UNIVERSITY OF JAMMU

(NAAC ACCREDITED A++ GRADE UNIVERSITY)
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NOTIFICATION
(25/March/Adp/92)

It is hereby notified for the information of all concerned that the Vice-Chancellor, in anticipation of the approval of the Competent Bodies, has been pleased to authorize the adoption of the revised syllabi **of Bachelor of Science in Radiography Technology** (as given in the annexure) for the examinations to be held in the year as indicated below:

Programme	Year	Title	Course No	Examination to be held in the year
B.Sc Radiography	**Second**	Physics of Radiology Radiation Physics & Medical Physics	BRT-201	2025, 2026 and 2027
		Radiographic Technique I	BRT-202	2025, 2026 and 2027
		Radiographic Photography and Image Processing	BRT-203	2025, 2026 and 2027
	Third	Diagnostic Imaging Technique	BRT-301	2025, 2026 and 2027
		Radiographic Techniques II	BRT-302	2025, 2026 and 2027

Note: The Syllabi of the courses is available on the University Website: **www.jammuuniversity.ac.in**

DEAN ACADEMIC AFFAIRS

No. F.Acd/III/25/19285-296
Dated:26/03/2025
Copy for information & necessary action to:-

1. Principal / Dean Faculty of Medical Science.
2. Sr. P.A to the Controller of Examinations.
3. Dr. Rachna Sabharwal, Coordinator, B.Sc. Paramedical courses, GMC, Jammu.
4. All Members of the Board of Studies in Nursing.
5. Principals of all concerned Colleges.
6. Joint Registrar / Deputy Registrar (Exams Prof./Eval. Prof./ Confidential / Registration)
7. [illegible] University Website for Uploading of the same in the University website.

Annexure

Third Year Annual Examination to be held in the year 2025,2026,2027
CLASS: B.Sc Radiography 2nd year
COURSE TITLE: Physics of Radiology
COURSE CODE: BRT201
DURATION OF EXAMINATION: 3 HOURS

B.Sc Radiography II Year

Theory: 100 Hrs

Practical: Nil

SECTION-A PHYSICS OF RADIOLOGY

1. **Electromagnetic Radiation, Atomic structure and Radioactivity:**

Electromagnetic Waves &Their Properties, Inverse Square Law, The Quantum Theory Of Radiation (Planck's Concept of Quanta. Photon And Its Characteristic Properties),The Electromagnetic Spectrum, Spectrum of White Light, Spectra:- Emission Spectra-Continuous, Line &Band Spectra, Absorption Spectra, Fluorescence and Phosphorescence, Photoelectric Emission, Photocell, Intensity& Quality of Electromagnetic Radiation.

The Structure of the Atom Nucleus, Atomic Number (Z), Mass Number(A), Iodization& Excitation, Isotopes.

Radioactivity, Properties of Alpha, Beta, Gamma Radiation, Radioactive Decay (Radioactive Disintegration Law), Decay Constant, Half-Life, Units of Radioactivity, Artificial Radioactivity or Induced Radioactivity (Production of Artificial Radioactive Isotopes), The uses of Radioactive Nuclides in Medicine.

2. **Fundamental of Electricity (Basic of Electronics):**

Electric Charges & Units of Electric Charge, Coulombs Law, Electric Induction, Electric Potential & Potential Difference, Capacitance& Capacitors, Resistance.

Conductors, Insulators and semiconductors electric current.

The Magnetic Effects of An Electric Current (Electromagnetism), Electromagnetic Induction, Mutual Induction & Self Induction.

Alternating Current, The A.C. Transformer Theory , Construction, Types of Transformers Its Practical Aspects, Transformer Losses And Regulation& Rating, Types of Transformers used in X-ray Equipment.

Thermionic Emission, The Vacuum Diode, Variation of Anode Current with Anode Voltage and Filament Temperature in the Vaccum Diode , The effects of Gas in the Diode, The Thermionic Gas Diode, Meaning of Rectification (Full Wave& Half Wave Rectification).

Principles of Semiconductors, P-N Junction Diode, High Voltage Rectifier Circuits (Self Rectifying Circuit, Half- Wave Pulsating Voltage Circuit, Full-Wave Pulsating Voltage Circuits, Shock- Proofing,

3. X-Rays:

Conductivity of Electricity through gases at low pressure, Cathode Rays- Production & properties. Sources of electros (Discharge through gases, Thermionic Emission & Photo Electric Emission), Discovery of an Electron, Concept of Electron, Concept of Electron Volt.

Discovery of X-rays, production & properties of X-rays,

Factors influencing the intensity & quality of X-rays,

Construction and working of modern X-ray Tube (Fixed Anode & Rotatory Anode Tubes),The Spectrum of Radiation from an X-ray tube (continuous spectrum and line or characteristics spectrum), factors upon which the x ray emission depends. Soft and hard X-rays, distribution of X-rays in space, the diagnostic X-ray tubes (Inserts and Shields), Filament Design, Anode Design (Fixed and Rotatory), Metods of cooling, Basic X-ray Circuit.

Basic Interactions Between X-rays and Matter> Coherent Scattering, Photoelectric Effect, Compton Scattering, Pair Production & Photodisintegration, Attenuation and Absorption, Reduction in intensity due to absorption and attenuation and the inverse square law (Exponential Formula), Filtration, Attenuation Coefficients and half value layer, energy absorbed from X-rays,

factors affecting transmission of a homogenous beam through an object (Geometry, Thickness, Wavelength of Beam, Composition of an objects), Transmission of a heterogenous X-ray Beam, Transmission of X-ray through body tissues: Relative Amount of Scattered Radiation in an X-ray beam during its passage through a patient. The practical aspects of X-ray absorption and transmission in body tissues.

The physics of the radiograph. The basic of the X-ray measurements. The units of Exposure and absorbed dose. Simple principles of dosimeters. The Fluorescent Effect Of X-rays. The Photographic Film as a dosimeter, X-ray Quality Specification and measurement, Kilovoltage Peak, Half Value Thickness. Routine Methods Of Checking Quality.

4. Radiation Quantities & Units:

Interaction Quantities (Inetraction Cross Section, Linear Attenuation Coefficient, Mass Attenuation Coefficient, Stopping Power, Linear Energy Transfer.

Dosimeteric Quantities (Mean Energy Imparted, The Specific Energy, Exposure & Exposure Rate, Absorbed Dose and Absorbed Dose Rate, Concept of Karma.

Protection Quantities (Dose Equivalent & Effective Dose Equivalent).

SECTION B: RADIATION PHYSICS

1. Principles of Radiation Detection and Measurement:

Thermoluminescent Dosimeters (TLD). Reasons for Choice of Air ionization. Roentgen and Rad. Simple Principles of Dosimeters.

2. Biological Effects Of Radiation:

Chemical Effects Of Radiation- Radiolysis Of Water: Production Of Free Radicals, Radical Reactions, G Value. Effects Non Stochastic Effects, Chromosome Aberrations And Mutations. Radiation Effects On Whole Body (Early Effects and Late Effects). Concept of Doubling Dose.

3. Radiation Protection:

Philosophy of Radiation Protection- Historical Development, Maximum Permissible Exposure Concept; Annual Dose Equivalent Limits (ADEL)

ALARA Concept ; International Recommendations and current code of practice for the protections of persons against ionizing radiation's from Medical and Dental Use.

4. Protective Materials:

Lead, Lead- Impregnated Substances, Building Materials, Concept of Barriers, Lead Equivalents and variations with quality. Design of X-ray tubes related to protection. Structural Shielding Design (Work- load, Use factor, Occupancy Factor, Distance)

Departmental Protection. Radiation Protection of Staff Members, Patients and public Protection Instruments and Personnel and area monitoring.

- AERB

- BARC

SECTION B: MEDICAL PHYSICS

1. Diagnostic High Tension Circuits:

Self Rectified, Half-Wave, Full- Wave Rectification, 3 Phase, Capacitor Discharge, Constant Potential,

Switching And Timing:

Exposure Timers, Electronic, Auto Timers, Exposure Switching

2. X-ray Tubes:

Rotating Anode X-ray tubes, design, rating, and use of rating charts, care of the X-ray tubes; inherent filteration and additional filteration; practical considerations in the choice of focus, speed of anode rotation; angle of anode inclination. Grid- Contrilled X-ray Tube.

3. Control of Scattered Radiations:

Cones, Tube Diaphagrams, Single and Multileaf Grids, Structure and materials; grid ratio and lines/cm. Parallel and focused grids, stationary grids, crossed hatched grids, gridded cassettes, grid movements, potter- bucky diaphragms, bucky factors; light beam collimators.

4. Equipments:

I. Fluoroscopy and Image Intensifiers:

Direct Fluoroscopy, Fluoroscopy Image, Fluoroscopic Screen, Radiation Protection Including Integrating Timer Tilling Tables Principles and construction of Image Intensifiers, Recording the Intensified Image, Methods of viewing the Intensified Image.

II. Equipment for Special Procedures:

Portable and Mobile X-ray units, Cordless Mobile X-ray Equipment, Equipments for O.T. Bi- Plane Radiography,

Mammography, Mass- Miniature Radiography, Tomography, Magnification Radiography, Subtraction Radiography.

III. Care and Maintenance of X-ray Equipment:

General Principles of cleaning Routines, General Care in use and special care of mobile equipments, simple test. Uses of Spinning Top and Step Wedge, Procedure for obtaining radiograph of the focal area. Use of mA and Timer Wisconsin Test Tool, Test of Kilo Voltage, Use of Focal Spot Test Tool, Testing Light Beam Diaphgram, Failures of X-ray Tubes and Ht cables.

SCHEME OF EXAMINATION:

Theory:

There shall be one theory paper of three hours duration carrying 80 marks. Distribution of type of questions and marks for Physics of Radiology shall be given under.

TYPE OF QUESTION	NUMBER OF QUESTIONS	MARKS	SUB TOTAL
Long Essay (LE)	4 (To attempt 2) Section- A – 2 to answer 1 Section- B- 2 to answer 1	2 x 10	20
Short Essay (SE)	8 (To attempt 6) Section- A – 4 to answer 3 Section- B- 4 to answer 3	6 x 5	30
Short Answer (SA)	12 (To attempt 10) Section- A – 6 to answer 5 Section- B- 6 to answer 5	10 x 3	30
TOTAL MARKS			80

B.Sc RADIOGRAPHY

Theory: 100 Hrs

Practical: 540 Hrs

Theory :

1. **Principles of Radiography:**

Preparation of the room, apparatus and instruments

Positions of the Patient: Erect, Sitting, Supine, Prone, Lateral, Oblique, Decubilus Etc.

Relative Position of X-ray tube and patient, relevant exposure factors. Use of Accessories such as Radiographic Cones, Grid and Positioning Aids

Anatomic and Physiological Basis of the procedure, Radiographic Appearances, Both normal and common abnormal conditions where elementary knowledge of the pathology involved will ensure the application of the appropriate Radiographic Technique. Modifications in Technique for various disabilities and types of subject.

Radiation Protection, use of Gonad Shield, Practical Methods reducing Radiation Dose to the patient.

2. **Upper Limb:**

Routine Protections for the whole hand, fingers, wrist joint, forearm, elbow joint and humerus.

Supplementary Projection for the scaphoid, carpal tunnel, ball catchers projections, head of the radius, Supracondylar Fracture and Olecranon Process.

3. **Lower Limb:**

Routine Projections for the whole foot, toes, calcaneum, ankle joint, leg, knee-joint, patella and femurs.

Supplementary Projection for Talo-calcaneal joint, flat feet, club feet, axial projection for patella.

4. **Shoulder Girdle and Thorax:**

Routine Projections for the Shoulder Joint, Scapula Acromio-Clavicular Joint, Clavicle, Sternoclavicular Joint, Sternum and Ribs.

Supplementary Projections for the Axial Projection of Clavicle.

5. **Pelvic Girdle and Hip Region:**

Routine Projections for the Whole Pelvis, Sacro-iliac Joints, Hip Joint and Neck of Femur.

Supplementary Projections for the Greater and Lesser Trochanters of femur. Frog Leg

Projection, Congenital Dislocation of Hip.

6. Vertebral Column:

Routine Projections for Allanto Occipital Joint, Cervical Spine, Cervico Thoracic Junction,

Thoracic Spine, Lumbar Spine, Lumbo Sacral Region, Sacrum and Coccyx.

Supplementary Projections for the intervertebral foramina, Flexion and Extension of Cervical Spine, Scoliosis and Kyphosis.

7. Skeletal Survey:

Skeletal Survey for Metabolic Bone Diseases, Metastases, Hormonal Disorders, Renal Disorders.

8. Skull:

Routine Projections for cranium and facial Bones.

Supplementary Projections for trauma, towne's method, sella turcica, temporal bones, mastoids, petrous bone, orbits, maxillae, nasal bones, mandible, temporomandibular joints.

9. Nasal Sinuses:

X-ray Paranasal Sinuses (Water's View)

Techniques for frontal, maxillary, ethmoidal and sphenoid sinuses, erect and horizontal projections for fluid levels.

10. Teeth:

- Routine Projections of all Teeth.
- OPG

11. Chest:

Routine Projections for lungs, Cardia and Diaphragm.

Supplementary Projections for opaque, swallow, thoracic Inlet, soft tissue neck, decubilus, Apicugram, Paediatric cases, Lordotic view.

12. Abdomen:

KUB, Erect Abdomen and Decubilus Projection, Supplementary Projections for Acute Abdomen.

Third Year Annual Examination to be held in the year 2025,2026,2027
CLASS: B.Sc Radiography 2nd year
COURSE TITLE: Radiographic Techniques I
COURSE CODE: BRT202
DURATION OF EXAMINATION: 3 HOURS

PRACTICAL RADIOGRAPHIC TECHNIQUES I

Radiography – Plain Views of Upper Limb: Hands

Fingers

Thumb

Wrists

Forearm

Elbow

Humerus

Radiography – Plain Views of Shoulder:

Shoulder Joint

Acromio-clavicular Joint

Scapula Various Views and Projections

Clavicle

Sterno- Clavicular Joint

Radiography- Plain views of Lower Limb:

Foot

Toes

Tarsus and Ossicles

Ankle

Tibia, Fibula and Patella

Knee Joint

Femur

Hip Joint

Pelvis and Sacro-Iliac Joint

Radiography of Vertebrae:

Cervical Spine

Thoraco Lumbar

Lumbo-Sacral

Sacrum and Coccyx

Ribs

Sternum

Radiography of Skull Plain Views:

AP, Lateral and Towne's

Sinuses, Mandible

Teeth, Mastoids.

Radiography of Chest:

Lungs and Trachea; Heart Diaphragm

Radiography of G.I Tract

Plain X-rays Abdomen-Erect; liver, Spleen.

Scheme of examination:

Examination will be conducted in third year only.

B.Sc RADIOGRAPHY

Theory: 100 Hrs

Practical: 240 Hrs

1. **Dark Room Planning**

For a small Hospital, for a Large Hospital

Location of Dark Room

Construction of Dark Room

Ventilation

Wall Protection

Entrance to dark room – Single Door, Double Door, Labyrinth

2. **Dark Room:**

Instruction to staff

Dry Bench

Hopper, Drawer, Cupboard

Loading and Unloading Cassettes

Hangers

Printing

Wet Bench

Cleanliness, Control of Dust, Dark Room Sink

Hatches

Drier

Safe Lights, Direct and Indirect, Uses, Factors affecting Safelight Performance, Safelight Tests Viewing Room, Film Dispensing

3. **X-ray Films:**

Glass, Cellulose and Polyester Bases

Structure of X-ray films – emulsion, gelatin, base and supercoating

Types of X-ray Films

Single Coated, Double Coated

Spectral Sensitivity

Colour Sensitivity

Graininess of Films

Speed of Films

Screen and Non Screen Films

Various Formats of Films

Films for Special Procedures

Storage of film material and radiographs

Record of film stock and radiographs

Deterioration of films on storage

Characteristics Curves- Uses of Step Wedge

Information on Basic Fog. Film Gamma, Contrast, Speed, Film Latitude, effects on development

4. Intensifying Screens:

Fluorescence- Phosphors

Phosphors Employed - Calcium Tungstate
- Barium Fluoro chloride
- Rare Earths Screens

Construction of Intensifying screens

The influence of kilovoltage in different phosphors

Intensifying Factor

Resolving Power of Intensifying Screens

Speed of Screens

Screen Film Contact Tests

Types of Intensifying Screens

Advantages and Limitations of Intensifying Screens

5. X-ray Cassette:

Construction of X-ray Cassettes

Types of Cassettes

Mounting Intensifying screens on cassettes

Identification of cassettes

Care of cassettes

6. Photochemistry:

Chemistry of Image Formation

Formation of Latent Image

Conversion of Latent Image to visible Image

Meaning of PH

Importance of PH in processing films

Automatic Processor – Principles and features, water supply, use of thermostat, regeneration of solutions, maintenance, advantage and limitations.

- Digital Radiography – Principles, Processing, Equipments, Advantages
- Radiological Information Systems
- PACS
- AI in Radiology

7. The Radiographic Image:

The Emergent Beam related to densities on film contrast

Objective and Subjective

Ling Scale and Short Scale

Radiation contrast, film contrast and Radiographic Contrast

Density

Sharpness

Sources of Unsharpness

Avoiding Different Unsharpness

8. Resolution:

Factors affecting resolution choice of kilovoltage and Miliamperage, choice of short focus and broad focus, selection of focus to film distance and object to film distance, selection of cassettes.

Avoiding scatter radiation, magnification, distortion, penumbra presentation of a Radiograph-identification markers.

9. Developer:

Constituents

Characteristic

Manual and Automatic Processors

Effects on developing time, temperature, agitation

Replenisher

Exhaustion

10. Rinsing:

Acid Stop-Bath

Methods

Objects

11. Fixer:

Constituents

Characteristics

Manual and Automatic Processors

Fixing Time and Clearing Time

Factors affecting Fixing Time

Replenisher, Exhaustion

12. Washing and Drying:

Objects

Methods

Factors affecting Washing and Drying

Wetting Agents

Comparison of Different Methods

13. Day Light Film Handling:

Day Light System using Cassettes

Day Light System without Cassettes

14. Film Faults:

Fog – Various fogging in films, causes and prevention

Stains – types, causes and prevention

Spots and splashes – Types, causes and prevention

Marks and prints – Types, causes and prevention

Drying marks – types, causes and prevention

Faults in automatic processor – types, causes

15. Reproduction of Radiographs:

Copying Radiographs

Magnification

Contact Prints

Types of Paper

Equipment

Dry Film Thermal and Laser Printers

16. Recent advances in Radiography:

Computed Radiography

Digital Radiography

PACS

RIS

Artificial Intelligence

SCHEME OF EXAMINATION:

Theory:

There shall be one theory paper of three hours duration carrying 60 marks. Distribution of type of questions and marks for Radiographic Photography and Image Processing shall be given under.

TYPE OF QUESTION	NUMBER OF QUESTIONS	MARKS	SUB TOTAL
Long Essay (LE)	3 (To attempt 2)	2 x 10	20
Short Essay (SE)	7 (To attempt 5)	5 x 5	25
Short Answer (SA)	7 (To attempt 5)	5 x 3	15
TOTAL MARKS			60

Practical Examination:

A. Cassette and Intensifying screens- 20 Marks
B. Chemical used in Film Processing- 20 Marks
C. Films used in Photography and Printers- 20 Marks
D. Diagnostic Image Processing- 20 Marks

B.Sc RADIOGRAPHY

Theory: 200 Hrs

Practical: 300 Hrs

1. **Imaging Technique:**

Computed Tomography:

Principles of computed tomography

Generations - Spiral C.T

Instrumentation

Data Acquisition

Data Presentation

Image Reconstruction

2D and 3D Images

Image Display

Pixel and Voxel

C.T. Number

Window Level and Window Width

Scan Artefacts

Patient Positioning in computed tomography

Contrast Materials and Administration

Basic Diagnostic Aspects

Interventional C.T. Guided Procedures

Documentation

Safety Consideration - Radiation Dose

Quality Assurance.

2. **Magnetic Resonance and Imaging:**

History

The Spinning Proton - Magnetisation, Procession, Larmor Frequency

Radio Frequency Pulse and Proton - Resonance, free induction decay, Relaxation, T-L & T-2

Instrumentation- Magnet, Shim Coils, Gradient Coils, Radiofrequency Transmitter and

Receiver Coils, Computer

Pulse Sequences- Saturation Recovery, Spin Echo, Inversion Recovery

Image Production-2D and 3D Pictures

Image Quality- Signal to Noise Ratio, Contrast to Noise Ratio

Image Artefacts

Flow Techniques - Magnetic Resonance Angiography Spectroscopy Mr Contrast Agents

Paramagnetic and Farromagnetic Documentation. Safety Consideration and Quality Assurance.

3. Ultrasound Imaging:

History

Ultrasound Characteristics- Nature, Propagation, Frequency, Wavelength, Velocity, Amplitude, Intensity, Acoustic Impendance, Reflection, Refraction Etc. Interference with media, Interface, Attenuation.

Transducer - Piezoelectric Effect, Construction, Types of Arrays - Mechanical & Electronic.

Acoustic Coupling Media.

Ultrasound Instrumentation.

Display Modes- A Mode, B Mode, M Mode, Real Time.

Grey Scale Imaging

Doppler Methods - Continuous Wave Doppler, Pulsed Doppler, Duplex, Real Time Colour Flow Imaging.

Ultrasound Artefacts.

Patient Preparation and Handling

Basic Diagnostic Aspects

Interventional Techniques - Transducer Sterilisation, Needles, Diagnostic Procedures,

Therapeutic Procedures.

Documentation

Safety Consideration - Effects of Healing, Cavitation.

Quality Assurance- Phantoms, Performance, Accuracy, Sensitivity, SPatrial Resolution Tests.

4. Nuclear Medicine Imaging:

History

Isotopes and Radionuclides

Production of Radionuclides

Radio Activity

Radio Active Transformations

Specific Activity

Radiopharmaceuticals and their preparation

Precautions while handling Radiopharmaceuticals

Principles of tracer techniques .

Instrumentation – Multihole Collimator, Crystal, Photomultiplier, Computer, Monitor

Scanning Technique

Resolution – Spatial Temporal

Gamma Camera

Rectilinear Scanner

5. Position Emission Tomography (PET)

Single Photon Emission Computed Tomography (SPECT)

Radio Immuno Assay (RIA)

Documentation

Safety considerations – Radiation Dose

Quality Assurance

Third Year Annual Examination to be held in the year 2025,2026,2027
CLASS: B.Sc Radiography 3rd year
COURSE TITLE: Diagnostic Imaging Techniques
COURSE CODE: BRT301
DURATION OF EXAMINATION: 3 HOURS

SCHEME OF EXAMINATION:

Theory:

There shall be one theory paper of three hours duration carrying 60 marks. Distribution of type of questions and marks for Diagnostic Imaging Techniques shall be given under.

TYPE OF QUESTION	NUMBER OF QUESTIONS	MARKS	SUB TOTAL
Long Essay (LE)	3 (To attempt 2)	2 x 10	20
Short Essay (SE)	7 (To attempt 5)	5 x 5	25
Short Answer (SA)	7 (To attempt 5)	5 x 3	15
TOTAL MARKS			60

B.Sc RADIOGRAPHY

Theory: 100 Hrs

Practical: 440 Hrs

1. **Introduction:**

Responsibility of Radiographer During Radiological Procedures.

Preparation of Patient for different Procedures.

Contrast Media - Positive and Negative, Ionic & Non- Ionic

Adverse Reactions to contrast media and patient Management

Emergency Drugs in the Radiology Department

Emergency Equipments in the Radiology Department

Asepsis

Radiation Protection - Ten Day Rule.

The following should be dealt with indication, contraindications, patient preparation, contrast media used, method of administration of contrast media, accessories required, technique to be adopted, variation in normal technique in specific circumstances, films taken, complications, precautions and after-care of the patient.

2. **Gastro Intestinal tract:**

Barium Swallow- Tracheo- Oesophageal Fistula

Barium Meal- Single Contrast and double contrast

Barium Meal follow through

Barium Enema- Gastrograffin Enema, for Reducing Intussusception Loopogram

3. **Biliary Tract:**

Post Operative Choledochography - Percutaneous Extraction of Retained Biliary Calculi

Percutaneous Transhepatic Choledochography- Biliary Drainage.

Endoscopic Retrograde Choledochopancreatography.

Excretion Urography.

Retrograde Pyelo-ureterography

Micturating Cysto Urethrography - Urodynamic Investigations

Ascending Urethrography

Additional Investigation: Ultrasound Scanning

Radio- Isotope Scanning

Computed Tomography

Magnetic resonance and Imaging

4. Reproductive System:

Hystero Salpingogram

Additional Investigations: Ultrasound Scanning

Computed Tomography

Magnetic Resonance and Imaging

5. Cardio-Vascular System:

Angiography

Percutaneous Catheterization

Catheterization Sites, Aspects

Guide Wire, Catheter, Pressure Injector and Accessories

Use of Digital Subtraction, Single Plane and Biplane

Transfemoral Arteriography

Interventional Vascular Radiography

Radio- Isotope Scanning

Computed Tomography

Magnetic Resonance and Imaging.

Venography

Additional Investigation: Ultrasound Imaging

Radio Isotope Scanning

Computed Tomography

6. Central Nervous System:

Additional Investigation: Ultrasound Imaging

Radio Isotope Scanning

Computed Tomography

MRI

7. Respiratory System:

Additional Investigation: Ultrasound Imaging

Radio Isotope Scanning

Computed Tomography

MRI

8. Miscellaneous:

Sinography

Fistulography

Dacrocystography

Mammography

Xero Radiography

Macro Radiography

High Kilovoltage Technique

Soft Tissue Radiography

Subtraction Radiography

Mobile Radiography

Theatre Radiography

Domiciliary Radiography

Forensic Radiography

Foreign Body Localisation

Tomography

Third Year Annual Examination to be held in the year 2025,2026,2027
CLASS: B.Sc Radiography 3rd year
COURSE TITLE: Radiographic Techniques II
COURSE CODE: BRT302
DURATION OF EXAMINATION: 3 HOURS

RADIOGRAPHIC TECHNIQUE II (PRACTICAL)

Course Code: BRT302

Barium Swallow

Barium Meal

Barium follow through

Barium Enema

Barium Double Contrast Study

Intravenous Pyelography

HSG

RGU

MCU

Sinogram

Fistulogram

Cologram

T-Tube Cholangiography

Macro Radiographic Studies

Mammography

SCHEME OF EXAMINATION:

Theory:

There shall be one theory paper of three hours duration carrying 60 marks. Distribution of type of questions and marks for Radiographic Techniques-II shall be given under.

TYPE OF QUESTION	NUMBER OF QUESTIONS	MARKS	SUB TOTAL
Long Essay (LE)	4 (To attempt 2) Section- A- 2 to attempt 1 Section-B- 2 to attempt 1	2 x 10	20
Short Essay (SE)	6 (To attempt 4) Section- A- 3 to attempt 2 Section-B- 3 to attempt 2	4 x 5	20
Short Answer (SA)	12 (To attempt 10) Section- A- 6 to attempt 5	10 x 2	20

	Section-B- 6 to attempt 5		
TOTAL MARKS			60

Practical Examination:

Practical- I

Diagnostic Imaging Techniques: 40 Marks

a. Spotters- 10 Marks
b. Positioning & Factors- 10 Marks
c. Film & Image Discussion- 20 Marks

Practical- II

Radiographic Techniques: 40 Marks

a. Spotters- 10 Marks
b. Positioning & Factors- 10 Marks
c. Radiography- 20 Marks