chart
(d) Tool for growth monitoring	(iv) Hyper tension
	(v) Bland fibre restricted diet.

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