

**B.Sc. RADIOLOGY IMAGING TECHNOLOGY**  
(New Syllabus 2014-2015)

**SECOND YEAR**

**PAPER III – CONTRAST & SPECIAL RADIOGRAPHY PROCEDURES**

*Q.P. Code: 801833*

**Time: Three Hours**

**Maximum : 100 Marks**

**Answer All questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Define Intravenous urography. What are all the indications, contraindications and preparation required for IVP? Describe the advantages and disadvantages of CT urography and MR urography.
2. a) Write about classification of contrast media.  
b) Ultrasound contrast media.  
c) Indication for water soluble contrast media in GIT.
3. Discuss about the use of barium in children (Various barium studies in children).

**II. Write notes on:**

**(8 x 5 = 40)**

1. Write about non-ionic monomers and dimers used in diagnostic radiology.
2. Write about indications and techniques of CT myelogram.
3. Double contrast enteroclysis.
4. Percutaneous transhepatic cholangiography.
5. Venography.
6. Micturating cysto urethro graphy.
7. Single contrast barium enema.
8. Complications of femoral artery catheterization (due to contrast media and technique)

**III. Short answers on:**

**(10 x 3 = 30)**

1. MR colonography.
2. CT angiography.
3. ERCP.
4. Anterior urethro graphy.
5. MR and CT splenoportogram.
6. Colostomy enema.
7. CT enteroclysis.
8. Indications for barium swallow.
9. Retrograde pyelourethrography.
10. Sialogram.

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**SECOND YEAR**

**PAPER III – CONTRAST & SPECIAL RADIOGRAPHY PROCEDURES**

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**Time: Three Hours**

**Maximum : 100 Marks**

**Answer All questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Write the classification of contrast media and write in detail about the contrast media used in MRI.
2. Discuss barium meal examination under the following heading
  - a) Contrast media
  - b) Indications
  - c) Contra indications
  - d) Preparation of patient
  - e) radiographic position
  - f) Complication and after care
3. Discuss in detail hysterosalpingography.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Discuss in brief commercially available ultrasound contrast media.
2. Short notes in GIT contrast in CT.
3. Single contrast Barium enema.
4. Bronchography.
5. Lymphangiogram.
6. Compare percutaneous transhepatic cholangiography and endoscopic retrograde cholangiography.
7. Filming technique, equipment, radiation protection and contraindications of compression in excretory urography in children.
8. Preoperative radiography in orthopedics.

**III. Short answers on:**

**(10 x 3 = 30)**

1. What is treitz ligament? Describe shortly its role in enteroclysis.
2. Compare methyl cellulose DC and Air double contrast.
3. Special views taken in IVP for
  - a) Visualising lower ureter
  - b) Calculi in cyst
  - c) Renal ptosis
4. Immediate complications following intravenous contrast.
5. Invertogram.
6. Virtual Colonoscopy.
7. Catheters used in angiography.
8. Renal angiogram.
9. MR contrast media.
10. Ascending Uretherogram.

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*Q.P. Code: 801833*

**Time: Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:** **(3 x 10 = 30)**

1. Micturating Cysto Urethrogram: Indication, Contra-Indication, patient preparation procedure and after care.
2. Barium Swallow: Indication, contra-indication, patient preparation, preparation of barium, procedure and after care.
3. Lumbar Myelography – Indication, contra indication, contrast used, preparation of patient, procedure with radiographic views and after care.

**II. Write notes on:** **(8 x 5 = 40)**

1. Explain the procedure to visualize Ileo – cecal junction.
2. Indication, procedure with film sequences of IVP.
3. Cystogram technique and radiographic views.
4. Explain about image intensifier and its advantages and disadvantages.
5. Indication, contra indication and procedure for Barium Meal Follow Through.
6. Explain the procedure for HSG along with indication.
7. Explain Sialography procedure.
8. Explain Enteroclysis procedure and contrast used.

**III. Short answers on:** **(10 x 3 = 30)**

1. Contrast agent used in MRI.
2. 10 day rule.
3. Describe stereoradiography.
4. Indication and contra indication for barium meal.
5. Patient preparation for HSG.
6. Define Sinogram.
7. Indication for Retrograde Pyelography.
8. Effervescent powder.
9. Fluoroscopy.
10. T- Tube cholangiogram.

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*Q.P. Code: 801833*

**Time: Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:** **(3 x 10 = 30)**

1. Hystosalpingography: Indication, contra-indication, patient preparation, procedure with radiographic views and after care.
2. Barium Enema: Indication, contra-indication, patient preparation, procedure and after care.
3. Discuss the function of Image Intensifier and how it is useful for radiological procedure? How to minimize radiation during Fluoroscopy?

**II. Write notes on:** **(8 x 5 = 40)**

1. Explain briefly about Fistulogram procedure and indication.
2. Procedure, indication and contra indication for Ascending Urethrogram.
3. Explain the film sequences and indication for Intravenous Urography.
4. Explain the procedure and radiography views taken for Barium Swallow.
5. Enteroclysis – procedure and indication.
6. Percutaneous Transhepatic Cholangiography – indication, contra-indication and procedure.
7. Explain the role of radiographer during mild and severe contrast reaction.
8. Explain the procedure for ERCP.

**III. Short answers on:** **(10 x 3 = 30)**

1. Use of Higginson's pump.
2. Indication and contra indication for MCU.
3. ALARA.
4. Atomic numbers of Iodine and Barium.
5. Difference between single and double contrast study.
6. Preparation for Sialography.
7. Explain Consent.
8. 10 day rule.
9. Advantages of non – ionic IV contrast.
10. Use of lead gloves and lead apron.

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**Time: Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:** **(3 x 10 = 30)**

1. Intravenous Urethrogram: Indication, contra-indication, patient preparation, procedure along with film sequences and after care.
2. Barium Meal Follow Through: Indication, contra-indication, patient preparation, procedure and after care.
3. Explain briefly about the tomography and explain where it is used in radiological procedure.

**II. Write notes on:** **(8 x 5 = 40)**

1. Explain briefly about Sialography procedure.
2. Write about the function of Fluoroscopy and how does it is usefulness in radiology department.
3. Explain about the Barium powder preparation for Barium swallow, Barium meal and Barium enema.
4. Indication, contra-indication and procedure for Histosalpingography.
5. Explain the procedure and radiographic views for Lumbar Myelography.
6. Indication and procedure for T-Tube Cholangiogram.
7. Write the names of emergency drugs and their uses during procedures.
8. Micturating Cysto-Urethrogram: Procedure, radiographic technique and contrast used.

**III. Short answers on:** **(10 x 3 = 30)**

1. Effervescent powder.
2. Write about advantages of non-ionic contrast agent over ionic contrast agent.
3. Enteroclysis.
4. Uses of Image Intensifier.
5. When to perform HSG Procedure?
6. Indication and contra indication for Barium Swallow.
7. Bilbao – Dotter tube.
8. Defecogram.
9. Loopogram.
10. Patient preparation for Barium Enema.

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**Time: Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:** **(3 x 10 = 30)**

1. Write the techniques of Barium Swallow single and double contrast.
2. What is HSG? How is it performed? What are the indications?
3. Name the various available contrast studies for evaluation of gastrointestinal tract and discuss in detail about the double contrast barium enema study.

**II. Write notes on:** **(8 x 5 = 40)**

1. Indications and contra-indications of ascending urethrogram.
2. Duties of technologist during contrast reaction.
3. What are the uses of Fluoroscopy?
4. What are the indications and contra-indications of Barium Meal studies?
5. Mention common views taken for each of the following  
Gastric-oesophago junction, duodenum, rectum, hepatic and splenic flexures.
6. Short notes in GIT contrast in CT.
7. Micturating cysto urethrography.
8. Percutaneous transhepatic cholangiography.

**III. Short answers on:** **(10 x 3 = 30)**

1. Negative contrast media and their uses.
2. Principle of tomography.
3. Dacro-cystography.
4. Nephrogenic system fibrosis
5. What is Fluoroscopy?
6. Use of bilbao dotter tube.
7. What contrast media is used in IVU?
8. What is Sinogram?
9. Indications of digital subtraction angiography.
10. Invertogram.

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**Time: Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Discuss the function of Image Intensifier and how it is useful for radiological procedure? How to minimize radiation during Fluoroscopy?
2. Discuss in detail hysterosalpingography.
3. Describe in detail Barium Meal and Barium Meal Follow Through including radiographic techniques.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Enteroclysis.
2. Micturating cystourethrography.
3. Write about non-ionic monomers and dimers used in diagnostic radiology.
4. Contrast agents used in MRI.
5. Duties of a technologist during a contrast reaction.
6. What are the uses of Fluoroscopy?
7. Lumbar myelography.
8. T tube cholangiogram.

**III. Short answers on:**

**(10 x 3 = 30)**

1. Ascending Urethrogram.
2. Discuss on extravasation.
3. Renal angiogram.
4. Indications of digital subtraction angiography.
5. 10 day rule.
6. Examples of Double contrast study.
7. Fistulogram.
8. What is Cystogram?
9. What are the contra-indications of IVU?
10. Use of lead gloves and lead apron.

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*Q.P. Code: 801833*

**Time: Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:** **(3 x 10 = 30)**

1. Describe types of contrast media used in radiology department.
2. How is MCU performed? Write indications and contra indications.
3. What is the technique of single and double contrast of enteroclysis study?

**II. Write notes on:** **(8 x 5 = 40)**

1. Why iodine is performed component of contrast media?
2. What are the complications of HSG?
3. What are the complications of hypotonic duodenography?
4. Contrast agents used in MRI.
5. Lumbar myelography.
6. Write short notes on barium swallow.
7. Duties of technologist during contrast reaction.
8. T tube cholangiogram.

**III. Short answers on:** **(10 x 3 = 30)**

1. Catheters used in angiography.
2. Renal angiogram.
3. MR contrast media.
4. Special techniques in children for contrast studies.
5. Discuss on extravasation.
6. Describe ascending urethrography.
7. Retrograde pyelourethrography.
8. Fistulogram.
9. What are the contra-indications of IVU?
10. Write short notes on barium enema.

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**THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY**

[AHS 0321]

**MARCH 2021**

**Sub. Code: 1833**

**(AUGUST 2020 EXAM SESSION)**

**B.Sc. RADIOLOGY IMAGING TECHNOLOGY**

**SECOND YEAR (Regulation 2014-2015)**

**PAPER III – CONTRAST & SPECIAL RADIOGRAPHY PROCEDURES**

*Q.P. Code : 801833*

**Time: Three hours**

**Answer ALL Questions**

**Maximum: 100 Marks**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Describe in brief, the indications, contraindications, procedure and precautions with radiation protection for barium swallow for motility disorder.
2. Describe in brief, the indications, contraindications, procedure and precautions with radiation protection for retrograde urography.
3. Describe in brief, selection of suitable x-ray equipment – patient position – radiographic projections and sequence for each patient – modification of routine positioning – radiation protection – patient care for trauma/emergency radiography.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Single contrast barium enema.
2. Complications of femoral artery catheterization (due to contrast media and technique).
3. Contrast agents in MRI.
4. Percutaneous nephrostomy.
5. Parotid sialogram.
6. How is the dilution of barium expressed? Give examples.
7. What are the uses of fluoroscopy?
8. What are advantages of double contrast study?

**III. Short answers on:**

**(10 x 3 = 30)**

1. Negative contrast media and their uses.
2. Principle of tomography.
3. What are the contra-indications of IVU?
4. Prophylaxis for adverse contrast reaction.
5. Special techniques in children for contrast studies.
6. Defecogram.
7. Lymphangiogram.
8. US contrast media.
9. Write short notes on HSG.
10. Write short notes on fistulography.

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**B.Sc. RADIOLOGY IMAGING TECHNOLOGY**  
**SECOND YEAR (Regulation 2014-2015)**  
**PAPER III – CONTRAST & SPECIAL RADIOGRAPHY PROCEDURES**  
*Q.P. Code : 801833*

**Time: Three hours**

**Answer ALL Questions**

**Maximum: 100 Marks**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Describe in brief, the Indications, Contraindications, Procedure and Precautions with radiation protection for Hysterosalpingography (HSG).
2. Describe in brief, the Indications, Contraindications, Procedure and Precautions with radiation protection for T.T.C. (T.Tube Cholangiography).
3. Describe in brief, Equipment and accessories – exposure factor considerations in special care – Elderly patients profile – difficulties during radiography – technical considerations, projections with unconventional special positioning for geriatric imaging.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Bronchography.
2. Lower limb Venography.
3. What are the indications and contra-indications of Barium Meal studies?
4. Vasography.
5. What are the filming techniques of IVU?
6. Duties of technologist during contrast reaction.
7. Write notes on MCU.
8. How are contrast media classified?

**III. Short answers on:**

**(10 x 3 = 30)**

1. Percutaneous transhepatic cholangiography – Indications and contraindications.
2. Contrast medium, precautions and after care in myelography.
3. Indications of digital subtraction angiography.
4. Sialogogue, where is it used.
5. Cystography.
6. What is Sinogram?
7. What are the contra indications of Barium swallow?
8. Discography.
9. What are the indications of retrograde Pyelography?
10. What are the advantages of non ionic IV contrast?

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**THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY**

**[AHS 0922]**

**SEPTEMBER 2022**

**Sub. Code:1833**

**(FEBRUARY 2022 & AUGUST 2022 EXAM SESSIONS)**

**B.Sc. RADIOLOGY IMAGING TECHNOLOGY  
SECOND YEAR (Regulation from 2014-2015)  
PAPER III – CONTRAST & SPECIAL RADIOGRAPHY PROCEDURES  
Q.P. Code : 801833**

**Time: Three hours**

**Answer ALL Questions**

**Maximum: 100 Marks**

**I. Elaborate on: (3 x 10 = 30)**

1. Classification of contrast media – Write in detail about ultrasound contrast media.
2. Discuss in detail about Micturating cystourethrography.
3. Describe in brief for T –Tube cholangiography.

**II. Write notes on: (8 x 5 = 40)**

1. Explain Enteroclysis procedure and contrast used.
2. Explain the procedure for ERCP.
3. Explain briefly about fistulogram.
4. Lumbar myelography.
5. Hypotonic Duodenography.
6. Percutaneous nephrostomy.
7. What are the advantages of double contrast study?
8. Filming techniques of IVU.

**III. Short answers on: (10 x 3 = 30)**

1. Sinogram.
2. Digital subtraction Angiography.
3. Retrograde pyelourethrography.
4. MR Colonography.
5. Difference between single and double contrast study.
6. Advantage of non ionic IV contrast.
7. Effervescent powder.
8. Bilbao – Dotter tube.
9. Nephrogenic systemic fibrosis.
10. 10 day rule.

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**THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY**

**[AHS 0423]**

**APRIL 2023**

**Sub. Code: 1833**

**B.Sc. RADIOLOGY IMAGING TECHNOLOGY**  
**SECOND YEAR (Regulations 2010-2011 & 2014-2015 onwards)**  
**PAPER III – CONTRAST & SPECIAL RADIOGRAPHY PROCEDURES**  
*Q.P. Code: 801833*

**Time: Three hours**

**Answer ALL Questions**

**Maximum: 100 Marks**

**I. Elaborate on:** **(3 x 10 = 30)**

1. Discuss in detail about Hysterosalpingography.
2. Discuss in detail about Barium Swallow.
3. What is the technique of Single and Double Enteroclysis study?

**II. Write notes on:** **(8 x 5 = 40)**

1. Sialography procedure.
2. Indications, procedure for T-tube cholangiography.
3. Fluoroscopy.
4. Write the names of Emergency drugs and their use during Radiography procedure.
5. Micturating Cystourethrography.
6. Contrast reagents used in MRI.
7. Parotid Sialogram.
8. Ascending Urethrogram.

**III. Short answers on:** **(10 x 3 = 30)**

1. Colostomy Enema.
2. CT Enteroclysis.
3. Renal Angiogram.
4. ALARA.
5. Use of Lead gloves and Lead apron.
6. ERCP.
7. Contrast Media Reactions.
8. Loopogram.
9. Dacro – cystography.
10. Indications of DSA.

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**THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY**

[AHS 1123]

**NOVEMBER 2023**

**Sub. Code: 1833**

**B.Sc. RADIOLOGY IMAGING TECHNOLOGY**

**SECOND YEAR (Regulations 2010-2011 & 2014-2015 onwards)**

**PAPER III – CONTRAST & SPECIAL RADIOGRAPHY PROCEDURES**

*Q.P. Code: 801833*

**Time: Three hours**

**Answer ALL Questions**

**Maximum: 100 Marks**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. What is Radiological Contrast Medium and enumerate the different types of Contrast Medium used in Radiological Special Procedure.
2. What is Barium Swallow and explain about the procedure of Barium Swallow?
3. What is Coronary Angiography? Explain about the procedure of Coronary Angiography.

**II. Write notes on:**

**(8 x 5 = 40)**

1. What is Cystogram? How will you do the procedure Cystogram?
2. What are the general preparation for Intravenous Pyelography patient?
3. Describe about the procedure of percutaneous Transhepatic cholangiography.
4. What are the Emergency drugs and Equipments to be kept in X-ray Department?
5. What is Enteroclysis?
6. Explain about the procedure of peripheral Venography.
7. Describe the procedure of Lymphography.
8. How will you do the procedure of Ascending Urethrography?

**III. Short answers on:**

**(10 x 3 = 30)**

1. Indications and Contraindications for Barium Enema.
2. What is Discography?
3. Define Angioplasty.
4. What is the type of contrast medium used for Myelography producer?
5. What are the differences between Ionic and Non ionic Contrast medium?
6. What is Vesiculography?
7. How will you give care for Paediatric patient while attending bed side X-ray?
8. Define Sinogram.
9. What are the routes of Administrations of Contrast medium?
10. What is the Pre- Film for intravenous Urogram procedure?

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**THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY**

**[AHS 0424]**

**APRIL 2024**

**Sub. Code: 1833**

**B.Sc. RADIOLOGY IMAGING TECHNOLOGY**  
**SECOND YEAR (Regulations 2010-2011 & 2014-2015 onwards)**  
**PAPER III – CONTRAST & SPECIAL RADIOGRAPHY PROCEDURES**  
***Q.P. Code: 801833***

**Time: Three hours**

**Answer ALL Questions**

**Maximum: 100 Marks**

**I. Elaborate on:** **(3 x 10 = 30)**

1. Describe in detail about the indications, contraindications, patient preparation, positioning and after care in Barium enema examination.
2. Write about the classification of contrast media and explain briefly about the Ultrasound contrast media and MRI contrast media.
3. Describe briefly the indications, contraindications patient preparation and procedure for Achalasia cardia.

**II. Write notes on:** **(8 x 5 = 40)**

1. Hysterosalpingography.
2. Adverse effects of Intravenous contrast media.
3. Micturating cysto urethrogram.
4. Indication, contraindication and positioning in IVP (Intra venous Pyelogram).
5. Lumbar myelography.
6. Ductogram.
7. T-Tube cholangiography.
8. Percutaneous transhepatic cholangiography.

**III. Short answers on:** **(10 x 3 = 30)**

1. Fistulogram.
2. Differentiate Sinus and Fistula.
3. Cystogram.
4. What is Extravasation?
5. Sialogram.
6. MR contrast.
7. Enteroclysis.
8. Modifications or Technical considerations for paediatric patients.
9. Lymphography.
10. Ascending Urethrography.

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**THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY**

[AHS 1125]

**NOVEMBER 2025**

**Sub. Code: 1833**

**B.Sc. RADIOLOGY IMAGING TECHNOLOGY**  
**SECOND YEAR (Regulations 2010-2011 & 2014-2015 onwards)**  
**PAPER III – CONTRAST & SPECIAL RADIOGRAPHY PROCEDURES**  
*Q.P. Code: 801833*

**Time: Three hours**

**Answer ALL Questions**

**Maximum: 100 Marks**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Discuss in detail about the patient preparation, contrast used, procedure and Pros / Cons of Conventional, CT and MRI Fistulogram.
2. Explain in detail about the Impact of Iodine concentration and scan parameters on image quality, contrast enhancement and radiation dose in triphasic CECT.
3. Role of Radiologic technologist in Interventional procedures.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Automatic bolus tracking and its significance.
2. 10-day rule and 28-day rule in Radiology.
3. Indication, Patient preparation, technique and contrast, if used in MRCP.
4. Patient preparation, contrast, indication and procedure of CT Enteroclysis.
5. Cisternogram.
6. Difference between single bolus and split bolus techniques.
7. Enumerate few CT guided intervention procedures and explain any one of the procedures in detail.
8. T-tube Cholangiogram.

**III. Short answers on:**

**(10 x 3 = 30)**

1. Water-soluble non-ionic iodinated contrast.
2. Retrograde pyeloureterography.
3. Absolute contraindications for CT contrast.
4. Difference between French and Gauge in interventional radiological procedure materials.
5. Loopogram.
6. Adverse effects of MR contrast.
7. Aseptic and sterile technique.
8. Dimeric contrast.
9. CT virtual colonoscopy.
10. Patient preparation for HSG.

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