

# RAJASTHAN PUBLIC SERVICE COMMISSION, AJMER

## SYLLABUS OF COMPETITIVE EXAMINATION FOR THE POST OF ASSISTANT PROFESSOR (Broad Speciality) GENERAL SURGERY MEDICAL EDUCATION DEPARTMENT

### Basic - Principle of Surgery (Basic Sciences with scheme to Surgery)

#### A. Surgical Anatomy

1. **Head & Neck** - Parts of Brain including ventricles & intracranial vascular arrangement, Spinothalamic tracts. Anatomy of great vessels of neck. Neck triangles, Anatomy of Trachea, Parotid gland, Anatomy and relations and facial nerve. Anatomical distribution of cervical lymph nodes.
2. **Thyroid gland** - Anatomy of Thyroid gland & parathyroid gland and Course of recurrent Laryngeal Nerve.
3. **Breast** - Anatomy of breast, Lymphatic drainage of breast and arrangement of axillary lymph nodes.
4. **Chest** - Anatomy of Chest wall, lungs, pleura, Heart & great vessels, Course of oesophagus and its relations with aorta and azygous vein and Thoracic duct.
5. **Stomach** - Blood supply & lymphatic drainage, course of vagus nerve.
6. **Duodenum** - Peritoneal reflections & relationship with head of Pancreas.
7. **Small Intestine** - Malrotation, Vitello intestinal duct, urachus and Meckle's diverticulum.
8. **Large Intestine** - Appendix - Various positions and its clinical relevance, peritoneal reflections, vascular supply and lymphatic drainage of large intestine.
9. **Rectum and anus** - Peritoneal reflections, Vascular & Lymphatic arrangement, anal membrane, Hilton's lines and relationships with perineal muscles and developmental anomalies.
10. **Liver** - Anatomical and surgical lobes of liver, vascular supply and intrahepatic ductal arrangement.
11. **Gall Bladder** - Anatomical variations of the cystic duct and cystic artery (In relation to hepatic artery), anatomy of extra hepatic biliary system.
12. **Pancreas** - Relation with portal vein, inferior mesenteric vein and IVC, Boundaries of lesser sac.
13. **Spleen** - Vascular supply and its relation with tail of pancreas, Colon, Kidney, Diaphragm, stomach.
14. **Diaphragm** - Development, various hiatus & relationship with structures passing through them.

15. **Retroperitoneal Area** - Lymphatic, Thoracic duct, lymphnodes, sympathetics chain and anatomy of great vessels.
16. **Kidney and Ureters** - Developmental anomalies, Blood supply, Course of Ureter.
17. **Suprarenal** - Blood supply, venous drainage and relations with kidney.
18. **Urinary Bladder & Prostate** - Anatomy & relations with rectum and Ureter.
19. **Urethra** - Length, Various parts and development anomalies.
20. **Penis** - Lymphatic drainage - Attachment of crura.
21. **Testis** - Development anomalies like UDT, MDT, etc.
22. **Extremities** - Upper limb - Various muscular compartments of hand, forearm & arm. Course of various vessels & nerves, e.g. radial, median & ulnar. Lower limb - Arterial supply & venous drainage of lower limb, muscular compartment of foot, leg & thigh.
23. **Surgical Anatomy** of inguinal Canal, Femoral canal, umbilicus & abdominal wall & its anatomy, various abdominal surgical incisions.

## **B. Surgical Physiology**

1. **Thyroid** - Iodine Metabolism, Pituitary - Thyroid Hormone axis.
2. **Breast** - Effects of various hormones on breast.
3. **Chest** - Mechanism of respiration, effect on Hemodynamics, Cardiac circulation, surgical causes of hypertension.
4. **Stomach** - Mechanism of acid production.
5. **Intestine** - Secretory and absorptive mechanism of small and large intestine.
6. **Rectum and Anus** - Mechanism of defecation.
7. **Liver** - Mechanism of Bile secretion, Entero-hepatic circulation and various metabolic functions of liver.
8. **Gall Bladder** - Mechanism of gall stone formation.
9. **Pancreas** - Exocrine and Endocrine pancreatic secretion, Patho-physiology of pancreatitis.
10. **Spleen** - Functions of spleen.
11. **Diaphragm** - Gastro-oesophageal reflux.
12. **Kidney** - Mechanism of formation of urine in relation to acute and chronic renal failure.
13. **Suprarenal** - Physiology of various hormone production.
14. **Urinary Bladder** - Mechanism of micturition and vesico-uretric reflux.
15. **Testis** - Germinal and endocrinal functions of testis.
16. **Critical Care**
  - Physiological response to trauma.
  - Nutrition in surgical critically ill patients.
  - Enteral and Parenteral nutrition.
  - Shock.

- Burns.
- Blood transfusion.
- Fluid and Electrolyte Balance. Acid - Base Balance.
- ARDS, SIRS, multiple organ failure.
- Physiology of wound healing.
- Mechanism of clotting.
- Abdominal compartment syndrome.

### C. **Surgical Pathology**

1. Various types of biopsies, preservation of specimens.
2. Formation of Tumors, well differentiated cells, Totipotent cells, Histopathological features of Neoplasm. Stem cell therapy.
3. Benign and malignant tumors, Gene therapy and Tumor Markers.
4. Grading & staging of tumors.
5. Disturbed wound healing, Necrotising-fasciitis, Gangrene and sequestrum.
6. Pathology of Benign Tumor like Lipoma, Fibroma, Osteoma, Adenoma, Papilloma, etc.
7. Various primary malignant tumor and secondary tumors.

### D. **Clinical Surgical Problems**

(Various clinical presentations, diagnosis, complications & treatment)

1. **Head & Neck** - Hydrocephalus, Meningocele, Encephalocele, intracranial injury (contusion, concussion, laceration, extradural and subdural hemorrhage, Middle meningeal hemorrhage, Lucid interval), cervical spine fracture, Brain tumors in general. Cleft Lip, Cleft palate, thyroglossal Cyst, Branchial Cyst, Branchial fistula and Pharyngeal pouch, Lymphnode enlargement - Inflammatory, Tubercular and malignant. Indications/contraindications of lymph node biopsy in neck, Diseases of Salivary glands and diseases of lymphatic system.
2. **Thyroid** - Various types of thyroiditis, thyrotoxicosis, myxoedema, cretinism, solitary thyroid nodule, goiters-simple and multi nodular goiter, thyroid malignancy controversies in management of carcinoma of thyroid.
3. **Parathyroid** - Adenoma, hyper parathyroidism and malignancy, MEN.
4. **Breast** – Investigation of breast, ANDI, duct ectasia, galactocele, puerperal abscess, congenital disorders, fat necrosis, acute & subacute inflammation of breast, abnormal discharges from nipple, tuberculosis, actinomycosis, Mondor's disease, phyllodes tumors, carcinoma of breast (pathology, etiological factors, staging, clinical presentation, treatment which includes surgical, radiotherapy, systemic therapy, hormonal therapy & it should include recent trends in management. Gynaecomastia, carcinoma male breast, lipoma, sarcoma, metastases.

5. **Chest** - Fracture ribs, Flail chest, Haemo-pneumothorax, Lungs injuries, Injures to great vessels, Surgical emphysema, Cardiac tamponade, Tension pneumothorax, pleural effusion, Empyema, Apical shadow in lungs, Bronchogenic carcinoma and secondaries of the lungs.
6. **Oesophagus** – Corrosive strictures, malignancy oesophagus, Boerhaave's syndrome. Variceal Bleeding.
7. **Stomach** - Hypertrophic pyloric stenosis, peptic ulcer & perforation, Gastric outlet obstruction, Benign & malignant tumor of stomach, Zollinger - Ellison syndrome Type I & II, H-Pylori-role in APD & Carcinoma stomach. Upper GI Bleeding.
8. **Intestine** - Intestinal atresia, exomphalous major, patent vitello - intestinal duct & various clinical manifestations, Meckle's diverticulum, Intestinal obstruction, small gut tumors, Tuberculosis of intestine, caecum and large intestine, malignancy of Caecum and Large intestine, Ulcerative colitis & Crohn's disease, surgical management, short gut syndrome, intussusception, Gastrojejunal bypass, Bariatric surgery & metabolic surgery, familial adenomatous polyposis. Lower GI Bleeding, Mesenteric ischaemia, intestinal failure and intestinal transplantation.
9. **Rectum & Anus** - Imperforated Anus, Hirschsprung's diseases, Piles, fistula in ano, fissure in ano, polyp and adenomas, Ano rectal carcinoma with Special reference to modern management, Low anterior resection, value of circular staplers.
10. **Liver** - Liver injuries, Liver abscess, Hydatid disease, Hepatic Tumors-Benign and malignant, secondaries, Portal Hypertension, liver resection and Hepatic transplantation.
11. **Gall Bladder** - Gall stones, acute and chronic cholecystitis, Complications of Gall Stones, malignancy of gall bladder, post operative bile leaks.
12. **Common bile duct** – Bilioma, Haemobilia, Biliary structures, cholangitis, cholangio-carcinoma, obstructive jaundice and peri ampullary carcinoma.
13. **Pancreas** - Pancreatic injury, acute and chronic pancreatitis (Recent Management), Endocrine, Tumors of Pancreas, Recent Pathogenesis of acute pancreatitis, cysts of pancreas, malignancy of pancreas and pancreatic transplantation.
14. **Spleen** – Splenic abscess, Hyper splenism, splenic injury, splenomegaly, tumors of spleen, portal hypertension and splenic auto transplantation, Splenorrhaphy. Opportunistic post- splenectomy infections (OPSI).
15. **Diaphragm** - Diaphragmatic hernia, Eventration, diaphragmatic injuries, Penetrating thoraco abdominal injuries.
16. **Retroperitoneal tumors** - retroperitoneal fibrosis, peritonitis, intraabdominal abscess, burst abdomen, mesenteric cyst, pseudomyxoma peritonei, peritoneal neoplasm, acute mesenteric lymphadenitis.

17. **Kidney** – Congenital anomalies, renal trauma, renal stone, hydronephrosis, pyonephrosis, perinephric abscess, tuberculosis of the kidney, renal tumors and para-malignant Apudomas Renal transplantation & Donor Nephrectomy.
18. **Ureter** - Ureteric stones & ureteric transplantation, PUJ obstructions Ureteric injury, URS (Uretoro-Reno-Scopy).
19. **Suprarenal** – Phaeochromocytoma, Incidentaloma, Adrenocortical Carcinoma, Neuroblastoma and its surgical management.
20. **Urinary bladder & Prostate** - Exstrophy bladder, posterior urethral valves, Bladder injury, stones, hematuria, cystitis, Tuberculosis, diverticulum, Benign & malignant tumors, acute & chronic prostatitis, BHP, malignancy of prostate, retention of urine, incontinence and urgency.
21. **Urethra** - Urethral injuries, stricture, stone and hypospadias, epispadias.
22. **Penis**- Phimosis, meatal stenosis, paraphimosis, balanitis, ulcers and malignancy, Priapism, Erectile dysfunctions.
23. **Testis** - Undescended testis, Ectopic testis, Acute Orchitis, Chronic epididymo-orchitis, Torsion testis, Hydrocele, Varicocele, Hematocele and Tumors of the testis, Recent trends in management of testicular tumors.
24. **Upper Extremities** - Soft tissue injuries including nerve, muscles, vessels, cervical rib and Raynaud's disease.
25. **Skin** - Ulcers, Tumors, S.C.C., B.C.C., Sarcoma & Melenoma, kaposi's sarcoma. Wound management.
26. **Lower Limb** - Varicose veins, DVT, Soft tissue injury, muscles, vessels, nerves & Peripheral vascular disease, compartment syndrome, Endoscopic ligation of subfascial perforators.
27. **Hernia** - Definition, classification, Internal hernia (diaphragmatic, paraduodenal, transmesenteric, External hernia (inguinal, femoral epigastric, umbilical, paraumbilical and incisional), Laparoscopic anatomy of inguinal region.
28. **General** -
  - (a) Trauma – poly trauma, resuscitation, Triage.
  - (b) Radiotherapy & Chemotherapy & immunotherapy and Tumor Markers for various malignancies.
  - (c) Laparoscopic surgery - Basic & advanced.
  - (d) Robotic surgery & Tele-surgery.
  - (e) Anaesthesia - Endotracheal intubation, Tracheostomy, Cardic arrest, Resuscitation & Death on table, Epidural, Spinal anaesthesia.
  - (f) Operation Theatre - Theatre safety, design and layout. Techniques including autoclave & sterilization, Plasma sterilization.
  - (g) Infective surgical diseases - Gangrene, Tetanus, Necrotising fasciitis, Diabetic foot, Carbuncle etc., surgical site infection – types, preventions & use of antibiotics.
  - (h) AIDS, universal precautions.

- (i) Diagnostic procedures - IVP, Barium studies, MRI, CT-Scan, PET Scan, Virtual endoscopy, Doppler, USG.
- (j) Endoscopic procedures - like Gastroscopy, ERCP, Oesophagoscopy, Colonoscopy & capsule endoscopy, cystoscopy & ureteric catheterization.
- (k) NOTES – (natural orifice trans abdominal endo surgery)
- (l) Recent advances in surgery latest at the time of examination & interview.
- (m) Fundamentals of plastic surgery, neuro surgery, urology, pediatric surgery, gastro-intestinal surgery, etc.
- (n) Various operative procedures.
- (o) Biomedical waste management.
- (p) Lasers in surgery.
- (q) Surgical Audit.
- (r) Evidence based surgery.
- (s) Day care surgery.
- (t) Research methodology.
- (u) Types of teaching.

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**Pattern of Question Papers:**

- 1. Objective Type Paper**
- 2. Maximum Marks: 150**
- 3. Number of Questions: 150**
- 4. Duration of Paper: 2.30 Hours**
- 5. All Questions carry equal marks**
- 6. There will be Negative Marking**  
(For every wrong answer one-third of the marks prescribed for that Particular question shall be deducted.)