

#### RIMS Campus, Bariatu, RANCHI 834009

Tele-Fax:0651-2544027

E-mail: jspcranchi@gmail.com

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 radiograpy
  - (ii) Properties of X-Ray
  - (iii) Production of X-Ray
  - (iv) Fundamentals of X-Ray mechine
    - (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 flim
    - (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



#### RIMS Campus, Bariatu, RANCHI 834009

Tele-Fax:0651-2544027

E-mail: jspcranchi@gmail.com

- (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 maintence
  - (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



#### RIMS Campus, Bariatu, RANCHI 834009

Tele-Fax:0651-2544027 E-mail: jspcranchi@gmail.com

- (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 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
- 4. 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
- 5. General care
  - (i)Emergency in radiology department



### RIMS Campus, Bariatu, RANCHI 834009

Tele-Fax:0651-2544027 E-mail: jspcranchi@gmail.com

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

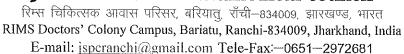
PRATICAL: (100 MARKS) VIVA: (100 MARKS)





# झारखण्ड राज्य पारामेडिकल परिषद

# Jharkhand State Paramedical Council





(Constituted by the Department of Health, Medical Education & family Welfare, Government of Jharkhand vide Notification no-7(A)/Paramed.-11-09/09-356(7A)Ranchi, Dated 17.9.2010)

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