Curriculum

For

M.Ch Urology

(3-year course)

All India Institute of Medical Sciences
Nagpur

1. GOAL

The purpose of this program is to train surgeons as superspecialists in Urology including renal transplant. Candidate should be capable of working as an independent surgeon, be able to train other surgeons and perform basic as well as clinical research in the field of urology.

2. PROGRAM OUTCOMES

Upon completion of the **M.Ch Urology** program, the trainee shall be able to acquire certain subject specific competencies in the cognitive, psychomotor, and affective domain which are as follows:

1. COGNITIVE DOMAIN	
S.No.	**Competencies**
1.1	Acquire a comprehensive knowledge of the basic sciences as relevant to urology which includes the anatomy, embryology, genetics, physiology and biochemistry related to the genito-urinary system.
1.2	Understand the genetic aberrations and anomalies related to fetal development and their management both in pediatric and adult age groups
1.3	Acquire a thorough knowledge of the normal variants and pathological changes related to the genito-urinary diseases.
1.4	Understand the concept behind basic drugs used including the pharmacology and drug interactions as well as microbes relevant to common urological problems.
1.5	Understand the etiology, pathophysiology, diagnosis and management of all basic and advanced surgical diseases operated by the urologists and renal transplant surgeons in routine and emergency settings.
1.6	Learn the basics principles behind the common radiological and nuclear medicine imaging techniques including various phases and interpretation of images including CT, MRI and nuclear scans.
1.7	Acquire knowledge of medicine and critical care relevant in perioperative management of surgical patients including acid base and electrolyte management, fluid management, principles of ventilation and rehabilitation.
1.8	Understand the principles of safe surgery including operability and inoperability.

	Learn the procedures performed in Urology including endo-urology, reconstructive urology, minimally invasive and open surgeries, paediatric urology, female urology, uro-oncology, andrology and renal transplant
1.9	Acquire a good working knowledge of all basic ward and OT procedures as well as a knowledge of the sophisticated and routine equipment used in Urology such as Laparoscope, Endourological instruments C-arm, USG, Lasers, ESWL, Lithotripters and Energy devices
1.10	Understand the basic principles of scientific research and research methodologies including planning a study, data collection, analysis and interpretation. Also understand how to write a paper and critique the same based on methodology and statistics.
1.11	Possess a basic knowledge of patient selection, perioperative management and operative principles related to renal transplant
1.12	Understand the public health and psychosocial implications of diseases related to the genito-urinary system including infertility, erectile dysfunction, DHAT syndrome and Gender affirmation (ambiguous genitalia, transgender, etc)
1.13	Recognize the importance of inter-disciplinary approach in the management and obtain relevant specialist / ancillary services' consultation where appropriate.
2. PSYCHOMOTOR DOMAIN	
S.No.	**Competencies**
2.1	Understand the presentation including history and examination of all genito-urinary diseases.
2.2	Become capable of management of patients suffering from emergent and non-emergent surgical conditions related to the genito-urinary system including ordering of the relevant investigations, avoiding unnecessary investigations and interpreting the results of both laboratory and imaging investigation in light of history and examination findings.
2.3	Be able to formulate a sound treatment plan and monitor the effectiveness of the surgical/ medical intervention performed including identification of complications.
2.4	Capable of identifying the indications for operability as well as inoperability in all diseases relevant to urology and be capable of judging when to operate or

	manage patients conservatively, and whether emergency or elective surgery is indicated.
2.5	Capable of performing all routine and emergency surgeries of urology.
2.6	Be able to identify the normal and abnormal postoperative course and formulate management plan in case of complications to manage the same safely
2.7	Be able to manage high risk patients with prolonged critical care requirements including management of fluid, electrolytes, acid base, nutrition, ventilation and other aspects of post op care
2.8	Capable of identifying the formulating multimodality treatment plans in coordination with other ancillary departments including in tumour boards, renal transplants, radiology, nephrology, pathology, endocrinology, OBGY, paediatrics and neonatology and nuclear medicine.
2.9	Capable of commanding a surgical team including the nursing and technical staff for coordinated patient management
2.10	Able to perform pretransplant and post-transplant workup and management of renal transplant patients.
2.11	Capable of basic and advanced life support including trauma life support
2.12	Capable of planning scientific studies based on sound statistical and research principle including prospective and retrospective analysis.
2.13	Capable of communicating effectively and empathetically with the patient and their relatives to provide all the relevant information for an informed consent as well as be able to break bad news and prognosticate in an empathetic and respectful manner.
2.14	Be capable of planning public health programs and interventions related to diseases of genito-urinary system.
2.15	Understand the administrative components of a urology department including the importance of effective medical record keeping, audits, morbidity and mortality assessments and effective follow up of patients in the long term.
2.16	Capable of presenting the research and institute data in seminars and conferences at the national and international level.
2.17	Capable of starting an independent urology department anywhere in the country.
3. **AFFECTIVE DOMAIN**	

3.1	Adopt ethical principles in all aspects of urology practice/ research – Professional honesty, integrity and humility.
	Respect patient's rights and privileges, right to information and right to seek a second opinion.
3.2	Demonstrate respect, compassion and integrity while dealing with patients, their relatives as well as the support staff.
3.3	Develop the skill of listening patiently to the concerns of the patients and their families and respect their wishes and treatment decisions.
3.4	Be able to educate and counsel patients effectively and empathetically.
3.5	Demonstrate the ability to lead the consult service through interactions with referring and primary doctor and multimodality teams.
3.6	Understand team work including effective and equitable distribution of roles among team members and be able to lead a surgical team including the nursing and technical staff among others in both emergency and elective settings.
3.7	Develop mutual respect and effectively interact with professional colleagues in the ancillary branches to plan effective multimodality treatment plans including in tumour boards and transplant boards.
3.8	Be a sound and effective communicator and teacher and be able to teach the basic concepts of urology to undergraduate and post graduate students as well as the support staff, including in didactic lectures as well as seminar and one to one interactions and other teaching tools
3.9	Understand the importance of and perform the required documentation and follow up of patients.
3.10	Adhere to ethical standards and maintain professionalism while using social media platform for teaching, learning, and communicating.
3.11	Develop the skills for effective public health communication and education using various tools for education and presentation.
3.12	Develop and maintain the highest ethical standards in both clinical practice and while carrying out research.
3.13	Develop desired skills to independently manage emergency situations related to genito-urinary diseases and complications associated procedures /surgeries as mentioned above.
3.14	Develop an aptitude for performing administrative tasks such as audit of the patient care and surgeries, morbidity and mortality assessment and presentation of the same in departmental meetings.

3.15	Develop the public speaking and interactive skills required to effectively present institute data and research at the national and international conferences and forums.
3.16	Develop the aptitude to establish, develop and lead a new urology department.
3.17	Be humble and accept the limitation in his knowledge and skills to ask for help from colleagues when needed.

3. ELIGIBILTY CRITERIA

MS/DNB (SURGERY/ GENERAL SURGERY) from an INI/NMC recognized institute shall be the minimum eligibility qualification.

4. SELECTION OF CANDIDATES

The selection shall be through the entrance test conducted by the competent authority.

5. DURATION OF TRAINING

The training shall be of 3 years duration and will follow the full-time residency pattern. During these years, the candidate shall work as senior resident, who will perform clinical, teaching, research and administrative activities as prescribed in the curriculum.

6. SYLLABUS

Each resident is expected to acquire a through theoretical knowledge of the organs of the Genito-urinary tract as regards anatomy, physiology, pathology of various diseases - congenital / acquired / traumatic / vascular / neoplastic and their detailed principles of management, both medical and surgical.

Urolithiasis:

- Etiopathogenesis & Mineral Metabolism
- Genetics, Molecular chemistry
- Diagnosis and evaluation including variousmethods of stone analysis

- Medical & Surgical management
- Shock Wave Lithotripsy – Principles and practice

Urological Infections (bacterial, mycobacterium, fungal, viral & parasitic infestation):

- Definitions & classification
- Etiology & epidemiology
- Pathogenesis
- Principles of antimicrobial therapy
- Imaging techniques
- Evaluation and management

Voiding function & Dysfunction:

- Physiology & pharmacology of bladder &urethra.
- Neuro-urologic evaluation and managementof neuromuscular dysfunction.
- Urinary incontinence
- Pathophysiology, diagnosis, evaluation andmanagement
- Urodynamic studies.
- BPH
  - Molecular biology, endocrinology andphysiology.
  - Etiology, pathophysiology.
  - Epidemiology & natural history.
  - Evaluation.
  - Medical management.
  - Surgical modalities of treatment.

Genitourinary trauma and urologicalemergencies

- Etiology, evaluation and management of renal, ureteral, bladder, urethral, penile and genitaltrauma.
- Evaluation and emergency management of urological sepsis including tuberculosis, acute renal failure and chronic kidney diseases, renal replacement therapy and other emergencies as depicted earlier

Endo-Urology & Laparoscopy

- Principles and practice (adult and pediatric)
- Management of complications

- Lower Tract:

  Rigid and Flexible CystoscopyVisual Internal Urethrotomy

  Bladder Neck Incision

  Transurethral Resection of Bladder Tumor(TURBT)

  Transurethral resection of Prostate (TURP)

  Holmium LASER Enucleation of Prostate(HoLEP)

  Ureterocele Incision

- Upper Tract:

  PCN (Percutaneous Nephrostomy) PCNL (Percutaneous Nephrolithotomy)

  Ureteroscopy

  RIRS (Retrograde intrarenal surgery)

  Nephrectomy

  Pyeloplasty

  Ureterolithotomy

Uro-Oncology

- Molecular genetics, cancer biology and epidemiology
- Etiopathogenesis, evaluation and management of neoplasia of Kidney, Adrenal, Retroperitoneum,Urothelium, Testis, Prostate, Urethra andExternal Genitalia
- Surgical principles and procedures
- Principles and applications of Radiotherapy andsystemic therapy
- Palliative care and support system
- Social issues

Andrology

- Male reproductive physiology and axis.
- Male infertility Evaluation and Management
- Assisted Reproductive Techniques: PrinciplesHormonal assay (male &female)

  IUI

  Ovarian inductionIVF

  ICSI

  Sperm Retrieval Techniques
- Sexual function & dysfunction:

  Physiology and pathology of penile erection

  Evaluation and management of erectiledysfunction and priapism.

  Male & female sexual health

Female Urology

- Anatomy and physiology of pelvic floor
- Pathophysiology and Evaluation of incontinence
- Principles of management (conservative and operative) of stress urinary incontinence.
- Pelvic organ prolapses: pathophysiology, evaluation and principles of management
- Genitourinary fistulae (e.g. Vesicovaginal, urethrovaginal, ureterovaginal, vesicouterine, ureterouterine etc.) and urethral diverticulum
  - Etiopathogenesis
  - Evaluation
  - Treatment modalities
- Vaginal & abdominal procedures (Laparoscopic/Robotic assisted)
- Intraoperative assessment of bladder andureteral injury

Pediatric Urology:

- Development of Urogenital system
- Perinatal physiology
- Antenatal evaluation of genitourinaryabnormalities and management
- Paediatric urinary tract infections
- Evaluation of paediatric Urological patient
- Renal diseases
- Anomalies of upper urinary tract
- Renal Dysgenesis & cystic diseases
- Anomalies and surgery of the uretero-pelvicjunction in children
- Vesico-ureteral reflux and megaureter, ureterocele
- Anomalies of lower urinary tract- Posteriorurethral valves
- Hypospadias, Epispadias – Exstrophy complex
- Voiding dysfunction in children
- Evaluation and management of ambiguousgenitalia
- Management of undescended testes
- Paediatric urologic oncology

Renal transplantation

- Etiology and Pathogenesis of renal failure
- Management of acute renal failure
- Management of chronic renal failure including access for dialysis (CAPD and AV fistulae) and dialysis & dialysis equipments
- Basic principles of immunology

- Workup of donor and recipient for transplant
- Immunosuppression
- Renal allograft rejection
- Donor and recipient operation
- Management of post-transplant complications

Teaching and learning methodology

- Lecture, Discussion, Student Directed Learning, Case Based Learning, Role Playing, Simulated Patient Lab, E –learning, Web Based.

Recent advances

Minimally invasive surgery including Robotic surgery, 3D laparoscopy, Indocyanine green (ICG), HoLep, ThuLep and similar modalities, newer energy sources, advances in tumour and vascular embolization, artificial intelligence and its role in surgery

Research Methodology and Basic Statistics

Types of studies, selecting the appropriate research methodology, collection of data including cluster sampling, systematic bias, analysis of data, basic statistics and statistical analysis, randomization, critical analysis of research articles.

7. PRACTICAL COMPETENCIES AND SURGICAL SKILLS TO BE ACHIEVED

A. SURGICAL SKILLS

No exhaustive list is possible, and the maximum extent of surgical exposure a candidate would acquire would depend on his/her competence. However, a basic level of surgical competence is essential by the end of the course.

i. **Endo-urology**

Cysto-urethroscopy, DJ stenting, DJ removal, TURP, TURBT, URS, URSL and PCNL.

ii. **Minimally Invasive surgery**

Laparoscopic – Simple Nephrectomy, Radical Nephrectomy, Pyeloplasty, Ureterolithotomy, Ureteric Reimplantations and VVF Repair

iii. **Open**

Simple Nephrectomy, Radical Nephrectomy, Pyeloplasty, Ureterolithotomy, Ureteric Reimplantations, VVF Repair, Radical Cystectomy with Urinary diversion, Urethroplasty, Augmentation Cystoplasty.

iv. **Andrology**

TRUS, Microscopic Varicocelectomy, Vaso-vasostomy, Vaso-epididymostomy, Vasectomy, TESE, MESA, MESE.

v. **Female Urology**

TVT, TOT, VVF, UVF, Urethral Strictures, PBNO, Botox instillations, Sacro-colopopexy, Sacral Neuromodulation.

vi. **Paediatric urology**

Hypospadias, Epispadias, PUV valve fulgration, pyeloplasty, cystostomy, ureteric reimplants and Orchidopexy.

vii. **Renal transplant and vascular access surgeries**

Organ retrieval, Lap live donor nephrectomy and Renal transplant recipient surgery, RCF, BCF and BBT.

B. CLINICAL SKILLS

1) Elicit the pertinent history and examination details

2) Order and interpret relevant investigations including laboratory/radiological/nuclear scans and endoscopic investigations

3) Prepare a working diagnosis and management plan

4) Identify level of care required including emergency/elective; primary/secondary/tertiary care

5) Identify the normal and abnormal perioperative course, pick up complications early and formulate a management plan for the same

6) Capable of managing perioperative patients in a holistic manner including:

(i) critical care management, ICU and HDU level care

(ii) management of ventilators, identify ALI/ VAP and manage

(iii) acid base and fluid management

(iv) manage vascular complications including DVT

(v) manage perioperative cardiac and renal issues including AKI/ MI/ arrythmias

(vi) Rational blood use – blood components, indications for each, complications related to transfusion including TRALI and their management, avoidance of overuse of blood products, massive transfusion protocols

(vii) Rehabilitation of patients including exercise, diet and respiratory physiotherapy

(viii) Appropriate Nutritional management

(ix) Postoperative physiotherapy – respiratory and physical

(x) Stoma care and management, stoma counselling, identification and management of complications related to various kinds of stomas including urostomy and longstanding intestinal fistulas.

7) Maintain appropriate records and follow-up

8) Identify and coordinate with multidisciplinary team for multimodality treatment plan

9) Able to attend intradepartmental consults and seek help where needed

10) Capable of performing and interpreting the following radiological investigations :

(i) USG abdomen and doppler studies – renal doppler

(ii) Intraoperative Ultrasound

(iii) Flouroscopy – types of contrast and which contrast to be used.

(iv) MRI and its different phases

(v) PET scan and nuclear scans including DTPA, DMSA, PSMA, DTATATE, DOTATOC, DOTANOC, Bone scans.

(vi) Therapeutic nuclear modalities specifically in prostate cancer

(vii) Percutaneous drainage of collections and urinary drainage, percutaneous biopsy, TRUS Biopsy and Transperineal biopsy.

(viii) ESWL

(ix) Urodynamic study

(x) RGU + MCU, Nephrostogram and cystogram.

11) Capable of taking informed consent

12) Develop a respectful attitude towards patients and colleagues; good communication skills and ethical values in practice

13) Be capable of identifying and reporting rare diseases/ idiosyncratic reactions

8. STRUCTURE OF THE TRAINING PROGRAM - POSTING SCHEDULE

S. No.	Posting	Duration	Timing
1.	Department of Urology	36 months	1st to 6th Semester

9. ACADEMIC ACTIVITY

Sr No	Teaching/Learning Activity	Frequency
1.	Clinical Case presentation	Once a week
2.	Clinical grand rounds	Once a week
3.	Journal Club	Once a fortnight
4.	Seminars/Webinars	Once a month
5.	Mortality and Morbidity meets	Once a fortnight
6.	Surgical Audit	Once every 2 months
7.	Dissertation review	Once every 6 months
8.	**Inter-departmental meets** Uro-Nephro meet Uro-Patho meet Uro-Radio meet	Once every 3 months

10. DISSERTATION

A dissertation based on either a clinical or a basic science research topic will be carried out by each trainee as an essential component of the curriculum. This will be performed under the guidance of a recognized postgraduate teacher with the purpose of inculcating in the trainees a scientific bent of mind and capabilities to perform

independent research. Dissertation work will be carried out in accordance with institutional protocol.

Activity	Jan admission	July admission
Selection of topic in consultation with PG Guide	March/ April	September/ October
Approval by Department PG Committee		
Institute Scientific Committee approval	May/ June	November/ December
Institute Ethics Committee approval		
Final approval letter by Academics Section	30th June	31st December
Final submission to academic section	30th June (Third Year)	31st December (Third Year)

11. LOG BOOK

The candidate must maintain a log book of the work carried out by them and the training program undergone during the period of training including details of procedures assisted or done independently by the trainees. The log book shall be checked and assessed periodically by the faculty members imparting the training. Maintenance of performance record in log book is mandatory.

12. ASSESSMENT

A. FORMATIVE ASSESSMENT

i. TOTAL 1200 MARKS – 600 FOR THEORY AND 600 FOR PRACTICALS

ii. THEORY INTERNAL EXAM SCHEDULE

S. No.	SCHEDULE	MARKS	PATTERN
1.	End of First Year	100	10 Questions x 10 marks each
2.	End of Second Year	100	10 Questions x 10 marks each
3.	Pre professional Exam	400	As per the Final Professional Exam
	Total	600 marks	

iii. PRACTICAL INTERNAL EXAM SCHEDULE

S. No.	SCHEDULE	MARKS	PATTERN
1.	End of First Year	100	2 CASES X 30 MARKS EACH 20 MARKS – HISTOPATHOLOGY AND RADIOLOGY 20 MARKS – VIVA VOCE
2.	End of Second Year	100	
3.	Pre professional Exam	400	As per the Final Professional Exam
	Total	600 marks	

B. 6 MONTHLY PROGRESS REPORT

The progress of the trainees will be monitored with the help of a **six monthly structured report.** The report will contain details pertaining to attendance, teaching-learning activities, clinical duties, teaching assignments, practical work, marks obtained at intermediate examinations, papers / posters presented, research publications and progress of dissertation

work. The performance of the student will be graded by the PG Guide and the Head of the Department. The report will be submitted as per the following schedule:-

Report	**July Session**		**January Session**	
	Period	**Submission date**	**Period**	**Submission date**
First	July to December	7th January	January to June	7th July
Second	January to June	7th July	July to December	7th January
Third	July to December	7th January	January to June	7th July
Fourth	January to June	7th July	July to December	7th January
Fifth	July to December	7th January	January to June	7th July
Sixth	January to June	10th June	July to December	10th November

C. ESSENTIAL PRE-REQUISITE TO APPEAR FOR SUMMATIVE ASSESSMENT

- **i.** Minimum 80% attendance
- **ii.** Minimum of four satisfactory reports out of six, 6 monthly progress reports
- **iii.** Acceptance of the Dissertation
- **iv.** Minimum **one** scientific paper/poster presentation at International / National / State Conference
- **v.** Minimum **one** research paper – published / accepted for publication / sent for publication in a peer-reviewed indexed scientific Journal
- **vi.** Successful completion of research methodology program at induction.
- **vii.** Minimum 50% marks in theory and practical separately in the formative assessment

D. SUMMATIVE ASSESSMENT/ FINAL PROFESSIONAL EXAMINATION

At the end of the training, summative assessment will be carried out in the following pattern: -

THEORY	4 PAPERS X 100 MARKS = 400 MARKS
PRACTICAL	500 MARKS

TOTAL	900 MARKS

THEORY

There shall be 4 papers; each of 3 hours duration carrying 100 marks each

PAPER I	Basic and Allied Sciences	Each paper will have 10 questions of 10 marks each 10 ques x 10 marks = 100 marks each **Total = 400 marks**
PAPER II	Clinical Urology 1	
PAPER III	Clinical Urology 2	
PAPER IV	Recent Advances in Urology	

PRACTICAL

Practical		Component	Marks allotted
	Day 1	Long case – One	150
		Short cases – Three (25 X 3)	75
		Ward Round Three (25 X 3)	75
	Day 2	Operative Procedure and Instruments, investigations and therapeutics	100
		Radiology	25
		Pathology	25
		Critical appraisal of a scientific paper	25
		Logbook	10
		Scientific Writing (Manuscript written out of the thesis)	15
		Total	**500**

In order to be declared successful in summative assessment, the candidate must score:

1. Minimum 40% marks in each theory paper and aggregate of 50% marks in order to be declared pass in theory exam.
2. Minimum 50% marks required in Theory & Practical separately, in order to be declared successful in summative exam.

13. RECOMMENDED READING

Recommended Textbooks

General Urology

1. W. Scott McDougal MDMAH, Wein AJ, Louis R. Kavoussi MDMBA, Partin AW, Peters CA. Campbell-Walsh Urology: Elsevier Health Sciences; 2015.
2. Mundy AR. The Scientific Basis of Urology: Informa Healthcare; 2010.
3. Kaufman JJ. Current Urologic Therapy: Saunders; 1986.
4. O'Reilly PH. Obstructive Uropathy: Springer London; 2012.
5. McAninch JW. Genitourinary Trauma: Saunders; 2006.
6. Whitfield HN, Hendry W, Kirby R, Duckett J. Textbook of Genito-Urinary Surgery: Wiley; 1998.
7. Gillenwater JY. Adult and Pediatric Urology: Lippincott Williams & Wilkins; 2002.

Paediatric Urology

1. Docimo SG, Canning D, Khoury A, Salle JLP. The Kelalis--King--Belman Textbook of Clinical Pediatric Urology: CRC Press; 2018.
2. Whitaker RH. Current Perspectives in Paediatric Urology: Springer London; 2012.

Uro-oncology

1. De Kernion JB, Paulson DF. Genitourinary Cancer Management: Lea & Febiger; 1987.
2. Daneshmand S, Chan KG. Genitourinary Cancers: Springer International Publishing; 2018.
3. Daneshmand S. Modern Management of Testicular Cancer: Elsevier Health Sciences; 2019.

Urodynamics

1. Abrams P. Urodynamics: Springer London; 2013.
2. Mundy AR, Stephenson TP, Wein AJ. Urodynamics: principles, practice and application: Churchill Livingstone; 1994.
3. Barrett DM, Wein AJ. Controversies in neuro- urology: Churchill Livingstone; 1984.
4. Hald T, Bradley WE. The Urinary Bladder: Neurology and Dynamics: Lippincott Williams & Wilkins; 1982.

Stone Diseases

1. Smith AD, Preminger G, Badlani GH, Kavoussi LR. Smith's Textbook of Endourology: Wiley; 2012.
2. Nakada SY, Pearle MS. Advanced Endourology: The Complete Clinical Guide: Humana Press; 2007.
3. Carson CC, Dunnick NR. Endourology: Churchill Livingstone; 1985.
4. Schmutz R, Birkhäuser F, Zehnder P. Extracorporeal Shock Wave Lithotripsy: In Clinical Practice: Springer International Publishing; 2018.
5. Jonas U, Dabhoiwala NF, Debruyne FMJ. Endourology: New and Approved Techniques: Springer Berlin Heidelberg; 2013.

Infertility

1. Jequier AM. Male Infertility: A Guide for the Clinician: Wiley; 2008.
2. Gunasekaran K, Pandiyan N. Male Infertility: A Clinical Approach: Springer India; 2016.
3. Silber SJ. Reproductive Infertility: Microsurgery in the Male and Female: Lippincott Williams & Wilkins; 1984.
4. Silber S. Fundamentals of Male Infertility: Springer International Publishing; 2018.

Reconstructive and Female Urology

1. O'Donnell PD. Urinary Incontinence: Mosby; 1997.
2. Aboumarzouk OM. Blandy's Urology: Wiley; 2019.
3. Ostergard DR, Bent AE. Urogynecology and urodynamics: theory and practice: Williams &

Wilkins; 1996.
4. Libertino JA. Reconstructive Urologic Surgery: Mosby; 1998.
5. Handa VL, Van Le L. Te Linde's Operative Gynecology: Lippincott Williams & Wilkins; 2019.

Renal Transplantation

1. Knechtle SJ, Morris PJ. Kidney Transplantation
- Principles and Practice: Elsevier Health Sciences; 2013.
2. Torpey N, Moghal NE, Watson E. Renal Transplantation: OUP Oxford; 2010.
3. Cogan MG, Schoenfeld P, Gotch FA. Introduction to dialysis: Churchill Livingstone; 1991.

Online Learning Resources

1. https://www.uptodate.com/contents/search
2. www.researchgate.com
3. PUBMED CENTRAL
4. COCHRANE REVIEW
5. NCCN GUIDELINES APP
6. MEDSCAPE APP
7. EAU guidelines
8. AUA guidelines
9. https://notto.gov.in/
10. ZTCC, Nagpur.

Model Question Paper:

MODEL SAMPLE QUESTION PAPER

PAPER 1

BASIC AND ALLIED SCIENCES

Maximum Marks: 100

Time: 3 Hours

Answer all questions.

Illustrate your answer with suitable diagrams.

Each questions carry 10 marks each.

1. Discuss the pathology, laboratory tests, radiological tests and management of Genito- urinary tuberculosis

2. Enumerate antibiotic resistance mechanism with examples.

3. Describe the rationale, indications, advantages and disadvantages of Multiparametric magnetic resonance imaging in diagnosis of carcinoma prostate.

4. Describe the role of various Energy sources in prostate and their advantages.

5. Enumerate the urological complications of renal transplant.

6. Discuss “Patient reported outcome measures”.

7. Describe the embryology of urethra and clinical conditions arising due to abnormal development.

8. Enumerate the surgical algorithm for the management of T3N2M1 non-seminoma of testis.

9. Describe the management of uncomplicated urinary tract infection in female.

10. Describe the pathophysiology of Erectile Dysfunction

MODEL SAMPLE QUESTION PAPER

PAPER 2

CLINICAL UROLOGY-1

Maximum Marks: 100

Time: 3 Hours

Answer all questions.

Illustrate your answer with suitable diagrams.

Each questions carry 10 marks each.

1. Define hormone resistant carcinoma prostate. Discuss the Management and complications of hormone resistant carcinoma prostate.

2. Describe the management of VUR in 2 year old male child.

3. Enumerate the etiology, pathogenesis, diagnostic tests and management of distal renal tubular acidosis.

4. Non-ischemic priapism.

5. Critical appraisal on SUI

6. Describe the complication of trans-urethral resection of bladder tumor as per the modified-clavien dindo classification. How to manage a 3cm extraperitoneal bladder perforation?

7. Enumerate the operative steps of laparoscopic nephrectomy and enumerate three common complications.

8. Management of Blunt trauma abdomen with hematuria.

9. Discuss the management of emphysematous pyelonephritis.

10. Fosfomycin

MODEL SAMPLE QUESTION PAPER

PAPER 3

CLINICAL UROLOGY-2

Maximum Marks: 100

Time: 3 Hours

Answer all questions.

Illustrate your answer with suitable diagrams.

Each questions carry 10 marks each.

1. Describe the role of NUCLEAR MEDICINE IN UROLOGY
2. Enumerate the diagnosis and Medical managements of Chronic kidney diseases.
3. Discuss the complications of PCNL as per the modified-clavien dindo classification.
4. Enumerate the surgical steps of robotic radical prostatectomy with their approaches
5. Describe the Indications of ileal conduit and ileal neobladder. Surgical landmarks of standard and extended lymph node dissection in carcinoma urinary bladder.
6. Discuss the management of bilateral 4cm inguinal lymph node in after partial penectomy for high grade carcinoma penis.
7. Enumerate the abnormal embryology of penis.
8. Discuss the diagnosis and management of non - obstructive azoospermia.
9. Describe the etiology, diagnosis and surgical management of uretero-vaginal fistula
10. Role of TRUS in modern urology.

MODEL SAMPLE QUESTION PAPER

PAPER 4

RECENT ADVANCE IN UROLOGY

Maximum Marks: 100

Time: 3 Hours

Answer all questions.

Illustrate your answer with suitable diagrams.

Each questions carry 10 marks each.

1. Describe the indications, instruments and complication of RIRS.

2.Role of renal mass biopsy in small renal masses.

3. Describe the outcomes of the RAZOR Trial.

4. Enumerate the vaccines used for carcinoma prostate.

5. Describe the various Modes of TFL laser in lithotripsy.

6. Discuss the indications, difficulties and interpretation of Ambulatory urodynamics.

7. Enumerate the use of Nano-technology in urology.

8. Describe the Role of Robots For stone surgery.

9. Describe the advantages, indication and technical aspects of REZUM

10. Evolution of robotics in urological practice.

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