

Himachal Pradesh Public Service Commission

No. 3-55/2023-PSC (R-I)

Dated 22-04-2025

Syllabus for the descriptive Subject Aptitude Test (SAT) for the recruitment to post of Assistant Professor (Radiology), Class-I (Gazetted) (on regular basis) in the Department of Medical Education & Research, H.P. The SAT shall be of 03 hours duration having 120 Marks. The SAT paper shall have two parts i.e. Part-I and Part-II and cover the following topics of MD or MS (Radiology) level.

PART-I (60 MARKS)

1. Anatomy

Gross and cross sectional anatomy of all the body systems.

2. Pathology

Gross morphology of pathological conditions of systemic diseases affecting all organ systems.

3. Radiology Course

This would cover imaging and interventions of diseases affecting all the body systems:

- Chest,
- Cardiovascular system,
- Musculoskeletal including soft tissue,
- Gastrointestinal system,
- Hepato-biliary-pancreatic system,
- Urogenital (genito-urinary) system,
- CNS including head and neck,
- Obstetrics and gynaecology,
- ENT, eye, dental, breast,
- Endocrine and metabolic system,
- Clinically applied radionuclide imaging.

PART-II (60 MARKS)

1. 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 Teleradiology,
- Radiation protection, dosimetry and radiation biology,
- Image quality and Quality Assurance (QA)
- Recent advances in radiology and imaging.

2. Physics experiments to check:

- Accuracy of kVp and timer of an X ray unit,
- Accuracy of congruence of optical radiation field,
- Perpendicularity of x ray beam,
- Focal spot size,
- Linearity of timer of x ray unit,
- Linearity of mA,
- Verification of inverse square law for radiation,
- Film screen contact,
- Film screen resolution,
- Total filtration of an x ray unit,
- Processor quality assurance test,
- Radiological protection survey of an x ray unit,
- Compatibility of safe light,
- Performance of view box,
- Effect of kVp on x ray output

3. 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.

