

RAJASTHAN PUBLIC SERVICE COMMISSION, AJMER

SYLLABUS OF SCREENING TEST FOR THE POST OF

ASSTT. PROFESSOR – PATHOLOGY

MEDICAL & HEALTH DEPARTMENT

I Recent Advances Topics

- 1 Antibody-mediated rejection of solid organ allografts.
- 2 The maternal death autopsy.
- 3 Classification and treatment of non-small-cell lung carcinoma.
- 4 Pathology of obesity.
- 5 Stratified medicine for cancer: the role of the histopathologist.
- 6 Mucosal pathology of the gastric cardia and Barrett's oesophagus.
- 7 Pathology of regenerative and neoplastic hepatocellular nodules.
- 8 Serrated lesions of colon and rectum.
- 9 An update on the pathology of chronic inflammatory bowel disease.
- 10 Diagnosis and therapy of gastrointestinal MALT lymphoma.
- 11 Medical revalidation for histopathologists.
- 12 Molecular testing for human papilloma virus.
- 13 Tensins in health and disease.
- 14 Pathology in the undergraduate curriculum.
- 15 Primary carcinoma of the salivary gland – Selected Recent Advances.
- 16 Cancer invasion and metastasis - The concept of epithelial mesenchymal transition.
- 17 Matrix metalloproteinases (MMP) in neoplastic progression – Where are we now?
- 18 Osteoarthritis – New concepts
- 19 Cutaneous pseudolymphoma.
- 20 Liquid based cytology for Cervical Screening.
- 21 Pitfall in the diagnoses of Soft tissue tumours of childhood.
- 22 Sudden unexpected death in Infancy.
- 23 The Non invasive or minimally invasive autopsy.
- 24 Bio-terrorism.
- 25 Predictive and prognostic molecular markers in breast cancer.
- 26 Digital photography in histopathology.
- 27 Adult stem cells and trans differentiation.
- 28 Role of Immuno histochemistry in problematic prostate biopsy.
- 29 Cytokeratin immunostaining profile in diagnostic pathology.

1 Cell Injury

- Cause and mechanism : Ischemic, Toxic and Apoptosis.
- Reversible cell injury : Types, morphology, hyaline, fatty change.
- Irreversible cell injury : Types of necrosis, gangrene.
- Calcification : Dystrophic and metastatic.
- Extracellular accumulation : Amyloidosis, classification, pathogenesis, morphology.

2 **Inflammation and repair**

- Acute inflammation : features, causes, vascular and cellular events.
- Morphological variant of acute inflammation.
- Inflammatory cells and mediators.
- Chronic inflammation : causes, types, non-specific and granulomatous with common examples.
- Wound healing by primary and secondary union, factors promoting and delaying the process and complications.

3 **Immunopathology**

- Immune pathology : organization, cells, antibodies and regulations of immune responses.
- Hypersensitivity : types and examples, antibodies and cells mediated tissue injury with examples.
- Autoimmune disorders like Systemic Lupus Erythematosus.
- Organ transplantation : immunological basis of rejection and graft versus host reaction.

4 **Infectious diseases**

- Mycobacterial diseases : tuberculosis and leprosy.
- Bacterial diseases : pyogenic, typhoid, diphtheria, gram-ve infections, bacillary dysentery, syphilis.
- Viral : polio, herpes, rabies, measles, reckettsial, chlamydial infections.
- Fungal disease and opportunistic infections.
- Parasitic diseases : malaria, filarial, amoebiasis, kala azar, cystecercosis, hydatid.
- AIDS : etiology, modes of transmission, pathogenesis, pathology, complications, diagnostic procedures and handling of infected materials and health education.

5 **Circulatory disturbances**

- Oedema : pathogenesis and types.
- Chronic venous congestion : lung, liver, spleen.
- Thrombosis and embolism : formation, fate and effects.
- Infarction : types, common sites, gangrene.
- Shock : pathogenesis, types, morphological changes.

6 **Growth disturbances**

- Atrophy, hypertrophy, hyperplasia, hypoplasia, metaplasia, malformation, agenesis, dysplasia.

- Neoplasia : causes, classification, histogenesis, biological behaviour, benign and malignant, carcinoma and sarcoma.
- Malignant neoplasia : grades and stages, local and distant spread.
- Carcinogenesis : Environmental carcinogen, chemical, viral, occupational, hereditary and basics of molecular basis of cancer.
- Tumour and host interaction : systemic effects including para neoplastic syndrome, tumour immunology.
- Laboratory diagnosis : cytology, biopsy, tumour markers.
- Tumours and tumour like conditions of soft tissues.

7 **Miscellaneous disorders**

- Autosomal and sex-linked disorders with examples.
- Protein energy malnutrition and vitamin deficiency disorders.
- Radiation injuries.
- Disorders of pigments and mineral metabolism such as bilirubin, melanin, haemosiderin.

8 **Haematopathology**

- Anaemia : classification and clinical features.
- Nutritional anaemia : Iron deficiency, folic acid/ vit. B 12 deficiency anaemia including pernicious anaemia.
- Haemolytic anaemia : classification and investigation.
- Hereditary haemolytic anaemia : thalassemia, sickle cell anaemia, hereditary spherocytosis and G 6 PD D deficiency.
- Acquired Hemolytic anemias : malaria, Kala Azar., Autoimmune, alloimmune, drug induced, microangiopathic.
- Haemostatic disorders : platelet deficiency, ITP, drug induced, secondary.
- Coagulopathies : coagulation factor deficiency, hemophilia, DIC and anticoagulant control.
- Leucocytic disorders : Leucocytosis, leucopenia, leukemoid reaction.
- Acute and chronic leukemia : classification and diagnosis.
- Multiple myeloma and dysprotenemias.
- Blood transfusion : grouping and cross matching untoward reactions, transmissible infections including HIV and hepatitis.
- Myelodysplastic syndrome.
- Myelo proliferative disorders : polycythemia, myelofibrosis.

9 **Cardiovascular Pathology**

- Acute Rheumatic fever : etiopathogenesis and morphological changes and complications including rheumatic heart disease.
- Infective endocarditis : etiopathogenesis and morphological changes and complications.
- Atherosclerosis and ischemic heart disease : myocardial infarction.

- Hypertension and hypertensive heart disease.
- Congenital heart disease : ASD, VSD, Fallot's tetatology, Bicuspid aortic Valve PDA.
- Pericarditis.
- Cardiomyopathy.

10 Respiratory Pathology

- Structure of bronchial tree and alveolar walls, normal and altered inflammatory diseases of bronchi : chronic bronchitis, bronchiectasis.
- Pneumonias : lobar, broncho, interstitial.
- Lung abscess : etiopathogenesis and morphology and complications.
- Pulmonary tuberculosis : primary and secondary, morphologic types Including pleuritis.
- Emphysema : type and pathogenesis.
- Tumours : Epithelial Malignant Neoplasms of Lung, Etiopathogenesis.

Concepts of obstructive and restrictive lung disorders – Chronic bronchitis, emphysema, Asthma.

- Nasopharyngeal and laryngeal tumors.
- Occupational lung disorders : anthracosis, silicosis, asbestosis, mesothelioma.
- Atelectasis and hyaline membrane disease.

11 Renal & Urinary tract pathology

- Basics of impaired function and urinalysis.
- Glomerulonephritis : classification, primary proliferative and non proliferative, secondary (SLE, polyarteritis, amyloidosis, diabetes mellitus).
- Clinical presentation of renal disorders including nephritic, nephrotic syndrome, acute renal failure, recurrent hematuria, CRF.
- Acute renal failure : acute tubular and cortical necrosis.
- Pyelonephritis, reflux nephropathy, interstitial nephritis.
- Renal cell tumors : renal cell carcinoma, nephroblastoma.
- Urinary bladder : Cystitis, carcinoma.
- Progressive renal failure and end stage renal disease.
- Renal vascular disorders.
- Urinary tract tuberculosis.
- Nephrolithiasis and obstructive nephropathy.
- Renal malformation polycystic kidney.

12 **Pathology of Gastrointestinal tract**

- Oral pathology : leukoplakia, carcinoma oral cavity and esophagus.
- Peptic ulcer : etiopathogenesis and complications, gastritis types.
- Tumors of stomach : benign, polyp, leiomyoma, malignant, adenocarcinoma, other gastric tumors.
- Inflammatory disease of small intestine : typhoid, tuberculosis, Crohn's disease, appendicitis.
- Inflammatory disease of large intestine : amoebic colitis, bacillary dysentery, ulcerative colitis.
- Large and small intestine tumors : polyps, carcinoid, carcinoma, lymphoma.
- Pancreatitis.
- Salivary gland tumors.
- Ischemic and pseudomembranous enterocolitis, diverticulitis.
- Malabsorption-coeliac disease, tropical sprue and other causes.
- Pancreatic tumors : endocrine, exocrine and paraiampullary.

13 **Liver and Biliary tract pathology**

- Jaundice : types, etiopathogenesis and differentiation.
- Hepatitis : acute and chronic, etiology, pathogenesis and pathology.
- Cirrhosis : etiology, classification, pathology, complications.
- Portal hypertension : types and manifestation.
- Diseases of gall bladder : Cholecystitis, cholelithiasis, carcinoma.
- Tumors of liver : hepatocellular, metastatic, tumor markers.

14 **Lymphoreticular System**

- Lymphadenitis : non-specific, granulomatous, Hodgkin's lymphoma.
- Non-Hodgkin's lymphoma, classification, morphology.
- Diseases of spleen : splenomegaly and effects.

15 **Reproductive system**

- Diseases of cervix : cervicitis, cervical carcinoma, etiology, cytological diagnosis.
- Hormonal influences and histological appearances of different phases of menstrual cycles and the abnormality associated with it.
- Diseases of uterus : endometrial hyperplasia and carcinoma, adenomyosis, smooth muscle tumours.
- Trophoblastic diseases : hydatiform mole and choriocarcinoma.
- Diseases of breast : mastitis, abscess, fibrocystic disease, neoplastic lesions, fibroadenoma, carcinoma, phyllodes tumors.
- Prostate : nodular hyperplasia, carcinoma.
- Ovarian and testicular tumours.
- Carcinoma of penis.

- Pelvic inflammatory disease including salpingitis.
- Genital tuberculosis.

16 **Osteopathology**

- Osteomyelities : acute, chronic, tuberculosis.
- Metabolic diseases : rickets/osteomalacia, osteoporosis, hyper parathyroidism.
- Tumours : primary, osteosarcoma, osteoclastoma, Ewing's sarcoma, chondro sarcoma, metastatic.
- Arthritis : rheumatoid, osteoid and tuberculosis.
- Healing of fractures.

17 **Endocrine pathology**

- Diabetes mellitus : types, pathogenesis, pathology.
- Non neoplastic lesion of thyroid : Iodine deficiency goiter, autoimmune thyroiditis, thyrotoxicosis, myxoedema.
- Tumors of thyroid : adenoma, carcinoma: papillary, follicular, medullary, anaplastic.
- Adrenal disease : cortical hyperplasia, atrophy, tuberculosis, tumors of cortex and medulla.
- Parathyroid hyperplasia and tumors.

18 **Neuropathology**

- Inflammatory disorders : pyogenic and tubercular meningitis, brain abscess, tuberculoma.
- CNS tumors-primary glioma and meningioma and metastatic.
- CSF and its disturbances : cerebral oedema, raised intracranial pressure.
- Cerebrovascular disease ; atherosclerosis, thrombosis, embolism, aneurysm, hypoxia, infarction and hemorrhage.

19 **Dermato-pathology**

- Skin tumors : squamous cell carcinoma, basal cell carcinoma, and melanoma, adenexial tumours with common non neoplastic skin diseases.

20 **Tumours of soft tissues**

- Routine processing & frozen sections.
- Ancillary diagnostic tests, Immunohistochemistry, tumour markers & their interpretation.

21 **Molecular genetics**

- Hybrid DNA techniques &
- Application in diseases.

22 **Cytopathology**

- Collection procedures and diagnosis interpretation.
- Exfoliative cytology of body fluids, urinary tracts, female genital tract, Amniotic fluid & tears.
- Fine Needle Aspiration Cytology.
- Imprint, crush smear, biopsy sediment cytology.
- Buccal smears for Sex chromatin bodies.

23 **Laboratory Hi-tech instruments : Knowledge about**

- Tech. Procedures, principles and clinical interpretation of tests using.
- Haematology auto-analysers, Flow-Cytometer, Polymerase chain reaction. (PCR) Electrochemiluminiscent immunoassay (ECLIA).
- High performance liquid Chromatography (HPLC).
- Electron Microscope, Phase Contrast Microscope.
- Fluorescent Microscope & Electrophoresis.

24 **Rational use & safe Blood Transfusion** : Blood banking procedures & preparation of Blood Components with their storage.

25 **Lab Biomedical Waste** : Principles of collection, segregation and disposal.

Pattern of Question Papers:

1. Objective Type Paper
2. Maximum Marks : 100
3. Number of Questions : 100
4. Duration of Paper : Two Hours
5. All Questions carry equal marks
6. There will be Negative Marking

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