THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY

[MD 1224] **DECEMBER 2024** **Sub. Code: 4041**

(OCTOBER 2024 EXAM SESSION)

M.D. DEGREE EXAMINATION

GERIATRICS

PAPER I – APPLIED BASIC SCIENCES

Q.P. Code: 204041

Time: Three Hours **Maximum : 100 Marks**

Write Notes on :

I. ANATOMY: **(4 x 5 = 20)**

1. Small muscles of the hand supplied by the Ulnar nerve and their actions.
2. 70-year-old Mr. Keshavan was admitted with a right lower lobe pneumonia. Explain with diagrams the bronchopulmonary segments. What advice will you give to the family for positioning the patient to ensure adequate drainage?
3. Write briefly on the anatomy and nerve supply of the urinary bladder.
4. With diagram, explain the anatomy of the liver lobule.

II. PHYSIOLOGY: **(4 x 5 = 20)**

1. With diagrams, explain the Frank Starling law and relevance in clinical practice.
2. What is homeostasis? Discuss homeostenosis and its relevance in geriatrics.
3. Hormones secreted by the adrenal gland and their functions.
4. Oxygen hemoglobin dissociation curve and relevance in clinical practice.

III. BIO-CHEMISTRY: **(3 x 5 = 15)**

1. Biochemical abnormalities in tumor lysis syndrome.
2. Vitamin D.
3. N terminal pro Brain Natriuretic peptide.

IV. PHARMACOLOGY: **(3 x 5 = 15)**

1. Lithium – uses and adverse effects.
2. Monoamine oxidase B inhibitors – role in clinical practice.
3. Conventional disease modifying drugs in autoimmune diseases.

V. PATHOLOGY: **(3 x 5 = 15)**

1. Write a note Lewy bodies.
2. Etiopathogenesis of Guillain Barre syndrome.
3. Diabetic Retinopathy.

VI. MICROBIOLOGY: **(3 x 5 = 15)**

1. Mrs. Eswari has presented with high grade fever to your OPD. Your clinical diagnosis is Enteric fever – How will you establish a microbiological diagnosis of enteric fever?
2. Role and methods of obtaining blood cultures in patients with infective endocarditis.
3. Enzyme Linked Immunosorbent Assays (ELISA).

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THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

[MD 1025] **OCTOBER 2025** **Sub. Code: 4041**

M.D. DEGREE EXAMINATION

GERIATRICS

PAPER I – APPLIED BASIC SCIENCES

Q.P. Code: 204041

Time: Three Hours **Maximum : 100 Marks**

Write Notes on :

I. ANATOMY: **(4 x 5 = 20)**

1. Mr. Chinnaswamy presented to the Emergency Department with complete heart block and an inferior wall myocardial infarction. Draw the blood supply to the heart and explain which artery is involved. Explain with a diagram, the conduction system of the heart.
2. Draw the dermatomes of the body - shade the right L3 and left C5 dermatomes.
3. What are the extraocular movements? Name the muscles which facilitate these movements? What is the nerve supply to these muscles?
4. Portocaval anastomosis and its clinical significance.

II. PHYSIOLOGY: **(4 x 5 = 20)**

1. Describe the ageing changes in the heart.
2. Explain with a diagram vital capacity and lung volumes.
3. Explain Frank Starling's law and its role in the development of heart failure.
4. Draw the nephron and label its parts. Describe the sites at which the electrolytes are exchanged.

III. BIO-CHEMISTRY: **(3 x 5 = 15)**

1. What is gout? What is the underlying biochemical abnormality in gout? What is the appropriate line of management?
2. Write a note on vitamins. What is the recommended daily allowance for these? What is the appropriate treatment regime for deficiencies of these vitamins in older adults?
3. Write a note on lipid metabolism.

IV. PHARMACOLOGY: **(3 x 5 = 15)**

1. Make a table which gives the indications, contraindications, dose and side effect profile of oral anticoagulants.
2. Explain with appropriate examples how drug pharmacodynamics and pharmacokinetics affects choice of drugs in the older person.
3. What are the drugs used in patients with benign prostatic enlargement - mode and site of action, indications and contraindications.

V. PATHOLOGY: **(3 x 5 = 15)**

1. Iron deficiency anemia - What is the information given by red cell indices? Describe the peripheral blood smear in iron deficiency anemia with a neatly labelled diagram.
2. Bone turnover markers- indication for use and interpretation.
3. What are the types of fatty liver? How are they differentiated? How do they present and what are their underlying risk factors?

VI. MICROBIOLOGY: **(3 x 5 = 15)**

1. What is the role of inflammatory markers in ageing?
2. What is the appropriate choice of antibiotics in a post-menopausal lady with symptoms of acute lower urinary tract symptoms?
3. Pneumococcal vaccines – types, indications and their use in the older person.

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[MD 1025]

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

[MD 0526] **MAY 2026** **Sub. Code: 4041**

M.D. DEGREE EXAMINATION

GERIATRICS

PAPER I – APPLIED BASIC SCIENCES

Q.P. Code: 204041

Time: Three Hours **Maximum : 100 Marks**

Write Notes on :

I. ANATOMY: **(4 x 5 = 20)**

1. With the aid of a diagram, explain the blood supply to the brain.
2. Describe the parts of the knee joint.
3. Ms. Gnanamma has been diagnosed to have a cavernous sinus thrombosis. Describe what deficits one would find in her.
4. Bladder control.

II. PHYSIOLOGY: **(4 x 5 = 20)**

1. What is gait? With the aid of a diagram describe the gait cycle.
2. What is circadian rhythm and describe the stages of sleep.
3. What are the different types of memory? How do they differ from each other?
4. Enumerate the site and action of the digestive enzymes.

III. BIO-CHEMISTRY: **(3 x 5 = 15)**

1. What are the biochemical abnormalities seen in gout and pseudogout? How do these diseases present?
2. Describe the signs and symptoms one would find in a case of Vitamin B12 deficiency.
3. Alkaline phosphatase – role in the diagnosis of clinical problems.

IV. PHARMACOLOGY: **(3 x 5 = 15)**

1. With the aid of a diagram, describe the site of action of diuretics in the kidney.
2. SGLT2 – Sodium Glucose cotransporter 2 - inhibitors – describe how they exert their cardio- and reno-protective roles.
3. Write a note of Lipid lowering agents – their indications, contraindications and mode of action.

V. PATHOLOGY: **(3 x 5 = 15)**

1. What are telomeres? How do they work? Write a note on telomeres and their effect on disease and repair of telomers.
2. What are the abnormalities seen in the brain of a person with Alzheimer's on autopsy under the microscope? Describe them with a labelled diagram.
3. Describe the blood transfusion reactions. How will you recognize, investigate and treat them?

VI. MICROBIOLOGY: **(3 x 5 = 15)**

1. Draw the immunization schedule the Centers for Disease Control has recommends for the older person.
2. Inflammaging and immunosenesence – define and what is their relevance in the geriatric population.
3. What are the organisms implicated in infections of the skin? What are the antibiotics which can be used to control these infections?

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[MD 0526]

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

[MD 0926] SEPTEMBER 2026 Sub. Code: 4041

M.D. DEGREE EXAMINATION

GERIATRICS

PAPER I – APPLIED BASIC SCIENCES

Q.P. Code: 204041

Time: Three Hours **Maximum : 100 Marks**

Write Notes on :

I. ANATOMY: **(4 x 5 = 20)**

1. A 70-year-old man comes to you with complaints of right upper limb weakness since morning. He is otherwise normal. What will be your differential diagnosis? Write a brief note on radial nerve and its lesion at different levels.
2. Anatomy of Cavernous sinus and its significance.
3. Bronchopulmonary segments.
4. Pelvic floor and its anatomic significance in elderly female.

II. PHYSIOLOGY: **(4 x 5 = 20)**

1. Counter current mechanism and its significance.
2. Regulation of Thirst and its relevance in Ageing.
3. Write a brief note on Menopause.
4. Role of Ventilation in maintaining acid base balance.

III. BIO-CHEMISTRY: **(3 x 5 = 15)**

1. Liver enzymes and its diagnostic significance.
2. Krebs cycle.
3. Methods of estimation of Glomerular Filtration Rate mentioning their pros and cons.

IV. PHARMACOLOGY: **(3 x 5 = 15)**

1. Pharmacokinetics in Ageing.
2. Antithyroid drugs.
3. Mechanism of acquiring drug resistance and methods to prevent it.

V. PATHOLOGY: **(3 x 5 = 15)**

1. Hypertensive retinal changes.
2. Pathology in Diabetic kidney disease.
3. Neuroplasticity and its significance in clinical practice.

VI. MICROBIOLOGY: **(3 x 5 = 15)**

1. Causes of Acute Diarrheal illness.
2. Polymerase chain reaction.
3. Diagnosis of Latent Tuberculosis.

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