BALOCHISTAN PUBLIC SERVICE COMMISSION

Samungli Road, Quetta Cantt.

Syllabus for the post of Associate Professor (B-19) in Radiology in the Health Department

Advt. No. : 03/2023

Qualification:

i. MBBS or equivalent qualification recognized/registered by the PMC.
ii. FCPS/MS/MD in the respective specialty OR other equivalent qualification in the relevant specialty recognized/registered by the PMC.
iii. Five-year teaching experience as an Assistant Professor in the respective specialty.
iv. At least three research papers in the Standard Medical Journal.

Subjects/Contents:

1. **Describe Aetiology, Pathophysiology, and principles of diagnosis and management of common problems including emergencies, in adults and children.**

2. **Body Imaging with the proper clinical and radiologic indications including scientific principles in:**

   ♣ Basic radiation biology and radiation protection ♣ Basic radio pharmacy and radiochemistry ♣ Principles of tracer technology ♣ Diagnostic imaging: mode of pharmaceutical uptake; normal and abnormal appearances of images, normal variants and common artifacts in bone, heart, lung, kidney, brain, thyroid, tumor and infection images. ♣ Therapeutic applications: basic principles of radionuclide therapy; treatment of hyperthyroidism, thyroid cancer and metastatic bone pain. ♣ Principles of radiation protection: ALARA (as low as reasonably achievable), ALARP (as low as reasonably practicable). ♣ Diagnosis and treatment of thyroid diseases. ♣ Tracer kinetics ♣ computing and image processing ♣ Radiobiology including the biological effects of high and low levels of radiation ♣ linear hypothesis and the threshold hypothesis of the biological response to low level radiation ♣ the effective dose equivalent and the calculation of radiation dose from radiopharmaceuticals. ♣ Radio pharmacy♣ Properties of commonly used diagnostic and therapeutic radiopharmaceuticals ♣ Production of radionuclides by reactors, cyclotrons and radionuclide generators ♣ Quality assurance and quality control of radiopharmaceuticals. ♣ Principles of radiology including dual energy X ray absorption (DEXA), ultrasound, CT and MRI imaging ♣ Learning of cross-sectional anatomy ♣ Correlative imaging of NM images and those from other imaging techniques ♣ Special diagnostic investigations in cardiology, lung disease, gastroenterology, hepatobiliary diseases, nephro-urology, neurology and psychiatry, endocrinology, hematology, oncology and infection ♣ Therapeutic applications ♣ Treatment of bone metastases, neuroendocrine tumours and other malignancies as well as polycythemia.

3. **Use of radio-labeled monoclonal antibodies and peptides for tumor therapy.**

4. **State the physiologic properties, proper concentrations and proper indications for the use of the following contrast material:**

   ♣ Barium ♣ Water soluble contrast media (oral Hypaque or Gastrografin) ♣ Ionic intravenous contrast media ♣ Non-ionic intravenous contrast media

5. **Discuss the following information about Glucagon:**

   ♣ Proper indications and dosages used in GI radiology ♣ Physiologic effects ♣ Side effects ♣ Contraindications

6. **List the high-risk factors for allergic reaction to intravenous contrast media and their treatment**

7. **Basic knowledge of the equipment to be used during fluoroscopy, including proper kilo voltage (KV) techniques for the various procedures, radiation safety features of the machines, and proper radiation safety techniques.**

8. **Ultrasound**

9. **Chest Radiology**

10. **Musculoskeletal Radiology**

11. **Gastrointestinal Radiology**

12. **Genitourinary Radiology**

13. **Neuro and Head & neck-Radiology**

14. **Paediatric Radiology**

15. **Breast Imaging**

16. **Vascular and Interventional Radiology**

17. **Emergency Radiology**

18. **Radiological Skills and Procedures:**

    Plain film ♣ Barium Enema ♣ Barium Meal ♣ Small Bowel Barium Enema ♣ Sialogram ♣ T-Tube cholangiogram ♣ Knee Arthrogram ♣ Sinogram/Fistulogram ♣ Leg Venogram ♣ Angiographic Examination ♣ Hysterosalpingogram ♣ Lymphangiogram ♣ Abdominal Ultrasound ♣ Obstetrics and Gynecology ♣ Neonatal Brain ♣ Angiography ♣ Myelogram ♣ CT Brain & Spine Reporting ♣ CT Neck and Base of Skull Reporting ♣ CT Abdomen & Pelvis Reporting ♣ CT Chest Reporting ♣ MRI Reporting ♣ Excretion Urography ♣ Retrograde Pyelography ♣ Micturating Cystourethrogram ♣ Small parts ultrasound ♣ Portable Ultrasonography ♣ Mammography ♣ Radionuclide scanning

NOTE: <u>BOOKS ALREADY RECOMMENDED BY PMC WITH EMPHASIS ON ABOVE MENTIONED SUBJECTS.</u>