

Syllabus for the post of

(1) Professor, Radio-Diagnosis, Class-I (Advt. No.:40/2019-20)

(2) Associate Professor, Radio-Diagnosis, Class-I (Special Recruitment) (Advt. No.: 64/2019-20)

(3) Associate Professor, Radio-Diagnosis, Class-I (General Recruitment) (Advt. No.: 65/2019-20)

(4) Assistant Professor, Radio-Diagnosis, Class-I (Advt. No.: 87/2019-20)

Marks – 200

Questions – 200

Medium - English

1. Basic Sciences

- (a) Anatomy
- (b) Pathology
 - General Pathology
 - Systemic Pathology
- (c) Radiotherapeutic physics and Radio-Biology
- (d) Clinical Radiobiology
- (e) Statistical basis for planning & interpretation of clinical trials.
- (f) Imaging Techniques,
- (g) Radiography.

2. BASIC SCIENCES RELATED TO RADIO-DIAGNOSIS

Radiation physics and Radio-Biology - Radiological anatomy and pathology of various organ systems - Imaging Techniques - Radiography.

Includes all aspects of: Fundamentals of electromagnetic radiation, X-Ray production, characteristic properties of X-Rays, units of radiation, radiation measurement, X-ray equipments, X-Ray films, intensifying screens, other X-Ray appliances, dark room equipments and procedures, II TV, cine fluorography, tomography.

• Quality assurance. • Radiation hazards and principle and methods of radiation protection • Contrast media: types, chemistry, mechanisms of action, dose

schedule, routes of administration, their potential adverse reactions and management. • Clinical applications of important isotopes and instrumentation in Nuclear medicine with advances in both. • Physics and applications of advanced imaging i.e., Ultrasound, CT, MRI, Angiography (DSA), PET etc. • Practical experiments in physics : A list of experiments, which a resident should be able to do and interpret the results, is available in the department.

3. Radiological Physics

Introduction of general properties of radiation and matter: Fundamentals of nuclear physics and radioactivity - Interaction of x-rays and gamma rays with matter and their effects on irradiated materials - X-ray Generating Apparatus - Screen-film radiography - Film processing: Dark room, dry processing, laser/dry chemistry cameras, artifacts - Fluoroscopy: Digital including flat panel units, fluoroscopy cum radiography units - Digital radiography: Computed Radiography, Flat panel radiography - Other equipments: Ultrasound including Doppler, CT, MRI and DSA - Contrast Media (Iodinated, MR & Ultrasound) - types, chemical composition, mechanism of action, dose schedule, route of administration, adverse reaction and their management - Nuclear Medicine: Equipments and isotopes in various organ systems and recent advances - Picture Archiving and Communication System (PACS) and Radiology Information System (RIS) to make a film-less department and for Tele radiology - Radiation protection, dosimetry and radiation biology - Image quality and Quality Assurance (QA) - Recent advances in radiology and imaging.

4. Radiography and processing techniques

Processing techniques: includes dark room and dry processing - Radiography of the musculo-skeletal system including extremities - Radiography of the chest, spine, abdomen and pelvic girdle - Radiography of the skull, orbit, sinuses - Contrast techniques and interpretation of GI tract, hepato-biliary tract, pancreas etc.- Contrast techniques and interpretation of the Central Nervous system. - Contrast techniques and interpretation of the cardiovascular system

including chest - Contrast techniques and interpretation of the genito - urinary system including Obstetrics and Gynaecology - Paediatric radiology including MCU, genitogram, bone age. - Dental, portable and emergency (casualty) radiography.

5. Radio-Diagnosis Theory Study

- Basic sciences related to Radiology (consists of Anatomy, Pathology, Basic and Radiation Physics, Imaging Techniques, and Film processing)
- Chest, CVS, CNS including Head & Neck, Eye, ENT, musculo-skeletal, pediatric radiology and Mammography
- Abdominal Imaging including GI, GU, Hepatobiliary, endocrine and metabolic, Obstetrics and Gynaecology and Interventional radiology
- Recent advances, nuclear medicine; Radiology related to clinical specialties advances, nuclear medicine; Radiology related to clinical specialties

6. RESPIRATORY SYSTEM

Diseases of the chest wall, diaphragm, pleura and airways; pulmonary infections; pulmonary vasculature; pulmonary neoplasms; diffuse lung disease; mediastinal disease; chest trauma; post- operative lung and X-Rays in intensive care.

7. GASTROINTESTINAL (GIT) AND HEPATO-BILIARY-PANCREATIC SYSTEM

Diseases and disorders of mouth, pharynx, salivary glands, esophagus, stomach, small intestine, large intestine, diseases of omentum, peritoneum and mesentery, acute abdomen, abdominal trauma using conventional and newer imaging methods like CT, MRI, DSA, isotope studies. Diseases and disorders of hepato-biliary-pancreatic system using conventional & newer imaging methods.

8. GENITO-URINARY SYSTEM

Imaging: conventional, ultrasound, CT, MRI, angiography; of various diseases and disorders of genitourinary system. These includes: congenital, inflammatory, traumatic, neoplastic, calculus and miscellaneous conditions.

9. MUSCULOSKELETAL SYSTEM

Imaging (Conventional, ultrasound, CT, MRI, angiography, Radio-isotope studies) and interpretation of diseases of muscles, soft tissue, bones and joints including congenital, inflammatory, traumatic, neoplastic and miscellaneous conditions.

10. CARDIOVASCULAR RADIOLOGY/ECHO CARDIOGRAPHY

Diseases and disorders of cardiovascular system including congenital conditions and the role of imaging by conventional, ultrasound, Echo, color-Doppler, CT, MRI, angiography (including DSA) and radionuclide studies. It also includes interventional procedures e.g; balloon angioplasty, embolization etc.

11. NEURORADIOLOGY

Includes imaging (using conventional and newer methods) and interpretation of various diseases and disorders of the head, neck and spine covering congenital lesions, infective lesions, vascular lesions, traumatic conditions and neoplasia. It also includes a number of interventional procedures carried out in the department of neuroradiology.

12. ULTRASOUND (INCLUDING GYNAE/OBSTETRICS)

interpret all ultrasound studies. These studies include : abdomen, pelvis, small parts, neonatal head, color-duplex imaging (including peripheral i.e; extremity arterial and venous studies), obstetrics/gynaecology (in the deptt of Gyn/Obstet) and interventional procedures using ultrasound guidance. The resident should have a thorough knowledge of the common abnormalities of

the abdominal/pelvic organs, retroperitoneal structures, neck, chest, extremities and small parts (thyroid/parathyroid, scrotum, orbit, breast).

13. PAEDIATRIC RADIOLOGY

Common diseases and disorders of different organ systems covering congenital, inflammatory, traumatic, neoplastic and other miscellaneous conditions, using both conventional and newer imaging methods.

14. GENERAL RADIOLOGY

15. CT

16. ANGIOGRAPHY AND INTERVENTIONAL RADIOLOGY

17. RADIOLOGY IN EMERGENCY MEDICINE

18. ONCOLOGIC RADIOLOGY

19. NUCLEAR MEDICINE

20. RESEARCH METHODOLOGY.

21. MEDICO LEGAL ASPECTS RELEVANT TO THE DISCIPLINE.

22. INDIAN MEDICAL COUNCIL (PROFESSIONAL CONDUCT, ETIQUETTE AND ETHICS) REGULATIONS, 2002.

23. CURRENT TRENDS AND RECENT ADVANCEMENTS IN THE FIELD OF RADIO-DIAGNOSIS.