No. of Printed Pages : 5 **BNS-102**

POST BASIC
BACHELOR OF SCIENCE (NURSING)
B.Sc (N) (PB)
Term-End Examination 01318
December, 2013

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. *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.*

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

PART-A Biochemistry

1. (a) An atom of sodium has 11 protons and 12 neutrons. Find the atomic number and mass number of sodium. **1**

   (b) What is hard water ? How can the temporary hardness of water be removed ? **2**

2. What are lipoproteins ? Outline their functions in the body. **1+2=3**

3. What are peptides ? Write the names of any two peptides and state their physiological roles. **1+2=3**

   OR

   What is the basis of the application of enzyme estimation for clinical diagnosis ? Name the enzymes (any one) whose levels are increased in

   (a) hepatitis

   (b) Obstructive Jaundice. **2+1(½+½)=3**

4. What is digestion ? Write **any two** of the major food components and state the products of their hydrolysis. **1+2=3**

5. What is gluconeogenesis ? Give two conditions under which this pathway becomes significant. **1+2=3**

6. What is CSF ? Name two important biochemical parameters of CSF and state the specific diseases (one each) under which these are altered. **1+1+1=3**

PART - B Biophysics

Attempt **all** questions

1. (a) Define Radio isotopes. **1+1=2**

(b) Give two clinical uses of radio isotopes.

2. (a) Explain why heart, lungs and intestines are covered with slippery mucus memberane ?

(b) Why is liquidparaffin applied to urinary catheter, gastric tubes etc before inserting for doing the required procedure etc ? **1½+1½=3**

3. (a) Define "Pressure". Write down the most common method of Indicating pressure in medical field.

(b) Specify the normal pressure of the followings. **1½+1½=3**

* Arterial blood pressure
  -- maximum range
  -- minimum range
* Venous blood pressure

4. Define "temperature". Illustrate the mechanism of maintaining normal body temperature. **2**

5. Fill in the blanks in the following statements. **4x1=4**

(a) Metals are generally _____ conductor of heat.

(b) Ultra sound diathermy is helpful in the treatment of _____ .

(c) Human being can produce variety of sounds because Vocal Cords can produce _____ of various frequencies.

(d) Magnet is used for removing _____ from the eye.

6. Read the following statements and write 'T' if the statement is true and 'F' if it is false. 3x1=3

(a) X-rays have very low penetrating power.

(b) Electric stimulation of degenerating muscles helps preserve muscles tissue and prevents atrophy. T/F

(c) The image of any object is formed on the iris of the eye. T/F

PART-C Microbiology

1. **Fill in the blanks :** 6x½=3

(a) Bacterial ribosomes are the centre of _____ synthesis.

(b) In an autoclave, steam under pressure is employed at a temperature of _____ for fifteen minutes.

(c) _____ is the causative agent for typhoid (enteric fever).

(d) _____ are bacteria which donot have a cell wall.

(e) Diseases caused by fungi are called as _____.

(f) If the infection occurs in hospital, it is known as _____ _____.

2. **Write T for true and F for false against the statements in the answer sheet.** 6x½=3

(a) Louis Pasteur was the first scientist to develop vaccine for rabies (hydrophobia).

(b) Bactericidal agent is an antibacterial substance which kills bacteria.

(c) Streptococci are gram positive cocci arranged in clusters.

(d) Hepatitis B virus is a RNA virus which spreads through contaminated water.

(e) Tinea capitis is a ringworm infection of scalp region.

(f) Sandfly spreads malaria in the community by biting people.

3. **Distinguish between any Three of the following :** **3x2=6**

(a) Pneumococci and Meningococci

(b) Monotrichate and peritrichate flagella

(c) Bacterial pathogenicity and virulence

(d) Hot air oven and Incubator

(e) Acute infection and Chronic infection

(f) HIV and AIDS

OR

Define antigen and antibody. Name various types of immunoglobulins and give function of any one of them. **2+3+1=6**

4. Name three tapeworms (cestodes) causing disease in man. Draw a labelled diagram depiciting life cycle of any **one** of them. **1½+4½=6**

PART-D Nutrition and Dietetics

Attempt **all** questions : **3+3=6**

1. (a) List six Catagories of nutrients.

(b) Give two example of each catagory of nutrients.

2. Explain your role as a nurse in nutritional management of the patient with two examples from each task. **6**

3. Write in **Two** to **Three** lines about the following :

(a) Foods avoided in renal failure. **2+1½+1½=5**

(b) Major causes of food contamination.

(c) Symptoms of Iodine Deficiency Diseases (IDO).