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BNS-102

POST BASIC
BACHELOR OF SCIENCE (NURSING)
B.Sc (N) (PB)
Term-End Examination
June, 2014

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:*

Part A : Biochemistry	-	*18 marks*
Part B : Biophysics	-	*17 marks*
Part C : Microbiology	-	*18 marks*
Part D : Nutrition and Dietetics	-	*17 marks*

2. *Student appearing for Applied Science Course Examinations should follow the relevant instructions given below :*

   (a) ***For those appearing for the first time for the examination of Applied Science Course:*** *The student should answer the questions of all the four part 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 student need to answer only those parts, on separate answer sheets, which have not been successfully completed.*

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Note : Answer all the questions; The choice is internal.

PART - A Biochemistry

1. (a) The atomic number and mass number of an element are 6 and 12 respectively. Find the number of protons and neutrons in an atom of the element.   **1**

    (b) What is permanent hard water? Can it be softened by boiling?   **2**

2. What are enzymes? Give *any two* important characteristics of enzymes.   **1+2=3**

    OR

    What is meant by protein denaturation? List *any three* causes of protein denaturation.   **1½+1½=3**

3. What are carbohydrates? State *any two* biological functions of carbohydrates.   **1+2=3**

4. What is the basis of blood grouping? Why is it essential to match the blood samples of the donor and recipients before transfusion?   **1½+1½=3**

5. What is hypercholesterolemia? State *any two* pathological conditions under which it is observed?   **1+2=3**

6. What are the normal fasting and post prandial values of blood glucose? State *any two* sources that contribute to the level of glucose in blood.   **1(½+½)+2=3**

PART - B Biophysics

Attempt **all** questions

1. While taking weight of a child on a weighing machine whose pointer does not co-incide with the zero of the scale, you will introduce an error in your reading.

    (a) What type of error do you introduce?

    (b) How can you avoid this error?   1+1=2

2. Why do bed ridden patients often develop bed sours? Explain in the light of Newton's third law of motion.   3

3. Draw the schematic diagram of the ear and explain the mechanism of hearing.   3

4. What is far sightedness (Presbyopia)? How this defect can be corrected?   2

5. Fill in the blanks in the following statements.

    (a) Temperature is the measure of .... State of the body.

    (b) Air is .... conductor of heat.

    (c) Diathermy refers to heating of tissues by passage of ....

d) Substances that do not allow electrons to pass through them are known as.................................

4x1=4

6. Read the following statements and write 'T' if the statement is true and 'F' if it is false.

3x1=3

(a) Ultra violet radiation activates ergosterol in the skin to form vitamin D. **T/F**

(b) Radio isotope of Iodine is useful for detecting malignant thyroid tumour. **T/F**

(c) Convex lense is known as diverging lense. **T/F**

PART - C Microbiology

1. Fill in the blanks:

6x½=3

a) Bacterial mesosomes are the principal sites of the _____ enzymes.

b) In a Hot air oven, dry heat is employed at a temperature of _____ for one hour.

c) _____ _____ is the causative agent for diphtheria.

d) _____ is an example of a bacterium that produces spores in unfavourable conditions.

e) Toxins produced by fungi are called as
_____.

f) If the infection occurs between two different hosts, it is called _____ infection.

2. Write 'T' for True and 'F' for false against the statements in the answer book.   6x½=3

a) Robert Koch was the first scientist to discover Vibrio Cholerae bacterium causing cholera.   **T/F**

b) Bacteriostatic agent is an antibacterial substance which kills bacteria.   **T/F**

c) Neisseria are gram negative cocci arranged in pairs.   **T/F**

d) Influenza is a water borne disease.   **T/F**

e) Whitish spots and ulcers in the mouth cairty of infants (Thrush) are caused due to candida fungus.   **T/F**

f) Main feature of long time hookworm infection in man is severe anemia.   **T/F**

3. Distinguish between *any three* of the following:-   2x3=6

a) Gonococci and Meningococci.

b) Simple and Differential stains.

c) Bacterial exotoxins and endotoxins.

d) Sterilization and Disinfection.

e) Subclinical infection and nosocomial infection.

f) Hepatitis A and Hepatitis B viruses.

OR

Define Allergy (Hypersensitivity). **1+2½+2½=6** Differentiate between immediate and delayed hypersensitivity, giving suitable examples of each type.

4. Name the parasites causing malaria in man. **6** Draw a diagram depicting the life cycle of malarial parasite in mosquito. How do you diagnose malaria in the laboratory?

PART - D Nutritions and Dietetics

Attempt **all** questions

1. a) Define the followings.

Micronutrients

Macronutrients

b) Give two examples of each of the Nutrients. **2+2+1=5**

2. a) Discuss the Social, Economic and Psychological factors you as a nurse would keep in mind in Diet Planning.

   b) Define anthropometric measurement. Enumerate its specific indices.   3+3=6

3.   Write in two to three lines about the following.   3x2=6

   a) PEM

   b) Gluten Enteropathy

   c) Food adulteration