

Regn. No.....

Paper Code: BRIT101

B.Sc. MEDICAL TECHNOLOGY (RADIOGRAPHY AND IMAGING)
FIRST YEAR EXAMINATION, NOVEMBER - 2019
ANATOMY INCLUDING RADIOGRAPHIC ANATOMY
PAPER - I

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[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagrams wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1. Describe the hip joint under the following headings: type of joint, bones forming the joint, ligaments, muscles producing the movements and applied anatomy.
- Q. 2. Write a note on the boundaries and contents of cubital fossa with its applied anatomy.
- Q. 3. Classify synovial joint giving examples of each type.
- Q. 4. Write about right coronary artery.
- Q. 5. Write a note on femoral triangle.
- Q. 6. Draw a well labeled diagram to show the visceral relations of the anterior surface of right & left kidney.
- Q. 7. Enumerate dural venous sinuses. Write a note on cavernous sinus.
- Q. 8. Write a note on cerebrospinal fluid circulation.
- Q. 9. Write a note on the temporomandibular joint.

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B.Sc. MEDICAL TECHNOLOGY (RADIOGRAPHY AND IMAGING)
FIRST YEAR EXAMINATION, NOVEMBER - 2019
ANATOMY INCLUDING RADIOGRAPHIC ANATOMY
PAPER - I
(MCQ)

Time allotted for MCQ - 15 minutes

B : MCQs (Single response type):

(½ x 14 = 7)

Select the most appropriate answer and **encircle** the alphabet against it.

1. Substantia nigra is seen in:
 - a. Pons
 - b. Diencephalon
 - c. Midbrain
 - d. Medulla oblongata
2. Brodmann's number for Broca's motor speech area is:
 - a. Area no. 44,45
 - b. Area no. 6
 - c. Area no. 17,18,19
 - d. Area no. 4
3. The only depressor of the mandible:
 - a. Masseter
 - b. Temporalis
 - c. Medial pterygoid
 - d. Lateral pterygoid
4. Sphenoid bone is an example of:
 - a. Long bone
 - b. Short bone
 - c. Sesamoid bone
 - d. Pneumatic bone
5. Infranuclear lesions of facial nerve will lead to paralysis of:
 - a. Contralateral half of face
 - b. Ipsilateral half of face
 - c. Ipsilateral lower part of face
 - d. Contralateral lower part of face
6. Which is true about kidney?
 - a. Vein is anterior-most at hilum
 - b. Left kidney is lower in position
 - c. Duodenum is related to the left kidney
 - d. Renal artery is branch of suprarenal artery
7. The commonest position of appendix is:
 - a. Pelvic
 - b. Splenic
 - c. Subcaecal
 - d. Retrocaecal
8. Injury to upper trunk of brachial plexus leads to:
 - a. Winging of scapula
 - b. Klumpke's paralysis
 - c. Erb's paralysis
 - d. Claw hand
9. What is the root value of femoral nerve?
 - a. L3, 4, 5
 - b. L3, 4
 - c. L4, 5
 - d. L2, 3, 4
10. Taenia coli are specific to:
 - a. Colon
 - b. Duodenum
 - c. Liver
 - d. Stomach
11. The ligament attached to antero-superior surface of liver is:
 - a. Lesser omentum
 - b. Greater omentum
 - c. Falciform ligament
 - d. None of the above
12. Pain in hip is referred to knee due to involvement of:
 - a. Femoral nerve
 - b. Obturator nerve
 - c. Deep peroneal nerve
 - d. Superior gluteal nerve
13. Lingual artery is a branch of:
 - a. Internal carotid artery
 - b. Subclavian artery
 - c. Maxillary artery
 - d. External carotid artery
14. Internal capsule is made up of:
 - a. Commissural fibres
 - b. Association fibres
 - c. Projection fibres
 - d. None of the above

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Paper Code: BRIT102

B.Sc. MEDICAL TECHNOLOGY (RADIOGRAPHY & IMAGING)
FIRST YEAR EXAMINATION, NOVEMBER - 2019
PHYSIOLOGY & BIO-PHYSICS
PAPER - II

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagrams wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1. Name the plasma proteins and give their normal values. Describe the functions of plasma proteins.
- Q. 2. Describe the ionic basis of action potential in a nerve fibre.
- Q. 3. Define the blood pressure. Explain short term mechanism of its regulation.
- Q. 4. Define lung capacities and give their normal values.
- Q. 5. Explain the mechanism of secretion of HCl in the stomach.
- Q. 6. Draw a well labelled diagram of juxtaglomerular apparatus. Enumerate its function.
- Q. 7. Give functional division of cerebellum and describe its functions.
- Q. 8. Draw a diagram of rod and briefly describe rhodopsin cycle.
- Q. 9. Name the posterior pituitary hormone. Describe the various effect of oxytocin in humans.

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Paper Code: BRIT102

B.Sc. MEDICAL TECHNOLOGY (RADIOGRAPHY & IMAGING)

FIRST YEAR EXAMINATION, NOVEMBER - 2019

PHYSIOLOGY & BIO-PHYSICS

PAPER - II

(MCQ)

Time allotted for MCQ - 15 minutes

B : MCQs (Single response type):

(½ x 14 = 7)

Select the most appropriate answer and **encircle** the alphabet against it.

1. The number of oxygen molecules carried by one hemoglobin molecule:
 - a. 1
 - b. 2
 - c. 4
 - d. 8
2. IgM molecule consists of:
 - a. 5 subunits
 - b. 4 subunits
 - c. 3 subunits
 - d. 2 subunits
3. Vitamin K dependent factor is:
 - a. Factor XII
 - b. Factor IV
 - c. Prothrombin
 - d. Factor V
4. In anemia concentration of 2,3 DPG is:
 - a. Decreased
 - b. Increased
 - c. Increased or decreased
 - d. Not changed
5. Muscle spindle detects:
 - a. Tension
 - b. Length
 - c. Proprioception
 - d. Stretch
6. ATPase activity is present in:
 - a. Actin
 - b. Myosin
 - c. Troponin
 - d. None
7. Role of bile salts:
 - a. Vitamin B12 absorption
 - b. Formation of lipid bilayer
 - c. Emulsification of fat
 - d. Fatty acid degeneration
8. Liver synthesizes all, **except**:
 - a. C3 complement component
 - b. Haptoglobin
 - c. Fibrinogen
 - d. Immunoglobulin
9. Which of the following does **not** lie in renal medulla?
 - a. JG apparatus
 - b. Collecting duct
 - c. Vasa recta
 - d. Loop of Henle
10. Slowest conduction is in:
 - a. SA node
 - b. Purkinje fibre
 - c. AV node
 - d. Bundle of His
11. Surfactant acts by decreasing:
 - a. Pleural pressure
 - b. Intrathoracic pressure
 - c. Surface tension
 - d. Pleural fluid secretion
12. The normal CSF in man is:
 - a. 50 ml
 - b. 100 ml
 - c. 150 ml
 - d. 200 ml
13. Which of the following types of nerve fibre carry pain?
 - a. A-alpha
 - b. A-beta
 - c. A-gamma
 - d. A-delta
14. Which is a cerebellar nucleus?
 - a. Caudate
 - b. Subthalamic
 - c. Globus pallidus
 - d. Dentate

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B.Sc. MEDICAL TECHNOLOGY (RADIOGRAPHY & IMAGING)
FIRST YEAR EXAMINATION, NOVEMBER - 2019
RADIATION PHYSICS
PAPER - III

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagrams wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1. Which interaction is responsible for the absorption of X-rays into tissues? What are the parameters affect it? (3.5+3.5)
- Q. 2. Write short notes on: (3.5+3.5)
a. Piezoelectric effect
b. Compton scattering
- Q. 3. Discuss different ways of heat transfer. (7)
- Q. 4. Define: (3.5+3.5)
a. Half value layer and
b. Inverse square law
- Q. 5. Explain Faraday's laws of electromagnetic induction. (7)
- Q. 6. Write short notes on: (3.5+3.5)
a. Wave-particle duality
b. Mass-energy equivalence
- Q. 7. Define electric field and electric potential. What is the difference between them? (3.5+3.5)
- Q. 8. What is coherent scattering? On what factors it depends? (3.5+3.5)
- Q. 9. Define following quantities and write their respective units: (3.5+3.5)
a. Radiation dose equivalent
b. Activity

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B.Sc. MEDICAL TECHNOLOGY (RADIOGRAPHY & IMAGING)
FIRST YEAR EXAMINATION, NOVEMBER - 2019
RADIATION PHYSICS
PAPER - III
(MCQ)

Time allotted for MCQ - 15 minutes

(½ x 14 = 7)

B : MCQs (Single response type):

Select the most appropriate answer and **encircle** the alphabet against it.

1. Electric current is a:
 - a. Fundamental quantity
 - b. Derived quantity
 - c. Both
 - d. Neither
2. Which one is a radiological quantity?
 - a. Electric charge
 - b. Exposure
 - c. Force
 - d. Temperature
3. Which one of the following is a vector quantity?
 - a. Current
 - b. Work
 - c. Velocity
 - d. None of these
4. Which Newton's law is also called "Law of inertia"?
 - a. 1st law
 - b. 2nd law
 - c. 3rd law
 - d. None of these
5. What is the S. I. unit of temperature?
 - a. Degree Celsius
 - b. Degree Fahrenheit
 - c. Degree Kelvin
 - d. All of the above
6. By which process heat transfer in vacuum takes place?
 - a. Conduction
 - b. Convection
 - c. Radiation
 - d. None of these
7. What is the MKS unit of energy?
 - a. Calorie
 - b. Ergs
 - c. Newton
 - d. Joule
8. Which law governs the mutual interaction between electric charges?
 - a. Newton's law
 - b. Coulomb's law
 - c. Faraday's law
 - d. Ohm's law
9. Which of the following possess least resistance?
 - a. Conductors
 - b. Intrinsic semiconductors
 - c. Extrinsic semiconductors
 - d. Insulators
10. Ohm's law relates:
 - a. Force and acceleration
 - b. Electricity and magnetism
 - c. Power and current
 - d. Voltage and current
11. "The direction of induced current always opposes the cause that has produced it" is called:
 - a. Ampere's law
 - b. Bio-Savart law
 - c. Faraday's law
 - d. Lenz's law
12. "Rad" is the unit of:
 - a. Radiation exposure
 - b. Radiation dose
 - c. Radioactivity
 - d. Dose equivalent
13. In solids, the process of heat transfer is:
 - a. Conduction
 - b. Convection
 - c. Radiation
 - d. All of the above
14. A step-up transformer converts:
 - a. High voltage to low current
 - b. Low voltage to high voltage
 - c. Low current to high current
 - d. None of these

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**B.Sc. MEDICAL TECHNOLOGY (RADIOGRAPHY & IMAGING)
FIRST YEAR EXAMINATION, AUGUST - 2019
ANATOMY INCLUDING RADIOGRAPHIC ANATOMY
PAPER - I**

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagram wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1. Draw well labelled diagram of brachial plexus. Write a note on carpal tunnel syndrome.
- Q. 2. Draw well labelled diagram/flow chart of CSF circulation.
- Q. 3. Write a note on temporomandibular joint - type, bones forming joint, ligaments, movements & muscles producing these movements, applied.
- Q. 4. Write a note on sciatic nerve.
- Q. 5. Write a note on systemic circulation. Write difference between artery and vein.
- Q. 6. Draw a well labelled diagram of lymph node. Write a note on lymphatic drainage of uterus.
- Q. 7. Write a note on cubital fossa - location, boundaries, contents, applied.
- Q. 8. Write a note on thoracoabdominal diaphragm.
- Q. 9. Describe bronchopulmonary segments.

B.Sc. MEDICAL TECHNOLOGY (RADIOGRAPHY & IMAGING)
FIRST YEAR EXAMINATION, AUGUST - 2019
ANATOMY INCLUDING RADIOGRAPHIC ANATOMY
PAPER - I (MCQ)

Time allotted for MCQ - 15 minutes

B : MCQs (Single response type):

(½ x 14 = 7)

Select the most appropriate answer and encircle the alphabet against it.

1. Radial nerve injury causes:
 - a. Loss of abduction
 - b. Carpal tunnel syndrome
 - c. Claw hand
 - d. Wrist drop
2. Extension is:
 - a. Decreasing the joint angle
 - b. Increasing the joint angle
 - c. Carry away from midline
 - d. Carry towards the midline
3. Eversion and inversion movement occur at:
 - a. Ankle joint
 - b. Subtalar joint
 - c. Radioulnar joint
 - d. Thumb
4. An example of sesamoid bone is:
 - a. Radius
 - b. Pisiform
 - c. Maxilla
 - d. Occipital bone
5. Pancreas is:
 - a. Endocrine gland
 - b. Exocrine gland
 - c. Sweat gland
 - d. Both endocrine and exocrine gland
6. 7th cervical vertebra is used to:
 - a. Count lower vertebra
 - b. Count ribs
 - c. Palpate iliac crest
 - d. Palpate liver
7. Superior thyroid artery is branch of:
 - a. Internal carotid artery
 - b. External carotid artery
 - c. Lingual artery
 - d. None of the above
8. 4th cranial nerve is:
 - a. Facial nerve
 - b. Trigeminal nerve
 - c. Oculomotor nerve
 - d. Trochlear nerve
9. Wrist joint is:
 - a. Hinge joint
 - b. Ball and socket joint
 - c. Pivot joint
 - d. Ellipsoid joint
10. Unlocking is done by:
 - a. Popliteus muscle
 - b. Rectus femoris muscle
 - c. Sartorius muscle
 - d. Semitendinosus muscle
11. Dorsalis pedis artery is continuation of:
 - a. Femoral artery
 - b. Popliteal artery
 - c. Anterior tibial artery
 - d. Posterior tibial artery
12. Initiation (0-15 degree) of abduction is done by the:
 - a. Deltoid muscle
 - b. Supraspinatus muscle
 - c. Infraspinatus muscle
 - d. Biceps brachii muscle
13. Sigmoid colon is part of:
 - a. Small intestine
 - b. Large intestine
 - c. Urinary system
 - d. Genital system
14. Inferior mesenteric artery is a branch of:
 - a. Abdominal aorta
 - b. Thoracic aorta
 - c. Arch of aorta
 - d. Common carotid artery

B.Sc. MEDICAL TECHNOLOGY (RADIOGRAPHY & IMAGING)
FIRST YEAR EXAMINATION, AUGUST – 2019
PHYSIOLOGY & BIO-PHYSICS
PAPER - II

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagrams wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1. Describe hypothalmo-hypophysial axis. What are the hormones secreted from pituitary and what are the major functions they perform?
- Q. 2. Define cardiac cycle. Describe the properties of cardiac muscles. Why the heart muscle does not fatigue?
- Q. 3. Describe the methods of transport across cell membrane. Why is sodium potassium pump important to a cell?
- Q. 4. Describe the transport of O₂ from lung to tissue and CO₂ from tissue to lung. Enumerate the partial pressure of the gases in arterial and venous blood.
- Q. 5. Explain the formation of temporary haemostatic plug. Enumerate the differences between the intrinsic & extrinsic pathways.
- Q. 6. Define GFR and its normal value in adult. Discuss the factors affecting glomerular filtration rate.
- Q. 7. Discuss field defects due to lesion of visual pathway. What are the various errors of refraction and how are they corrected?
- Q. 8. Draw an illustrated diagram of a synapse and discuss the properties of synapse.
- Q. 9. Describe the functions of liver and discuss the digestion of carbohydrates in our body.

B.Sc. MEDICAL TECHNOLOGY (RADIOGRAPHY & IMAGING)
FIRST YEAR EXAMINATION, AUGUST - 2019
PHYSIOLOGY & BIO-PHYSICS
PAPER – II (MCQ)

Time allotted for MCQ - 15 minutes

B : MCQs (Single response type):

(½ x 14 = 7)

Select the most appropriate answer and **encircle** the alphabet against it.

1. ECG waves do **not** represent:
 - a. Atrial depolarization
 - b. Ventricular repolarization
 - c. Atrial repolarization
 - d. Ventricular depolarization
2. All are functions of kidney **except**:
 - a. Glycogen storage
 - b. Acid base balance
 - c. Water overload
 - d. Erythropoietin secretion
3. Blood capillaries in liver are:
 - a. Continuous
 - b. Fenestrated
 - c. Discontinuous
 - d. Non fenestrated
4. Immunoglobulin that can cross placenta:
 - a. IgG
 - b. IgM
 - c. IgA
 - d. IgE
5. Lack of Vitamin K causes deficiency of all **except**:
 - a. Prothrombin
 - b. Fibrinogen
 - c. Factor X
 - d. Factor VII
6. Cell membrane shows fluidity due to:
 - a. Phospholipid
 - b. Cholesterol
 - c. Glycoprotein
 - d. Glycolipid
7. True statement about juxtaglomerular apparatus of kidney is all **except**:
 - a. Source of renin
 - b. Source of angiotension
 - c. Consist of macula densa
 - d. Has JG cells
8. Net filtration pressure in normal kidney is **not** affected by:
 - a. Hydrostatic pressure in bowman space
 - b. Permeability of capillary
 - c. Oncotic pressure in bowman space
 - d. Oncotic pressure in capillary
9. All are functions of GIT **except**:
 - a. Provide immunity
 - b. Absorbs Ca^{2+}
 - c. Digest fibres
 - d. Secrete cholesterol
10. Posterior column tracts carry sensation of:
 - a. Fine touch
 - b. Crude touch
 - c. Temperature
 - d. Pain
11. Lipid digestion begins in:
 - a. Stomach
 - b. Duodenum
 - c. Mouth
 - d. Small intestine
12. Mean blood pressure is:
 - a. Same in each organ
 - b. 100 mmHg
 - c. Average of SBP and DBP
 - d. Difference of SBP and DBP
13. Na-K ATPase helps in maintenance of which of the following?
 - a. Intracellular pH
 - b. Cell volume
 - c. Low ECF Na
 - d. High ECF K
14. Hormone secreted by hypothalamus is:
 - a. PIH
 - b. ACTH
 - c. TSH
 - d. FSH

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Paper Code: BRIT103

B.Sc. MEDICAL TECHNOLOGY (RADIOGRAPHY & IMAGING)
FIRST YEAR EXAMINATION, AUGUST - 2019
RADIATION PHYSICS
PAPER - III

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagrams wherever necessary

(7 x 9 = 63)

A : Short answer questions:

- Q. 1. Define radioactivity. What is radioactive decay law?
- Q. 2. What is the difference between vectors and scalars? Give examples of each.
- Q. 3. Define the following units and mention what quantities they measure:
- a. Roentgen
 - b. Electron volt
- Q. 4. Derive an expression for parallel combination of resistances with the help of a suitable circuit diagram.
- Q. 5. What are the health effects of ionizing radiation? Give examples.
- Q. 6. Describe the wave nature of radiation and define the following:
- a. Velocity of a wave
 - b. Frequency of a wave
- Q. 7. Describe the working of transformer and write about different types of transformers.
- Q. 8. Write various ways of heat transfer. Define one calorie.
- Q. 9. Discuss about various types of interactions of x-rays with matter.

B.Sc. MEDICAL TECHNOLOGY (RADIOGRAPHY & IMAGING)
FIRST YEAR EXAMINATION, AUGUST - 2019
RADIATION PHYSICS
PAPER - III (MCQ)

Time allotted for MCQ - 15 minutes

B : MCQs (Single response type):

(½ x 14 = 7)

Select the most appropriate answer and encircle the alphabet against it.

1. Radiation absorption is due to:
 - a. Photoelectric effect
 - b. Compton effect
 - c. Pair production
 - d. Photodisintegration
2. Which atomic shell has highest binding energy?
 - a. K
 - b. L
 - c. M
 - d. N
3. A radionuclide emits:
 - a. X-rays
 - b. Gamma rays
 - c. Microwaves
 - d. Ultraviolet rays
4. Suitable target in X-ray tube is:
 - a. Aluminum
 - b. Copper
 - c. Barium
 - d. Lead
5. In gases, the process of heat transfer is:
 - a. Conduction
 - b. Convection
 - c. Radiation
 - d. All of the above
6. Which one is a vector quantity?
 - a. Force
 - b. Current
 - c. Charge
 - d. Exposure
7. Unit of 'radiation dose' is:
 - a. Sievert
 - b. Ergs
 - c. Gray
 - d. Watt
8. Interaction between two charges is governed by:
 - a. Coulomb's law
 - b. Bio-Savart law
 - c. Faraday's law
 - d. Ampere's law
9. Ohm's does not obey for:
 - a. Conductors
 - b. Insulators
 - c. Superconductors
 - d. All of them
10. Transformer works for:
 - a. AC
 - b. DC
 - c. Both a and b
 - d. None of the above
11. Which law gives the magnetic field due to a current carrying conductor?
 - a. Faraday's law
 - b. Ohm's law
 - c. Bio-Savart law
 - d. Lenz's law
12. The quantity based on 'DOT' product of vectors is:
 - a. Force
 - b. Work
 - c. Charge
 - d. Torque
13. Number of frequencies in visible spectrum:
 - a. Five
 - b. One
 - c. Seven
 - d. Ten
14. Which one of the following is ionizing radiation?
 - a. X-ray
 - b. Microwave
 - c. Light
 - d. Heat

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Paper Code: BRIT104

**B.Sc. MEDICAL TECHNOLOGY (RADIOGRAPHY & IMAGING)
FIRST YEAR EXAMINATION, AUGUST - 2019
HOSPITAL ADMINISTRATION & PATIENT CARE
PAPER - IV**

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagrams wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1. What are the guidelines for the prescription of x-ray examination?
- Q. 2. What are the guidelines for radiological investigation of pregnant women?
- Q. 3. What are the guidelines for carrying out x-ray examination?
- Q. 4. What are the types of contrast media used in radiological examination?
- Q. 5. What is the treatment of contrast-media adverse reaction?
- Q. 6. What is the use of contrast agent in computed tomography?
- Q. 7. What are the 4 densities found in x-ray image?
- Q. 8. What are the precautions taken in operation theatre?
- Q. 9. Define the use of TLD badge.

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**B.Sc. MEDICAL TECHNOLOGY (RADIOGRAPHY & IMAGING)
FIRST YEAR EXAMINATION, AUGUST - 2019
HOSPITAL ADMINISTRATION & PATIENT CARE
PAPER - IV**

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagrams wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1. What are the guidelines for the prescription of x-ray examination?
- Q. 2. What are the guidelines for radiological investigation of pregnant women?
- Q. 3. What are the guidelines for carrying out x-ray examination?
- Q. 4. What are the types of contrast media used in radiological examination?
- Q. 5. What is the treatment of contrast-media adverse reaction?
- Q. 6. What is the use of contrast agent in computed tomography?
- Q. 7. What are the 4 densities found in x-ray image?
- Q. 8. What are the precautions taken in operation theatre?
- Q. 9. Define the use of TLD badge.

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B.Sc. MEDICAL TECHNOLOGY (RADIOGRAPHY & IMAGING)

FIRST YEAR EXAMINATION, AUGUST – 2019

HOSPITAL ADMINISTRATION & PATIENT CARE

PAPER - IV (MCQ)

Time allotted for MCQ - 15 minutes

B : MCQs (Single response type):

(½ x 14 = 7)

Select the most appropriate answer and **encircle** the alphabet against it.

1. Drugs which reduce cardiac excitability?
 - a. Avil
 - b. Heparine
 - c. Propanalal
 - d. Multihance
2. Radiographer in a contaminated state should try to handle cassette:
 - a. Frequently
 - b. Minimally
 - c. Should not touch
 - d. At corner
3. Lead apron should be check for any crack by:
 - a. Open and see
 - b. X-ray
 - c. Fluoroscopically
 - d. Sunlight
4. Drugs which is used to raise the blood pressure and increase cardiac output?
 - a. Hydrocortisone
 - b. Adrenaline (1 in 1000)
 - c. Adrenaline (1 in 10)
 - d. Urograffin
5. What is the oral cholecystographic agent?
 - a. Telepaque
 - b. Gastrograffin
 - c. Iodine
 - d. Omnipaque
6. When are purgatives contraindicated?
 - a. Patient has colostomy
 - b. Asthma
 - c. Diabetic patient
 - d. Hypertension
7. Waist apron is used to cover the:
 - a. Thyroid
 - b. Gonad
 - c. Lower back
 - d. Chest
8. Trauma patient must be given priority over other OPD patient:
 - a. Yes
 - b. No
 - c. Maybe
9. Gonad shield is used to:
 - a. Protect radiation
 - b. Protect cassette
 - c. Protect radiographer
 - d. Darkroom
10. A female patient of reproductive age with the LMP on 5th October, what is the safe period for X-ray examination:
 - a. 15th October
 - b. 5st November
 - c. 12nd October
 - d. 10th October
11. Ionizing radiation are known to alter:
 - a. Blood
 - b. Chromosomes
 - c. Bone
 - d. Lymph node
12. Sterile forceps for use in removing article from a sterilizer is known as:
 - a. Jar
 - b. Autoclaves
 - c. Cheatle
 - d. Adaptor
13. Non-ionic contrast is used in all **except**:
 - a. Ultrasound
 - b. MCU
 - c. MRI
 - d. CT
14. Baso4 can be given IV as a contrast media:
 - a. Yes
 - b. No
 - c. Maybe

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**B.Sc. MEDICAL TECHNOLOGY (RADIOGRAPHY & IMAGING)
FIRST YEAR EXAMINATION, SEPTEMBER - 2020
ANATOMY INCLUDING RADIOGRAPHIC ANATOMY
PAPER - I**

[Time allotted: Two Hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagram wherever necessary

A: Short answer questions:

(06 x 10 = 60)

- Q. 1.** Draw a well labelled diagram of synovial joint. Write a note on classification of synovial joint with one example of each.
- Q. 2.** Write a note on axillary lymph node. Write a note on lymphatic drainage of breast.
- Q. 3.** Write a note on bronchopulmonary segments with their applied aspects.
- Q. 4.** Discuss appendix under following heading: Situation, different position, blood supply, nerve supply and applied aspect.
- Q. 5.** Discuss popliteal fossa under heading of: Boundaries, contents and applied aspect.
- Q. 6.** Describe deltoid muscle under origin, insertion, nerve supply, action and its applied aspects.

B.Sc. MEDICAL TECHNOLOGY (RADIOGRAPHY & IMAGING)
FIRST YEAR EXAMINATION, SEPTEMBER - 2020
ANATOMY INCLUDING RADIOGRAPHIC ANATOMY
PAPER - I
(MCQ)

Time allotted for MCQ - 15 minutes

B: MCQs (Single response type):

(01 x 10 = 10)

Select the most appropriate answer and **encircle** the alphabet against it

1. Most important factor for stability of joint:
 - a. Fibrous capsule
 - b. Ligaments
 - c. Atmospheric pressure
 - d. Muscles
2. Smallest carpal bone is:
 - a. Lunate
 - b. Capitate
 - c. Pisiform
 - d. Scaphoid
3. Axillary nerve is a branch of:
 - a. Lateral cord
 - b. Medial cord
 - c. Posterior cord
 - d. Direct branch from root
4. Typical ribs are:
 - a. 2nd to 10th
 - b. 2nd to 9th
 - c. 3rd to 9th
 - d. 3rd to 10th
5. Apex of heart is formed by:
 - a. Left ventricle
 - b. Left atrium
 - c. Left auricle
 - d. Right auricle
6. All are part of small intestine **except**:
 - a. Duodenum
 - b. Jejunum
 - c. Ileum
 - d. Caecum
7. Superior mesenteric artery arises from:
 - a. Thoracic aorta
 - b. Abdominal aorta
 - c. Ascending aorta
 - d. Common carotid artery
8. Ovary:
 - a. Is a male gonad
 - b. Is a female gonad
 - c. Produces sperm
 - d. Lies in male pelvis
9. Great saphenous vein drains into:
 - a. Femoral vein
 - b. Popliteal vein
 - c. Superior vena cava
 - d. Portal vein
10. Buccinator is supplied by:
 - a. Ophthalmic nerve
 - b. Maxillary nerve
 - c. Mandibular nerve
 - d. Facial nerve

B.Sc. MEDICAL TECHNOLOGY (RADIOGRAPHY & IMAGING)
FIRST YEAR EXAMINATION, SEPTEMBER - 2020
PHYSIOLOGY & BIO-PHYSICS
PAPER - II

[Time allotted: Two Hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagrams wherever necessary

A : Short answer questions:

(06 x 10 = 60)

- Q. 1.** Enlist the properties of a neuron. Define action-potential & draw a labelled diagram showing the various phases of action-potential of a neuron.
- Q. 2.** Define cardiac cycle and enlist the mechanical events of cardiac cycle with normal durations. Draw a labelled diagram of normal ECG showing different waves and reason for each waveform.
- Q. 3.** Define and explain various lung volumes and capacities with a labelled diagram.
- Q. 4.** Enlist the functions of stomach. Give the composition and functions of gastric juice.
- Q. 5.** Write briefly on functions of kidney. Compare and contrast cortical and juxta-medullary nephrons.
- Q. 6.** Draw and describe the various descending tracts. Differentiate between upper and lower motor neuron lesions.

B.Sc. MEDICAL TECHNOLOGY (RADIOGRAPHY & IMAGING)
FIRST YEAR EXAMINATION, SEPTEMBER - 2020
PHYSIOLOGY & BIO-PHYSICS
PAPER - II
(MCQ)

Time allotted for MCQ - 15 minutes

B: MCQs (Single response type):

(01 x 10 = 10)

Select the most appropriate answer and encircle the alphabet against it.

1. The cells involved in cell-mediated immunity are:
 - a. Eosinophils
 - b. B-lymphocytes
 - c. Monocytes
 - d. T-lymphocytes
2. The properties of action potential of a neuron include all **except**:
 - a. All or none law
 - b. Accommodation
 - c. Automaticity
 - d. Refractory period
3. The calcium ion binding protein in skeletal muscle involved in muscle contraction is:
 - a. Actin
 - b. Myosin
 - c. Tropomyosin
 - d. Troponin
4. The juxtaglomerular apparatus includes all **except**:
 - a. Afferent arteriole
 - b. Efferent arteriole
 - c. Macula densa
 - d. Proximal convoluted tubule
5. The potential generated at the synapse include mainly:
 - a. Excitatory post synaptic potential
 - b. Inhibitory post synaptic potential
 - c. Both excitatory and inhibitory post synaptic potential
 - d. End plate potential
6. Increased sympathetic activity during exercise leads to:
 - a. Decreased cardiac output
 - b. Increased cardiac output
 - c. Decreased systolic blood pressure
 - d. Increased intestinal secretions
7. The first heart sound in cardiac cycle is due to:
 - a. Closure of atrio-ventricular valves
 - b. Opening of atrio-ventricular valves
 - c. Closure of semi-lunar valves
 - d. Opening of semi-lunar valves
8. The amount of air breathed out forcefully following maximal inspiration is called:
 - a. Expiratory capacity
 - b. Inspiratory capacity
 - c. Total lung capacity
 - d. Vital capacity
9. Excessive vomiting and diarrhoea in an individual results in _____ shock.
 - a. Anaphylactic
 - b. Cardiogenic
 - c. Hypovolemic
 - d. Septicemic
10. Congestive cardiac failure leads to _____ hypoxia.
 - a. Anemic
 - b. Hypoxic
 - c. Histotoxic
 - d. Stagnant

Regn. No. DD.....

Paper Code: BRIT103

B.Sc. MEDICAL TECHNOLOGY (RADIOGRAPHY & IMAGING)
FIRST YEAR EXAMINATION, SEPTEMBER - 2020
RADIATION PHYSICS
PAPER - III

[Time allotted: Two Hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagrams wherever necessary

A: Short answer questions:

(06 x 10 = 60)

- Q. 1. Discuss briefly how X-rays interact with matter in diagnostic ranges energies.
- Q. 2. Discuss Faraday's laws of electromagnetic induction. What does Lenz's law indicate?
- Q. 3. Discuss quantum theory of radiation. Also define wave-particle duality.
- Q. 4. Write short notes on:
 - a. Conservation of energy
 - b. Bio-Savart law
- Q. 5. Discuss the biological effects of ionizing radiation.
- Q. 6. Discuss the concept of potential difference. Define electron volt (eV).

B.Sc. MEDICAL TECHNOLOGY (RADIOGRAPHY & IMAGING)
FIRST YEAR EXAMINATION, SEPTEMBER - 2020
RADIATION PHYSICS
PAPER - III
(MCQ)

Time allotted for MCQ - 15 minutes

B: MCQs (Single response type):

(01 x 10 = 10)

Select the most appropriate answer and **encircle** the alphabet against it

1. Production of alternating current is based on:
 - a. Faraday's law
 - b. Ampere's law
 - c. Ohm's law
 - d. None of the above
2. Maximum displacement of an alternating wave is called:
 - a. Wavelength
 - b. Amplitude
 - c. Phase
 - d. Frequency
3. Which one is a radiological quantity?
 - a. Electric charge
 - b. Exposure
 - c. Force
 - d. Temperature
4. A step-up transformer converts:
 - a. High voltage to low voltage
 - b. Low voltage to high voltage
 - c. Low current to high current
 - d. None of these
5. A rectifier converts:
 - a. Low voltage to high voltage
 - b. Series circuit to parallel circuit
 - c. Magnetism to electricity
 - d. Alternating current to direct current
6. Unit of radioactivity is:
 - a. Curie
 - b. Electron volt
 - c. Hertz
 - d. Ampere
7. "Calorie" is a unit of:
 - a. Temperature
 - b. Heat
 - c. Specific heat
 - d. Charge
8. "Weight" is a:
 - a. Force
 - b. Momentum
 - c. Power
 - d. Energy
9. Which one is **not** a vector quantity?
 - a. Momentum
 - b. Force
 - c. Work
 - d. Displacement
10. Which law is **not** a universal law?
 - a. Ohm's law
 - b. Newton's law of gravitation
 - c. Faraday's law of induction
 - d. All of the above laws

Regn. No. DD.....

Paper Code: BRIT104

**B.Sc. MEDICAL TECHNOLOGY (RADIOGRAPHY & IMAGING)
FIRST YEAR EXAMINATION, SEPTEMBER – 2020
HOSPITAL ADMINISTRATION & PATIENT CARE
PAPER - IV**

[Time allotted: Two Hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagrams wherever necessary

A : Short answer questions:

(06 x 10 = 60)

- Q. 1.** Write a note on radiation hazards and safety measures.
- Q. 2.** Write briefly the difference between grids and filters used in radiography.
- Q. 3.** What are the ratings of dark room safe light?
- Q. 4.** What is the importance of radiography positioning?
- Q. 5.** Write in detail about X-ray film storage.
- Q. 6.** What are the properties of X-rays.

B.Sc. MEDICAL TECHNOLOGY (RADIOGRAPHY & IMAGING)
FIRST YEAR EXAMINATION, SEPTEMBER – 2020
HOSPITAL ADMINISTRATION & PATIENT CARE
PAPER - IV
(MCQ)

Time allotted for MCQ - 15 minutes

B: MCQs (Single response type):

(01 x 10 = 10)

Select the most appropriate answer and **encircle** the alphabet against it-

1. How many ribs should be seen in chest PA View?
 a. 08
 b. 09
 c. 10
 d. 11
2. Why should the shoulder be rotated forward in a PA chest?
 a. To clear clavicles
 b. To clear the scapulae
 c. To magnify the image
 d. To minify the image
3. Lead apron should be checked for any crack by:
 a. Open and see
 b. X-ray
 c. Fluoroscopically
 d. Sunlight
4. Drug which is used to raise the blood pressure and increase cardiac output:
 a. Hydrocortisone
 b. Adrenaline (1 in 1000)
 c. Adrenaline (1 in 10)
 d. Urografin
5. What is the oral contrast agent in CT scan?
 a. Telepaque
 b. Barium sulphate powder
 c. Iodine
 d. Omniscan
6. The purgatives are contraindicated when the patient has:
 a. Colostomy
 b. Asthma
 c. Diabetes
 d. Hypertension
7. Waist apron is used to cover the:
 a. Thyroid
 b. Gonads
 c. Chest
 d. Lower back
8. Infectious patient must be given priority over other OPD patients.
 a. Yes
 b. No
 c. Both of the above
 d. None of the above
9. Gonad shield is used:
 a. To protect radiation
 b. To protect cassette
 c. To protect radiographer
 d. In the darkroom
10. A female patient is of reproductive age with LMP on 15th October. What is the safe date for an x-ray examination?
 a. 5th October
 b. 1st November
 c. 22nd October
 d. 10th October