



Jharkhand State Paramedical Council

RIMS Campus, Bariatu, RANCHI 834009

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Certificate Course in Radiography Attendant

Theory Paper (50 Marks)

1. Physics of Imaging
2. General radiation Physics
3. X –Ray
 - (i) Basics of radiography
 - (ii) Properties of X-Ray
 - (iii) Production of X-Ray
 - (iv) Fundamentals of X-Ray machine
 - (a) Construction of X-Ray tube and its main component
 - (b) Filament design, Anodes design
 - (c) Method of heat dissipation
 - (d) Heat unit, Tube rating chart
 - (e) Three phase X-Ray generators
 - (f) Common causes of x-ray generators
 - (g) Heat effects
 - (h) Line focus
 - (i) Modern X-Ray tube and X-Ray tube circuit
 - (v) Lay out of X-Ray installation
 - (vi) X-Ray film
 - (a) Composition of x-ray film
 - (b) Types of x-ray film
 - (vii) X-Ray Spectrum – factors effecting x-ray spectrum
 - (viii) Half value layer filtration
 - (ix) Inverse Square law
4. Dark Room technique
 - (i) Structure of Dark room
 - (ii) List of dark room accessories
 - (iii) Loading and unloading of x-ray film
 - (iv) Safe light : illumination and testing of safe light
5. Radiographic factors
 - (i) Grid
 - (ii) Grid parameters
 - (iii) Grid faults
6. Processing of radiographic films
 - (i) Principles of Processing
 - (ii) Manual Processing system






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- (iii) Washing and drying
 - (iv) Film processing solution, its property and maintenance
 - (v) Factors affecting quality in x-ray film processing
 - (vi) Radiographic image
 - (vii) Film density
 - (viii) Film Contrast
 - (ix) Image sharpness and distortion
 - (x) Faults in radiography and its technique
 - (xi) Artifacts
7. Exposure factors
 - (i)KVP
 - (ii) mAS
 - (iii) Distance of objective from x-ray tube
 - (iv) Variations in exposure limit
 8. Pass box
 9. Dark room digital radiography unit
 - (i)cassettes
 - (ii) Intensifying screen Fluorescent Screen
 10. Modified x-ray equipments its maintenance and special radiography technique
 - (i)Portable and bedside radiography
 - (ii) Tomography
 - (iii) mammography
 - (iv) mess miniature radiography
 - (v) Dental radiography
 - (vi) Orthopento radiography dental unit (OPG)
 - (vii) X-Ray image intensifier/ radiographic unit
 - (viii) C-Arm image intensifier/radiography unit
 - (ix) Digital radiographic unit
 - (x) Cine fluoroscopic – radiography unit
 - (xi) Rapid film changer for serial radiography
 11. Regional radiography
 - (A)General
 - (i)Head and Neck
 - (ii) Spine
 - (iii) Chest
 - (iv) Abdomen
 - (v) Penis
 - (vi) upper limb
 - (vii) Lower limb
 - Special
 - (i)Macro radiography
 - (ii) Mammo radiography
 - (iii) Dental radiography
 - (iv) Orthopentomogram
 - (v) High kv technique
 - (vi) Subtraction technique
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12. Special diagnostic Proceed

- (i) IVP
- (ii) Cystography
- (iii) Sialography
- (iv) Barium Swallow
- (v) Bronchography
- (vi) Angiography of limbs, carodio vessels

13. Basic Knowledge of newer Imaging modalities

- (i) Computer tomography (CT)
- (ii) Magnetic resonance imaging (MRI)
- (iii) Radionuclide imaging
- (iv) Digital subtraction angiography Ultra sound

14. Radiation Hazards and Preventive measures

- (i) During Radiography
- (ii) During fluoroscopy
- (iii) Effect of radiation on human body
- (iv) International recommendation of permissible exposure dose limits for radiation woner & Patients
- (v) Measurement of radiation doses
- (vi) Doses in diagnostic radiology
- (vii) Different radiation monitoring instruments in radiology and radiology department
- (viii) Protective gedgets in radiology department
- (ix) Safety duty of radiologist, radiographey and patients
- (x) ALARA principle of radiation protection

15. General care

- (i) Emergency in radiology department
- (ii) Resuscitation of patients
- (iii) Anesthesia in radiology department
- (iv) Life saving drugs and accessories in radiology department

PRATICAL – 100 MARKS

VIVA – 50 MARKS

