

# Certificate CT scan Technician

Each Paper of 100 Marks

Figures in the brackets indicating no. of Lectures

**Medium: - English**

Course contents –

## **Paper I – Anatomy**

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### **Human Skeleton**

**(60)**

Upper & lower Limb, Skull, Vertebral Column & Thorax

### **Systems**

Digestive, Reproductive, Urinary, Respiratory, Circulatory, Central Nerves System,

## **Paper II Darkroom & Fundamentals Of X-Ray**

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### **Darkroom**

**(50)**

Criteria & Purpose of Darkroom

Exposure of film, Entrance to Darkroom

Safety of darkroom, Safety of darkroom light, X-ray film with its structure Care of X-ray film  
– Cassette –Screen

Film holders intensifying screen

Film processing –Developing Fixing rinsing washing drying store keeping record

Keeping

Preparation of solution – Developer Fixer

### **Fundamentals of X-ray**

EM radiations, X-Ray tube, Properties of X-Ray in diagnostic

Radiology, other fundamental properties of X-Rays.

Accessories –X-Ray film, Cassettes with intensifier screens.

Stationary and moving grids, Body section radiographic equipments.

Fluoroscopic screen and fluoroscope, Image intensifier.

Other ancillary items of X-Ray equipment.- Shutter mechanism, Filtration

USE of radiation protection devices.

Fundamental geometry of image formation and interpretation.

(Image sharpness, Image distortion, Image magnification.

Film Identification –lead markers, General terms and concepts in diagnostics

Radiology

## **Paper III – C. T. Scan**

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**100 marks.**

### **Section –A**

Anatomical Landmarks

Contents of Thorax, Abdomen, Pelvic

Introduction to skull

CT contrast medium,

Patient Preparation

Emergency Drugs

**Section – B**

Gray scale imaging. CT Terminology.  
Computerized Topographic equipment  
Computer hardware and software

Currently available CT scanners.

Scanning of Head-orbit, Temporal Bone, Neck, PNS, Thorax, Abdomen, Pelvic

**Practical – 300 marks****Paper I – Anatomy**

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Spot -	(20)	40 Marks
Fill in the Blanks	(10)	20 Marks
Journal		20 Marks
Viva		20 Marks
<b>Total</b>		<b>100 Marks</b>

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**Paper II Darkroom & Fundamentals Of X-Ray**

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Spot -	(20)	40 Marks
Fill in the Blanks	(10)	20 Marks
Journal		20 Marks
Viva		20 Marks
<b>Total</b>		<b>100 Marks</b>

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**Paper III – C.T. Scan****100 marks.**

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Spot		20 Marks
Positioning	Practical +writing	40 Marks
Journal		20 Marks
Viva		20 Marks
<b>Total</b>		<b>100 Marks</b>

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**SOLAPUR UNIVERSITY, SOLAPUR**  
**Janvikas Kendra**  
**C.T.Scan Technician**

Day: - Monday  
Date: - 02/05/2016  
Subject: - Anatomy & Physiology

Time: - 02.00 to 4.30  
Mark: - 80  
Paper -1

- Instruction** 1) All Questions are compulsory.  
2) Numbers to the right side indicate marks.  
3) Use of calculators, cell phones, or any other electronic gadgets is prohibited.

Q.1 Fill in the blanks.

Marks 5

1. Thyroxin is secreted by ----- gland.  
a) Thyroid      b) Thymus      c) Adrenal      d) pituitary
2. Number of cervical vertebrae in body is -----.  
a) 7              b) 12              c) 5              d) 3
3. -----Nerve is present in radial groove.  
a) Axillary      b) Radial      c) Sciatic      d) Sural
4. Talus bone is situated in ----- joint.  
a) Shoulder      b) hip      c) ankle      d) Knee
5. Tarsal bones are part of -----  
a) foot      b) Skull      c) hand      d) Spine

Q.2. Match the following.

Marks 5

- |                  |                   |
|------------------|-------------------|
| 1) Ankle mortise | a) talus          |
| 2) Shoulder      | b) acetabulum     |
| 3) Hip           | c) ulnar notch    |
| 4) Elbow         | d) mandible       |
| 5) Jaw           | e) glenoid cavity |

Q.3. Answer in one sentence.

Marks 10

- 1) Name any sesmoid bone
- 2) Name any two hormones secreted by pituitary gland.
- 3) Name any two carpal bones in the body.
- 4) Name any two long bones in the body.
- 5) Name any two important nerves of lower limb.

Q.4. Draw neat labeled diagram of any two of the following.

Marks 10

- 1) Mandible
- 2) Stomach
- 3) Lungs
- 4)

Q.5. Write short notes on any two of the following

Marks 10

- 1) Functions of kidney
- 2) Patella
- 3) Thyroid functions

Q.6. Write in detail on any two of the following.

Marks 20

- 1) Long bones structure
- 2) Structure & functions of liver
- 3) Ankle joint
- 4) Wrist joint

Q.7. Answer any two of the following in detail.

Marks 20

- 1) Describe the structure & functions of Skin.
- 2) Describe the Circulatory System.
- 3) Describe the Types of joints.



## SOLAPUR UNIVERSITY, SOLAPUR

### Janvikas Kendra

### C.T.Scan Technician

Day: - Tuesday

Date: - 03/05/2016

Subject: - Dark Room & Fundamentals of Xray

Time: - 02.00 to 4.30

Mark: - 80

Paper -2

**Instruction** 1) All Questions are compulsory.

2) Numbers to the right side indicate marks.

3) Use of calculators, cell phones, or any other electronic gadgets is prohibited.

Q.1 Fill in the blanks.

Marks 5

1. ----- is used as target in X ray tube.  
a) Aluminum                      b) tungsten                      c) iron
2. -----cassettes are generally used for x ray.  
a) Red                                      b) black                                      c) green
3. Sodium ----- is used for preservation of developer.  
a) Sulfate                                      b) bicarbonate                                      c) Nitrate
4. Rontgen invented -----  
a) X ray                                      b) USG                                      c) MRI                                      d) CT scan
5. Safe light is essential in ----- room.  
a) X ray room                                      b) Dark room                                      c) Waiting room

Q.2. Match the following

Marks 5

- |                                 |                                   |
|---------------------------------|-----------------------------------|
| 1) Myelography                  | a) Vesicouretral reflux diagnosis |
| 2) Hysterosalpingography        | b) Prolapsed Disc diagnosis       |
| 3) Ultrasonography              | c) Renal Stone diagnosis          |
| 4) Intravenous pyelography      | d) Infertility diagnosis          |
| 5) Micturating Cystourethrogram | e) Ectopic kidney diagnosis       |

Q.3. Answer in one sentence.

Marks 10

- 1) What is developer?
- 2) What is contrast media?
- 3) What is latent image?
- 4) What is safe light?
- 5) What is emulsion?

Q.4. Answer any four of the following

Marks 20

- 1) How will take care of patients while exposing for X ray?
- 2) What are the precautions to be taken during contrast x ray?
- 3) Describe safe light.
- 4) What are the indications for X ray Lumbar Spine
- 5) How will you give position for X ray of hip joint?

Q.5. Write short notes on any four of the following.

Marks 20

- 1) care of unexposed films
- 2) properties of x ray
- 3) Fixer solution
- 4) Lead Markers
- 5) Barium follow through

Q.6. Write in detail on any two of the following.

Marks 20

- 1) Ideal Dark room
- 2) Functions of X ray technician.
- 3) Process of X ray developing.



**SOLAPUR UNIVERSITY, SOLAPUR**  
**Janvikas Kendra**  
**C.T.Scan Technician**

Day: - Wednesday  
Date: - 04/05/2016  
Subject: - CT scan

Time: - 02.00 to 4.30  
Mark: - 80  
Paper -3

- Instruction** 1) All Questions are compulsory.  
2) Numbers to the right side indicate marks.  
3) Use of calculators, cell phones, or any other electronic gadgets is prohibited.

Q.1 Fill in the blanks. Marks 5

1. CT brain is usually done in ----- sequence.  
a) Axial      b) coronal      c) saggital
2. Centering is done over ----- for CT neck.  
a) Umbilicus      b) Cricoids cartilage      c) ischial spine
3. Silicon diode is used in ----- detectors.  
a) Oscillation      b) scintillation      c) Auscultation      d) percussion
4. House field invented -----  
a) X ray      b) USG      c) MRI      d) CT scan
5. Soft tissue appears ----- on CT film.

Q.2. Match the following Marks5

- |               |                         |
|---------------|-------------------------|
| 1) CT abdomen | a) Convulsions          |
| 2) CT Thorax  | b) Chronic sinusitis    |
| 3) CT Head    | c) Supra clavicle nodes |
| 4) CT Neck    | d) Meditational mass    |
| 5) CT PNS     | e) Ectopic Kidney       |

Q.3. Answer in one sentence. Marks 10

- 1) What is the function of detectors?
- 2) What is motion artifact?
- 3) What do you mean by bone scan?
- 4) What is PET scan?
- 5) What is meant by radiation hazard?

Q.4. Answer any four of the following.

- 1) What are the distinguishing features between MRI and CT scan?
- 2) What are the indications of bone scan?
- 3) Describe gantry?
- 4) What are the indications for CT chest?
- 5) How will you improve image quality in CT scan?

Q.5. Write short notes on any two of the following.

- 1) Benefits of CT scan
- 2) Artifacts in CT images
- 3) Indications for contrast CT scan
- 4) Indications of CT myelography
- 5) CT scan reporting.

Q.6. Write in detail on any two of the following.

- 1) Ideal CT scans room
- 2) Functions of CT scan technician.
- 3) Indications & position for CT PNS
- 4) Indications & Position for CT abdomen.





## SOLAPUR UNIVERSITY, SOLAPUR

### Janvikas Kendra

### C.T.Scan Technician

Day: - Saturday

Date: - 10/05/2016

Subject: -Practical Exam

Time: - 10.30 to Onward

Mark: - 200

- Instruction** 1) All Questions are compulsory.  
2) Numbers to the right side indicate marks.

#### Paper 1: Anatomy & physiology

Q.1 Identify & write in one sentence about any 10 of following Marks 40

1. Sternum 2. Ribs 3. Cervical Vertebra 4. Lumbar Vertebra 5. Thoracic Vertebra 6. Skull  
7. Hip bone 8. Sacrum 9. Femur 10. Tibia 11. Fibula 12. Talus 13. Calcaneus 14.  
Metatarsal 15. Cuboid 16. Phalanx 17. Humerus 18. Radius 19. Ulna 20. Scapula  
21. Scaphoid 22. Metacarpal 23. Mandible 24. Maxilla

Q.2 Describe any one of the following system with diagram. Marks 20

1. Digestive System 2) Respiratory System 3) Circulatory System

#### Paper 2 : Dark Room & Fundamentals of X ray

Q.3 Identify & State uses of following. Marks 20

1. Cassettes 2. X ray films 3. Grid 4. Lead Markers 5. Lead Gown  
6. Clips 7. Hangers 8. Safe Light 9. Containers 10. Film box

Q.4. Describe any 2 of following Marks 20

1. Dark room 2. X ray films 3. Film Developing

#### Paper 3: CT scan

Q.5 Describe the positions for following Marks 20

1. Head Scan 2. Abdominal Scan 3. PNS Scan 4. Pelvis Scan

Q.6. Explain procedure in detail (Any 2) Marks 30

1. Thorax scan 2. Abdomen Scan 3. Head Scan  
4. Neck Scan 5. Pelvis Scan 6. PNS Scan

**Journal & Viva**

**Marks 50**