



Jharkhand State Paramedical Council

RIMS Campus, Bariatu, RANCHI 834009

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Type a text of document save the document. Align the text with different formats. Align the text with different formats using Microsoft Word. Inserting a table ensuring Proper alignment of the table using MS word.

Module 2: Microsoft Power Point

Preparing a slide show with transition, animation and sound effect using MS – Power point. Customizing the slide show by inserting pictures and tables in the slides using MS – Power Point.

Module 3: Introduction to the Internet

Create an e – mail account. Use the internet to search for a subject of interest.

Theory Paper II (100 Marks)

Part A (50 marks)

Diploma in X-Ray Technician /Radiographer

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



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- (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
 - (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

Part B (50Marks)

- 1. 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



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- (ix) Digital radiographic unit
- (x) Cine fluoroscopic – radiography unit
- (xi) Rapid film changer for serial radiography

2. Basic Knowledge of newer Imaging modalities

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

3. 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 worker & Patients
- (v) Measurement of radiation doses
- (vi) Doses in diagnostic radiology
- (vii) Different radiation monitoring instruments in radiology and radiology department
- (viii) Protective gadgets in radiology department
- (ix) Safety duty of radiologist, radiographer and patients
- (x) ALARA principle of radiation protection

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5. General care

- (i) Emergency in radiology department



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

PRATICAL : (100 MARKS)

VIVA : (100 MARKS)



झारखण्ड राज्य पारामेडिकल परिषद

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सभी डिप्लोमा पाठ्यक्रमों का Paper-I, Common रहेगा, जबकी
विषयवार Paper-II का सिलेबस अलग-अलग रहेगा।
