

જીયાનું નામ: ટ્યુટર પેથોલોજી (ખાસ ભરતી અને સામાન્ય ભરતી) ,વર્ગ-૨

(જાહેરાત ક્રમાંક.૧૧૪/૧૮-૧૯ અને ૧૧૫/૧૮-૧૯)

કુલ પ્રશ્નો:૩૦૦	પ્રાથમિક કસોટીનો અભ્યાસક્રમ	કુલ ગુણ -૩૦૦
માધ્યમ: ગુજરાતી	Part-I સામાન્ય અભ્યાસ	ગુણ -૧૦૦
૧	ભારતની ભૂગોળ- ભૌગોલિક, આર્થિક, સામાજિક, કુદરતી સંસાધન અને વસ્તી અંગેની બાબતો- ગુજરાતના ખાસ સંદર્ભ સાથે	
૨	ભારતનો સાંસ્કૃતિક વારસો- સાહિત્ય, કલા, ધર્મ અને સ્થાપત્યો- ગુજરાતના ખાસ સંદર્ભ સાથે	
૩	ભારતનો ઇતિહાસ - ગુજરાતના ખાસ સંદર્ભ સાથે	
૪	ભારતની અર્થવ્યવસ્થા અને આયોજન	
૫	<u>ભારતીય રાજનીતિ અને ભારતનું બંધારણ:</u> (૧) આમુખ (૨) મૂળભૂત અધિકારો અને ફરજો (૩) રાજ્યનીતિના માર્ગદર્શક સિદ્ધાંતો (૪) સંસદની રચના (૫) રાષ્ટ્રપતિની સત્તા (૬) રાજ્યપાલની સત્તા (૭) ન્યાયતંત્ર (૮) અનુસૂચિત જાતિ, અનુસૂચિત જનજાતિ અને સમાજના પછાત વર્ગો માટેની જોગવાઈઓ (૯) એટર્ની જનરલ (૧૦) નીતિ આયોગ (૧૧) પંચાયતી રાજ (૧૨) નાણા પંચ (૧૩) બંધારણીય તથા વૈધનિક સંસ્થાઓ- ભારતનું ચૂંટણી પંચ, સંઘ લોક સેવા આયોગ, રાજ્ય લોક સેવા આયોગ, કોમ્પ્રોલર એન્ડ ઓડિટર જનરલ; કેન્દ્રીય સતર્કતા આયોગ, લોકપાલ તથા લોકાયુક્ત અને કેન્દ્રીય માહિતી આયોગ	
૬	સામાન્ય બૌદ્ધિક ક્ષમતા કસોટી	
૭	સામાન્ય વિજ્ઞાન, પર્યાવરણ અને ઈન્ફર્મેશન એન્ડ કોમ્યુનિકેશન ટેકનોલોજી	
૮	ખેલ જગત સહિત રોજબરોજના પ્રાદેશિક, રાષ્ટ્રીય અને આંતરરાષ્ટ્રીય મહત્વના બનાવો	

Post: Tutor Pathology (Special Drive and General Drive) , Class –II (Advt.No.114/18-19 & 115/18-19)	
Total Questions:300 Syllabus of Preliminary Test Total Marks-300	
Part-I	
Medium: Gujarati	General Study
Marks- 100	
1	Geography of India- Physical, Economic, Social, Natural Resources and population related topics- with special reference to Gujarat
2	Cultural heritage of India- Literature, Art, Religion and Architecture- with special reference to Gujarat
3	History of India with special reference to Gujarat
4	Indian Economy and Planning
5	<u>Indian Polity and the Constitution of India:</u> <ol style="list-style-type: none"> (1) Preamble (2) Fundamental Rights and Fundamental Duties (3) Directive Principles of State Policy (4) Composition of Parliament (5) Powers of the President of India (6) Powers of Governor (7) Judiciary (8) Provisions for Scheduled Castes, Scheduled Tribes and backward classes of the society (9) Attorney General (10) NITI Aayog (11) Panchayati Raj Institutions (12) Finance Commission (13) Constitutional and Statutory Bodies: Election Commission of India, Union Public Service Commission, State Public Service Commission, Comptroller and Auditor General; Central Vigilance Commission, Lokpal and Lokayukta, Central Information Commission
6	General Mental Ability
7	General Science, Environment and Information & Communication Technology
8	Daily events of Regional, National and International Importance including Sports

Part-II Syllabus of Concerned Subject

(Pathology)

Medium: English

Questions: 200

Marks: 200

1. ANATOMY

Gross Anatomy: Introduction to Anatomy, nomenclature, anatomical position, planes, tissues and movements. Osteology. Muscular System. Arthrology. Cardio Vascular System. Respiratory System. Digestive System. Genito-Urinary System. Endocrine System and Individual Endocrine Glands. Nervous System and its components. Special Sensory Organs. Lymphatic System. Surface Anatomy. Cross Sectional Anatomy. Microanatomy: Microscope and basic principles of microscopy, commonly used stains, basophilic and acidophilic staining reactions and their significance. Commonly encountered artifacts. Brief principle of electron microscopy and interpretation of ultrastructural features.

2. PHYSIOLOGY

General Physiology. Nerve–Muscle. Blood. Respiratory System. Cardiovascular System Gastrointestinal System. Nutrition. Environmental Physiology. Reproduction. Kidney. Neurophysiology.

3. GENERAL HISTOLOGY

Cell. Four primary tissues. Histology of various organs/organ systems: Exocrine glands, Circulatory system, Respiratory system, Skin and nerve-end-organs, Immune system and lymphoid organs, Digestive system (GIT), Endocrine glands, Urinary system, Female reproductive system, Male reproductive system.

4. BIOCHEMISTRY

Biological cell: Architecture, compartmentation, cell membrane structure and functions; structure- function relationships. Membrane transport.

Biomolecules: Function and classification of carbohydrates, lipids, protein and amino acids. Stereoisomerism and chemistry of monosaccharides, amino acids, and fatty acids. Structural organization and structure-function relationships of proteins. Hemoglobin and myoglobin, molecular mechanism of O₂ transport and storage. Molecular basis of sickle cell anaemia and thalassaemias. Molecular mechanism of muscle contraction. Plasma proteins, their functions and clinical significance.

Enzymes: Nomenclature, classification, Kinetics, mechanism of enzymatic catalysis. Factors influencing enzymatic catalyses, enzyme activators and inhibitors. Regulation of enzyme activity, Clinical enzymology, isoenzymes.

Metabolic pathways, their regulation and metabolic interrelationships: Metabolism: general concepts and characteristics of metabolic pathways. Carbohydrate metabolism, Amino acid metabolism, Lipid metabolism. TCA cycle and biological oxidation, prostanooids. Regulation of the metabolic pathways. Food assimilation and nutrition. Hormones.

Molecular Biology: Nucleic acids: DNA and RNA structure, DNA Replication, DNA Transcription, Post-transcriptional processing, Translation of genetic code, Regulation of gene expression and protein synthesis inhibitors of protein synthesis. DNA repair mechanisms. Applied aspects of purine and pyrimidine metabolism. Genetic Engineering: Recombinant DNA technology. DNA and diagnostics. DNA repair mechanisms and related disorders. Telomeres, telomerases. Inhibitors of DNA replication, apoptosis.

pH, Buffer, physiological buffer systems: Regulation of blood pH, acidosis, alkalosis. Renal functions tests.

Immunology: Reticuloendothelial system, components and functions of the innate and adaptive immunity. Role of T and B lymphocytes, antigen presentation. Induction of immune response. Cell mediated immune response. Immunoglobulin structure and functions. Humoral immune response. Fate of antigen antibody complex, Complement system, Generation of antibody diversity, Hypersensitivities, Immunoregulation,

autoimmunity, tolerance, HLA, disease association & transplantation, Immunological techniques, application in medicine.

Environmental biochemistry, cancer and cancer makers: Xenobiotics, interaction with biomolecules, effects, metabolism, detoxication, Biochemical characteristics of cancer, Environmental pollutants and carcinogenesis.

5. MICROBIOLOGY

Introduction. Natural history of microbial diseases. Unique differentiating features of eukaryotes and prokaryotes. Source and spread of microbes. Rationale for classifying microbes into bacteria, fungi viruses, parasites.

Bacteriology: The nature of bacteria. Morphological differences. Growth requirement. Nomenclature and classification. Enumeration of bacteria responsible for certain primary diseases. Bacterial Staining and Cultivation: Microscopy: types and principles. Staining: principles. Media for growth / bacterial colony. Familiarization with materials used. Common Tests for Bacterial identification: Various types of staining such as simple, differential staining; different procedures of staining and their principles. Motility testing. Common sugar fermentation and other biochemical tests such as Catalase / Coagulase/ citrate utilization/ nitrate reduction / urease/ PPA/ OF/ Indole etc. Sensitivity testing.

Parasitology: Biology of protozoa. Protozoan parasites causing human infection. Medically important helminthes. Ectoparasites.

Virology: The nature and properties of viruses. Classification of viruses. Morphology. Laboratory Diagnosis of Viral Infection: Brief appraisal of pathogenicity of viruses. Culture methods. Cytopathic effects. Inclusion bodies. Animal inoculation. Serological test (CFT, HAI, neutralisation).

Mycology: Nature of fungi: basic structures and classification. Superficial mycoses. Subcutaneous mycosis. Systemic fungal infections with opportunistic mycosis. Common Laboratory Methods for Diagnosis of Fungal Infections: KOH preparation with principles. Lactophenol cotton blue preparation. Negative staining and procedures. Special staining and procedures. Culture of fungi Serodiagnosis.

Collection or Transport of Samples: Collection of clinical samples. Transport of various appropriate clinical samples. Transport media. Description of container with contents or no contents. Preliminary processing of clinical samples.

Host-Parasite relationship: Presence of normal flora. Enumeration and explanation of various host-parasite interaction. Mechanism of pathogenesis adhesion/ colonisation/ virulence and toxigenicity. Host response. Koch's postulates.

Bacterial and Viral Genetics: Structure and replication of bacterial DNA. Plasmids. Transfer of genetic materials. Mutations. Viral replication. Interactions among viruses. Epidemiology of viral infection. Recombinant DNA technology.

Immunity to infection: Normal immune system, Innate Immunity, Antigens – presentation and association in immunity, Immunoglobulins and their role in immunity, Cell mediated immunity and their role, Hypersensitivity, Immunodeficiency, Tolerance. Immunodiagnosis: Antigen-antibody reactions in infectious diseases and diagnostic tests based on these. Vaccines.

Sterilisation and disinfection: Principles, Various methods.

Bacteriology of water and air : Infections of Gastrointestinal Tract. Microorganisms associated with gastrointestinal infections. (Bacteria, parasites, viruses and fungi). Gastrointestinal infections caused by parasites: (a) Amoebiasis- Entamoeba spp, Naegleria spp, Acanthamoeba spp. (b) Amoebiasis (Micro, Gastro, Surg, Paeds) (c) Other intestinal protozoal infections (Micro, Gastro, Paeds).

6. PATHOLOGY

(A) General Pathology

Introduction. Cell injury: Causes and Mechanism: Ischemic, Toxic. Reversible and Irreversible cell injury. Amyloidosis and Calcification. Inflammation and Repair: Acute inflammation. Morphologic variants of acute inflammation. Inflammatory cells and Mediators. Chronic inflammation. Wound healing by primary and secondary union, factors

promoting and delaying the process. Healing at specific sites including bone healing. Circulatory Disturbances: Edema. Chronic venous congestion. Thrombosis and Embolism. Infarction. Shock. Derangements of Fluid and electrolyte imbalance. Growth Disturbances and Neoplasia.

Immunopathology: Immune system. Hypersensitivity. Primary immunodeficiency. Secondary Immunodeficiency including HIV Infection. Auto-immune disorders like systemic lupus erythematosus; organ specific and non-organ specific such as polyarteritis nodosa, Hashimoto's disease. Tumor Immunity. Organ transplantation: Immunologic basis of Rejection and Graft versus host reaction.

Infectious Diseases: Mycobacterial Diseases: Tuberculosis and Leprosy. Bacterial diseases: Pyogenic, Typhoid, Diphtheria, Gram negative infection, Bacillary dysentery, Syphilis. Viral: Polio, Herpes, Rabies, Measles; Rickettsial, Chlamydial infection. Fungal diseases and opportunistic infections. Parasitic Diseases: Malaria, Filaria, Amebiasis, Kala-azar, Cysticercosis, Hydatid. AIDS: Aetiology, modes of transmission, diagnostic procedures and handling of infected material and health education.

Miscellaneous Disorders: Autosomal and sex-linked disorders. Metabolic disorders. Protein energy malnutrition and vitamin deficiency disorders. Radiation Injury. Disorders of Pigment and Mineral metabolism such as bilirubin, melanin, hemosiderin.

(B) Systemic Pathology

Cardiovascular Pathology: Rheumatic fever and Rheumatic Heart Disease. Infective Endocarditis. Atherosclerosis and Ischemic Heart Disease; Myocardial Infarction. Diseases of blood vessels other than atherosclerosis. Hypertension and Hypertensive Heart Disease. Congenital Heart Disease. Pericarditis and other pericardial diseases. Cardiomyopathy.

Respiratory Pathology: Structure of Bronchial tree and alveolar walls, normal and altered lung function; concept of obstructive and restrictive lung disorders. Inflammatory diseases of bronchi. Pneumonias: Lobar,

Broncho, Interstitial. Pulmonary suppuration including lung abscess. Pulmonary Tuberculosis. Emphysema. Atelectasis and Hyaline Membrane Disease. Tumors. Occupational lung disorders.

Urinary Tract Pathology: Renal structure, basis of impaired function, urine analysis. Glomerulonephritis. Secondary Glomerulonephritis. Nephrotic Syndrome. Acute Renal Failure. Progressive renal failure and end stage renal disease. Pyelonephritis, Reflux Nephropathy, Interstitial Nephritis. Renal tumors. Renal vascular disorders, kidney changes in Hypertension. Urinary bladder. Urinary Tract Tuberculosis. Urolithiasis and Obstructive Uropathy. Renal Malformations.

Pathology of the Gastro-Intestinal Tract: Oral Pathology. Salivary gland tumors. Peptic ulcer. Tumors of stomach. Inflammatory diseases of small intestine, appendix and large intestine. Ischemic and Pseudomembranous enterocolitis, diverticulosis. Malabsorption. Tumours and Tumor like condition of the large and small intestine. Pancreatitis. Pancreatic tumors.

Hematopathology: Constituents of blood and bone marrow, Regulation of hematopoiesis. Anaemia. Nutritional anaemias. Hemolytic Anaemias. Hereditary hemolytic anaemias. Acquired hemolytic anaemias. Hemolytic Anaemias: Autoimmune, Alloimmune, Drug induced Microangiopathic and Malaria. Aplastic Anaemia, PNH and Myelodysplastic syndrome. Hemostatic disorder. Coagulopathies. Leukocytic disorders. Acute and chronic Leukemia.

Myeloproliferative disorders: Polycythemia, Myelofibrosis. Multiple myeloma and dysproteinemias. Blood transfusion.

Liver and Biliary Tract Pathology: Jaundice. Hepatitis. Cirrhosis. Portal Hypertension. Tumors of Liver. Concept of hepatocellular failure. Diseases of the gall bladder.

Lymphoreticular System: Lymphadenitis. Hodgkin's and Non-Hodgkin's Lymphomas. Diseases of the spleen. Thymus.

Reproductive System: Diseases of cervix. Hormonal influences and histological appearances of different phases of menstrual cycle and the abnormalities associated with it. Diseases of uterus. Trophoblastic disease. Diseases of the breast. Prostate: Nodular Hyperplasia and Carcinoma.

Ovarian and testicular tumors. Carcinoma of penis. Pelvic inflammatory diseases including salpingitis. Genital Tuberculosis.

Osteopathology: Bone. Osteomyelitis. Metabolic diseases. Tumors. Arthritis. **Endocrine Pathology:** Scope of endocrine control and

investigations. Diabetes Mellitus. Nonneoplastic lesions of thyroid.

Tumors of thyroid. Adrenal diseases. Parathyroid hyperplasia and tumors and Hyperparathyroidism. Pituitary tumors. Multiple endocrine neoplasia.

Neuropathology: Structural Organization, specific cell types, and reaction patterns. Inflammatory disorders. CNS tumors. CSF and its disturbances.

Cerebrovascular diseases. Peripheral neuropathies and demyelinating disorders. Diseases of muscles. Traumatic lesions of CNS.

7. Current Trends and Recent Advancements in Pathology.