

**DETAILED SYLLABUS FOR THE POST OF ASSISTANT PROFESSOR  
(PATHOLOGY AND MICROBIOLOGY)  
GOVERNMENT HOMEO MEDICAL COLLEGE}**

(Cat.No.: 50/2020)

(Total Marks – 100)

**Part I : Pathology (50 Marks)**

<b>Module P.1</b>	<b>General Pathology</b>		<b>25 marks</b>
P.1.a	Inflammation and repair	Acute inflammation, cellular and vascular events, healing., chronic inflammation	3 marks
P.1.b	Immunity	Autoimmune diseases, SLE , graft rejection reactions	2 marks
P.1.c	Hemodynamic disturbances	Edema, Shock, thrombi, emboli, hemorrhage, ischemia .infarction	6 marks
p.1.d	Cell injury and adaptation	Causes and effects of cell injury, necrosis, degeneration, atrophy, , hypertrophy, hyperplasia, calcification	6 marks
P.1.e	Infections	Tuberculosis, leprosy, response to infections	2 marks
P.1.f	Nutrition and genetics	Vitamin A deficiency, Rickets, Scurvy, PEM,	1 mark
P.1.g	Neoplasia	Features of malignancy, differences between benign and malignant, tumor production, grading and staging	5 marks
<b>Module P.2</b>	<b>Regional Pathology</b>		<b>14 marks</b>
P.2.a	Cardiovascular system	Heart failure, Infarction, Hypertension, Atherosclerosis	2 marks
P.2.b	Respiratory system	Obstructive disorders, pneumonia, pneumoconiosis, pleural diseases	2marks
P.2.c	Gastrointestinal system	Gastritis and ulcer, malabsorption, hemorrhoids, diarrhoeal disorders	1 marks
P.2. d	Hepatobiliary	Hepatitis, Cirrhosis, Gall stones	2 marks

P.2.e	Kidney and MGS	Nephritis, Nephrotic syndrome, calculi, prostatitis	2 marks
P.2.f	FGS and Breast	Endometritis, polycystic ovary, Fibroid uterus	1 mark
P.2. g	Endocrine system	Diabetes mellitus, hypo and hyper thyroidiism, Cushing syndrome, Growth hormone defects	4 marks
<b>Module P.3</b>	<b>hematology</b>		<b>6 marks</b>
P.3.a	RBC disorders	Anemias- deficiency and hemolytic, aplastic anemia	2 marks
P.3.b	WBC disorders	Leukemias – acute and chronic. Neutrophilia	3 marks
P.3.c	Bleeding disorders	Platelet and coagulation defects	1 marks
<b>Module P.4</b>	<b>Neurological diseases</b>	<b>Meningitis, stroke, degeneration</b>	<b>2 marks</b>
<b>Module P.5</b>	<b>Bones and Joints</b>	<b>Infections, arthritis</b>	<b>1 marks</b>
<b>Module P.6</b>	<b>Skin and soft tissue disorders</b>	<b>Pigment disorders, hyperkeratosis,</b>	<b>2 marks</b>

## Part II : Microbiology (50 Marks)

### MODULE 1 (10 MARKS)

#### General topics:

1. Introduction -History of medical microbiology – Important scientists and their contributions , Nobel laureates
2. Morphology of bacteria – prokaryote, microscopy – various types and uses, structure of bacterial cell
3. Bacterial growth curve, factors affecting bacterial growth
4. Sterilisation and disinfection - methods – physical and chemical, Principle, procedure, application and controls of autoclave and hot air oven, Different classes of disinfectants, mechanism and uses, testing of disinfectants
5. Bacterial genetics – mutation, transformation, transduction and conjugation, plasmids, mechanisms of drug resistance in bacteria
6. Normal bacterial flora
7. . Diagnostic microbiology – different staining techniques – principle, method and uses, culture media—types and uses, culture methods including anaerobic methods, Identification of bacteria – biochemical reactions and automated methods, Antibiotic sensitivity testing, Application of molecular methods in diagnosis of infectious diseases, Application of serological tests – Immunofluorescence, ELISA, Western blot
8. Pathogenesis of bacterial infections -- sources, transmission, virulence factors, toxins

## **MODULE 2 (10 MARKS)**

### **Immunology:**

1. Immunity – innate immunity – types, mechanisms, Acquired immunity - types
2. Antigens
3. Antibody – Immunoglobulins – types, features, action , monoclonal antibodies – applications
4. Antigen – antibody reactions - types, principles, examples and applications
5. Structure and function of the immune system -- central and peripheral lymphoid organs, cells of immune system, MHC and HLA system and its applications
6. Immune response – Humoral and cellular
7. Hypersensitivity – types (I,II,III,IV), mechanisms, examples
8. Immunodeficiency diseases – Congenital -Humoral, Cell mediated, combined and Acquired
9. Complement system – pathways
10. Immunoprophylaxis

## **MODULE 3(10 MARKS)**

### **Bacteriology:**

1. Gram positive cocci – Staphylococci, Streptococci, Pneumococi
2. Gram negative cocci – Neisseria
3. Gram positive bacilli – Coryne bacteria, Clostridia, Bacillus, Nonsporing anaerobes
4. Gram negative bacilli – Enterobacteriaceae ( coliforms, Salmonella, Shigella), Vibrio cholera, Pseudomonas
5. Mycobacterium tuberculosis, Mycobacterium leprae
6. Yersinia, Pasturella, Brucella, Bordetella, Haemophilus
7. Spirochetes, Mycoplasma, Actinomycetes, Chlamydiae, Rickettsiae

## **MODULE 4(10 MARKS)**

### **Mycology and Parasitology**

#### **Mycology**

1. Classification of fungi, identification - stains, culture, tests used for diagnosis of fungal infection
2. Mycosis – superficial, subcutaneous, systemic, opportunistic, mycotoxicosis, mycetism

#### **Parasitology**

1. Protozoa
  - (1) Intestinal (Entamoeba histolytica, Giardia lamblia, Cryptosporidium parvum)
  - (2) Urogenital (Trichomonas vaginalis)
  - (3) Blood and tissue (Plasmodium species, Toxoplasma gondii, Trypanosoma species, Leishmania species).
2. Helminths –
  - (1) Cestodes (tapeworms)-Echinococcus granulosus, Taenia solium, Taenia saginata,

(2) Trematodes (Flukes): Paragonimus westermani, Schistosoma spp

(3) Nematodes- Ancylostoma duodenale, Ascaris lumbricoides, Enterobius vermicularis, Strongyloides stercoralis, Trichuris trichura, Brugia malayi, Dracunculus medinensis, Loa loa, Onchocerca volvulus, Wuchereria bancrofti.

### **MODULE 5(10 MARKS)**

#### **Virology:**

1. Introduction - Classification of viruses , Morphology and replication of viruses , cultivation of viruses
2. DNA viruses: Bacteriophage, Pox viruses, Herpes viruses, Adenoviruses, Parvo and Papova viruses
3. RNA viruses: Picorna viruses, Orthomyxo virus, Paramyxo virus, Arbo virus, Rhabdovirus, Corona virus, Arena virus, Filo virus, Reo viridae
4. Hepatitis viruses
5. Oncogenic viruses
6. HIV
7. Prions

**NOTE: - It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may also appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper.**