

Printing Pages :1

Paper Code: BMLT-104/BOTT/BOTT(HA)/BRIT/BOPT-101 A (SVSU:2023-24/R)

Enrollment No.

BMLT/BOTT/BOTT(HA)/BRIT/BOPT 1st Year**Subject: Human Anatomy and Physiology****Time: 3 Hours****M.M. 70***Note: All questions are compulsory. Make diagrams wherever required.***Section A****Subject: Human Anatomy(Max. Marks – 35)**

- Q1 Long answer type questions. Attempt any two.** **10X2=20**
 a. Describe Gross structure of heart
 b. Describe Classification of joints
 c. Describe gross structure of liver
- Q2 Short answer type questions. Attempt any two.** **5X2=10**
 a. Gross anatomy of spleen
 b. Types of bone
 c. External features of thyroid gland
- Q3 Very Short answer type questions. Attempt any two.** **1X2=2**
 a. Define endocrine gland
 b. Enumerate meninges of brain
 c. Enumerate parts of excretory system
- Q4 MCQ. Attempt all.** **1X3=3**
 a. Patella is a
 i. Sessamoid bone ii. Short bone iii. Pneumatic bone iv. None of the above
 b. Number of Thoracic vertebrae is
 i. 12 ii. 10 iii. 13 iv. 9
 c. Elbow joint is
 i. Hinge Joint ii. Condylar Joint iii. Ball and socket joint iv. Pivot joint

Section B**Human Physiology (MM: 35)**

- Q1. Long answer type questions. Attempt any two.** **(10x2=20)**
 a. Define arterial BP. Discuss factors affecting it.
 b. Give classification of muscles. Describe mechanism of skeletal muscle contraction.
 c. Draw well labeled diagram of Nephron. Discuss functions of kidney.
- Q2. Short answer type questions. Attempt any two.** **(5x2=10)**
 a. Write Blood Group system.
 b. Write the Lung volumes & capacities.
 c. Draw the Diagram of Sarcomere.
 d. Describe the Diagram of Neuron.
- Q3. Very short answer type questions. Attempt any two.** **(1x2=2)**
 a. What is Reflex?
 b. What is Anaemia?
 c. Define the Cardiac output.
- Q 4. Multiple choice questions. Attempt all.** **(1x3=3)**
 a. What do we study in Physiology?
 i. Study of cell ii. Study of body functions iii. Study of Tissue iv. None of these
 b. Human heart contains
 i. 1 atria, 1 ventricle ii. 2 atria, 2 ventricle iii. 1 atria, 2 ventricle iv. 2 atria, 1 ventricle
 c. Lifespan of RBCs
 i. 120 days ii. 100 days iii. 60 days iv. None

Printing Pages :1

Paper Code: BRIT-102

C (SVSU:2023-24/R)

Enrollment No.

B.Sc. Radio- Imaging Technology (BRIT) 1st YearSubject: Basic Radiography and Safety

Time: 3 Hours

M.M. 70

*Note: All questions are compulsory. Make diagrams wherever required.***Q1. Long answer type questions. Attempt any three.****(10x3=30)**

- Define radioactivity and modes of decay with suitable examples.
- Write a brief note on image receptor and types of image receptor.
- Explain about the mammography and mammographic equipment.
- Explain all the parts of rotating x-ray tube and draw a well labelled diagram of x-ray tube.

Q2. Short answer type questions. Attempt any six.**(5x6=30)**

- Explain properties of x-rays.
- Explain pelvis AP.
- Explain characteristic and bremsstrahlung x-ray production.
- Give a brief description on interaction of x-ray with matter.
- Explain abdomen AP erect.
- Explain justification, optimization and dose limit.
- Explain thermo luminescent dosimeter with suitable diagram.
- Why compression of Breast is needed in mammography?

Q 3. Very short answer type questions. Attempt any five.**(1x5=5)**

- Name any four secondary radiation protection barrier.
- Draw a diagram of film badge.
- Name basic views of chest.
- Write properties of gamma rays.
- Explain parent daughter decay.
- Name two naturally occurring radioactive material.

Q 4. Multiple choice questions. Attempt all.**(1x5=5)**

- Which type of radiation can be stopped by a sheet of paper?
 - Alpha radiation
 - Beta radiation
 - Gamma radiation
 - Neutron radiation
- Which part of the body is compressed during a mammography?
 - Hand
 - Arms
 - Legs
 - Breast
- How are X-ray produced in an X-ray tube?
 - By heating the tungsten filament
 - By passing a high voltage through a vacuum
 - By exposing a photographic film to light
 - By accelerating electrons towards a metal target
- Where are TLDs commonly used?
 - In medical imaging
 - In nuclear power plants
 - In food irradiation facilities
 - In aviation security screening
- What is the height of roof of developing roof?
 - 11 feet
 - 10 feet
 - 15 feet
 - 9 feet

Printing Pages :1

Paper Code: BRIT-103

A (SVSU:2023-24/R)

Enrollment No.

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B.Sc. Medical Radio imaging Technology (BRIT) Ist Year**Subject: Medical Biochemistry****Time: 3 Hours****M.M. 70***Note: All questions are compulsory. Make diagrams wherever required.***Q1. Long answer type questions. Attempt any three.****(10x3=30)**

- What is carbohydrate? Classify carbohydrates with their function.
- Illustrate the beta oxidation of fatty acid with energetic.
- What is enzyme? Describe the classification and isoenzymes.
- Illustrate Krebs's cycle with its energetic.

Q2. Short answer type questions. Attempt any six.**(5x6=30)**

- Write a note on Essential and non-essential amino acid.
- Write about saturated and unsaturated fatty acid.
- What is lipid metabolism disorders? Explain with their examples.
- Define the plasma membrane with labeled diagram.
- Illustrate the gluconeogenesis.
- Explain principle of paper chromatography techniques.
- Describe thyroid hormone.
- Describe the Urea cycle.

Q 3. Very short answer type questions. Attempt any five.**(1x5=5)**

- Write the functional group of fructose?
- Write the name of polar amino acids.
- Define any one reaction of triacylglycerol.
- Write the full form of VLDL.
- Write the name of monomer unit of sucrose.
- Write the name of radioisotopes which are used in diagnosing diseases.

Q 4. Multiple choice questions. Attempt all.**(1x5=5)**

- The ATP molecules are utilized in activation of Fatty acid are
 - 2
 - 1
 - 3
 - 4
- Hyaluronic acid is the Polymer of
 - D-Glucuronic acid and N-Acetylglucosamine
 - D-Glucose
 - D-Glucuronic acid and N-Acetylgalactosamine, 4-sulphate
 - None of These
- The subunits of 80S ribosomes include
 - 40S and 60S
 - 30S and 50S
 - 40S and 50S
 - None of these
- The aromatic amino acid is
 - Phenylalanine
 - Leucine
 - Glycine
 - Proline
- Prolactin hormone is synthesized by
 - Anterior pituitary gland
 - Posterior pituitary gland
 - Thyroid gland
 - Pancreas

Printing Pages :1

Paper Code: BRIT-104

A (SVSU:2023-24/R)

Enrollment No.

B.Sc. Radio Imaging Technology (BRIT) Ist Year

Subject: Community Healthcare

Time: 3 Hours

M.M. 70

Note: All questions are compulsory. Make diagrams wherever required.

Q1. Long answer type questions. Attempt any three.

(10x3=30)

- Write in detail about dimensions of health.
- What is family and its types?
- Explain National Health policy.
- Write a detailed comparison between rural and urban communities.

Q2. Short answer type questions. Attempt any six.

(5x6=30)

- What are the effects of sickness on family?
- Write a short note on Community acquired infection.
- Write the importance of Physiotherapy?
- Write a short note on population of India.
- What are the health hazards of urbanization?
- Write about the Nosocomial infections.
- Write about the changing pattern of families.
- What are the steps for hand washing?

Q 3. Very short answer type questions. Attempt any five.

(1x5=5)

- Define Motility rate
- Define Health.
- Define Host.
- What is Mortality rate
- What is vaccine
- What is the full form of PASS

Q 4. Multiple choice questions. Attempt all.

(1x5=5)

- a. Bhopal gas tragedy is an example of:
- i. Slow epidemic
 - ii. Point source epidemic
 - iii. Continuous epidemic
 - iv. None of these
- b. Full form of AIDS-
- i. Acquired Immunodeficiency Syndrome
 - ii. Acquired Immunity Syndrome
 - iii. Acquired Immunodeficiency System
 - iv. Acute Immunodeficiency Syndrome
- c. The outbreak of coronavirus (Covid-19) pandemic began:
- i. India
 - ii. America
 - iii. China
 - iv. Greece
- d. Which bacteria causes the Tuberculosis?
- i. Mycobacterium tuberculosis
 - ii. Staphylococcus aureus
 - iii. Streptococcus pyogenes
 - iv. None of the above
- e. Malaria is caused by-
- i. Dog
 - ii. Cat
 - iii. Mosquito
 - iv. Sand fly

Printing Pages :1

Paper Code: BMLT/BOPT/BOTT/BRIT-105 A (SVSU:2023-24/R)

Enrollment No.																			
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BMLT/BOPT/ BOTT / BRIT Ist Year

Subject: Computational Skills and Biostatistics

Time: 3 Hours

M.M. 70

Note: All questions are compulsory. Make diagrams wherever required.

Section A

Subject: Computational Skills (MM: 35)

Q1. Long answer type questions. Attempt any two. (10x2=20)

- What is CPU? Draw the block diagram and explain it.
- What is an operating system?
- What is Internet?

Q2. Short answer type questions. Attempt any two. (5x2=10)

- What are input devices? Give examples.
- What is memory? Explain the types of memory.
- Define a software application.
- Explain the uses of mouse in a computer system.

Q 3. Very short answer type questions. Attempt any two. (1x2=2)

- What is a hardware component that stores data permanently, even when the computer is turned off?
- Write the CMD command to create a new Directory and Remove Directory command.
- What is the function of an ALU?

Q 4. Multiple choice questions. Attempt all. (1x3=3)

- What is the full form of CPU?
 - Computer Processing Unit
 - Computer Principle Unit
 - Central Processing Unit
 - Control Processing Unit
- Which of the following language does the computer understand?
 - Computer understands only C Language
 - Computer understands only Assembly Language
 - Computer understands only Binary Language
 - Computer understands only BASIC
- Which of the following is the hardware?
 - MS Word
 - Key board
 - Window
 - None of these

Section-B

Subject: Biostatistics (M.M. 35)

Q1. Long answer type questions. Attempt any two. (10x2=20)

- Pulse rate of 12 individuals are given as: 68,66,70,74,80,88,90,100,79,88,96 & 97
Calculate median and mode.
- Define Normal Distribution? Also discuss about its characteristics Skewness and Kurtosis?
- What are measures of Central Tendency? Discuss in detail?

Q2. Short answer type questions. Attempt any two. (5x2=10)

- Interval Scale & Ratio Scale
- Coefficient of Variation
- Chi Square Test
- Presentation of Data

Q 3. Very short answer type questions. Attempt any two. (1x2=2)

- Degree of freedom
- Table
- Parameter
- Formula for paired t test

Q 4. Multiple choice questions. Attempt all. (1x3=3)

- The total area under normal curve is :
 - 1
 - 2
 - 3
 - 4
- The following scores were obtained by eleven footballers in a goal-shoot competition: 5, 3, 6, 8, 7, 8, 3, 11, 6, 3, 2 the modal score is:
 - 3
 - 6
 - 8
 - 11
- We must arrange the data before calculating:
 - Mean
 - Median
 - Mode
 - Geometric Mean

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B.Sc. (BMIT) I Year

Fundamental of Medical Imaging & Basic Radiation Physics

Time: 3 Hours

Max. Marks: 70

Note: All questions are compulsory. Make diagrams wherever required.

Q1. Attempt any five MCQs. Select the correct choice as applicable. 2 Mark each (2x5=10)

- The radioactivity was discovered by ____:
 - Henry Becquerel
 - Marie curie
 - Roentgen
 - None of these
- Isotopes have different
 - Nuclear charges
 - Atomic weights
 - Number of electrons
 - Atomic numbers
- The film processing step in which the undeveloped silver bromide is removed from the film emulsion is called:
 - Development
 - Stop bathing
 - Fixing
 - Rinsing
- When X rays pass through a strong uniform magnetic field, Then they
 - Do not get deflected at all
 - Get deflected in the direction of the field
 - Get deflected in the direction opposite to the field
 - Get deflected in the direction perpendicular to the field
- x-rays were discovered by :
 - Dr. Rabi
 - Anna Bertha roentgen
 - W.C. roentgen
 - Both a and b

Q2. Fill in the blanks. Attempt all.

2 Marks Each (2x5=10)

- x- rays consists ofcharge.
-is the wavelength of x-rays.
- Aroom is used to develop latent image into visible image.
- X-rays have As well as Energy x-rays.
- can carry charge only if impurities are introduced into it.

Q3. Write True or False. Attempt all.

2 Marks Each (2x5=10)

- X-rays are polychromatic in nature.
- Radiographic films are used to capture images.
- Developer is basic in nature.
- The N-type semiconductor consists of trivalent impurity.
- Pass-box connects x-ray room with dark room.

Q4. Attempt any four of the following:

5 Marks Each (5x4=20)

- Explain the process of x-ray production with diagram.
- Discuss the construction of radiographic film.
- Define the process of radiation protection.
- How are intrinsic semiconductors different from extrinsic semiconductors?
- Discuss the construction of radiographic intensifying screen.

Q5. Attempt any two of the following:

10 Marks Each (10x2=20)

- Discuss the construction of x-ray room.
- What are semiconductors? Explain its types also.
- How is latent image converted into visible image in dark room?

Printing Pages :1

Paper Code : BMIT-103

B (SVSU:2021-22/R)

Enrollment No.

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B.Sc. (BMIT) I Year
Medical Biochemistry

Time: 3.00 Hours

Max. Marks: 70

Q.1: Attempt all multiple Choice Questions. Select the correct answer only. (2x5=10)

- The ATP molecule formed in Glycolysis:-
 (i) 2 (ii) 4 (iii) 6 (iv) 8.
- Protein part of enzyme is:-
 (i) Apoenzyme (ii) Co-enzyme (iii) Both of these (iv) None of these
- The Aldose sugar is:-
 (i) Glucose (ii) Fructose (iii) Galactose (iv) None
- Fatty acid synthesis occurs in:-
 (i) Cytoplasm (ii) Mitochondria (iii) Both of these (iv) None of these.
- Aromatic Amino acid is
 (i) Tryptophan (ii) Alanine (iii) Serine (iv) None of these.

Q.2: Fill in the blanks. Attempt all. (2x5=10)

- Non reducing disaccharide is.....
- The double bonds present in Linolenic acid are.....
- Full form of RIA is.....
- Pentose sugar and NADPH are product of
- Sulphur containing Amino acid is.....

Q.3: Write True or False. Attempt all. (2x5=10)

- Glycolysis completed in cytoplasm.
- α - helix is the secondary structure of protein.
- Methionine is the non essential amino acid.
- Thyroxine is the protein nature hormone.
- Holoenzyme is the active form of enzyme.

Q.4: Write short notes on any four. (5x4=20)

- Describe the urea cycle.
- Define Starch and Glycogen.
- Describe Phospholipids and its classification.
- Describe the secondary and tertiary structure of protein.
- What is enzyme? Define classification of enzyme.

Q.5: Write long notes on any two. (10x2=20)

- Describe the Gluconeogenesis and its significance.
- What is carbohydrate? Describe the Classification and function of carbohydrates.
- Describe the β - oxidation of fatty acid and its significance.

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B.Sc. Medical Imaging Technology (BMIT)

Community Healthcare

[Time: 3 Hours]

[Max. Marks: 70]

Q.1 Attempt any five multiple choice questions. Select the correct answer only. (2x5=10)

- a) Health is
 (i) State of complete physical well being (ii) State of complete physical and social well being
 (iii) State of complete physical, mental, spiritual and social well being (iv) None
- b) Types of family
 (i) Nuclear (ii) Three generation (iii) Four generation (iv) Both a and b
- c) Indicators of health are all except
 (i) Mortality indicators (ii) Morbidity indicators (iii) Fertility indicators (iv) Utilization rate
- d) Vector born disease control programme include
 (i) Kala azar (ii) Measles (iii) Diarrhoea (iv) TB
- e) Programme for Tuberculosis is
 (i) NVBDCP (ii) RNTCP (iii) NRHM (iv) NLEP
- f) Life style disorder includes
 i) Hypertension ii) Diabetes iii) Obesity iv) all

Q.2 Fill in the blanks. Attempt all.

(2x5=10)

- (a) MMR isindicator of health.
 (b) Smoking is associated with..... Cancer.
 (c) Full form of RNTCP is.....
 (d) Diabetes is a.....disorder
 (e)is a vector born disease

Q.3 Write True or False. Attempt all.

(2x5=10)

- (a) Crude death rate is mortality indicator
 (b) In nuclear family all property is not held in common
 (c) DOTS was given under RNTCP
 (d) Definition of Health includes only physical health
 (e) Obesity is life style disorder

Q.4 Write short notes on any four.

(5x4=20)

- (a) Determinants of health
 (b) Nosocomial infection
 (c) Mortality Indicators of Health
 (d) Hand Hygiene
 (e) Changing family pattern

Q.5 Write long notes on any two

(10x2=20)

- (a) National Health Policy of India
 (b) Community acquired infection
 (c) Preventive measures for life style disorders