

**MANIPAL ACADEMY OF HIGHER EDUCATION**  
**MD (PATHOLOGY) DEGREE EXAMINATION – JULY 2023**

**PAPER I**

Monday, July 03, 2023

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

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✍ **Answer all the questions:**

✍ **Long Essays:**

1. Discuss in detail the role of cytokines in inflammation

(15 marks)

2. Describe the effects of growth factors and their receptors in neoplasia

(15 marks)

3. **Short notes:**

3A. AIDS defining opportunistic infections

3B. Pathogenesis of complications of Diabetes mellitus

3C. Tumor markers

3D. Fine needle aspiration techniques in thyroid

3E. Bronchial brush cytology and its utility.

3F. Risk factors associated with thrombus formation

3G. Mechanism of autoimmunity in SLE

3H. DNA mismatch repair genes

3I. Pathogenesis of Tuberculosis

3J. Bethesda system in Gynecologic cytology

(7 marks × 10 = 70 marks)



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**PAPER II**

Tuesday, July 04, 2023

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

**✍ Answer ALL questions.**

1. Discuss the role of immunohistochemistry in the differential diagnosis of spindle cell tumors.  
(10+5 = 15 marks)
  
2. Discuss the diagnostic and prognostic features of endometrial carcinoma  
(15 marks)
  
3. **Write short notes on:**
  - 3A. WHO grading of meningiomas
  - 3B. Differential diagnosis of non neoplastic giant cell lesions of bone
  - 3C. Pathology of non- invasive urothelial neoplasms
  - 3D. Pathology and differential diagnosis of paraganglioma
  - 3E. Premalignant skin lesions
  - 3F. Testicular causes of male infertility
  - 3G. Clear cell sarcoma of kidney
  - 3H. Precursor lesion of hepatocellular carcinoma
  - 3I. Pathogenesis and pathology of autoimmune gastritis.
  - 3J. Bronchiolitis obliterans organizing pneumonia

(7 marks × 10 = 70 marks)



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**PAPER III**

Wednesday, July 05, 2023

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

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1. Classify plasma cell dyscrasia . Discuss the lab diagnosis and clinical outcome of any one of them.

(15 marks)

2. Discuss normal iron metabolism. Enumerate the lab approach to microcytic hypochromic anemia

(15 marks)

3. **Write short notes on:**

3A. Platelet function tests

3B. Thrombotic thrombocytopenic purpura

3C. Neonatal anemia

3D. Transfusion practice in autoimmune hemolytic anemia

3E. Lab diagnosis of Primary myelofibrosis

3F. Mast cell in health and disease

3G. Alpha thalassemia

3H. Principles of automated coagulation machines

3I. Significance of mixing studies in coagulation disorders

3J. Glucose tolerance test and its interpretation

(7 marks × 10 = 70 marks)



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**PAPER IV**

Thursday, July 06, 2023

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

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1. Discuss the recent advances in atherogenesis.

(15 marks)

2. Discuss the pathogenesis of obesity.

(15 marks)

3. **Write short notes on:**

3A. Molecular profiles of tumors

3B. Recommendations for reporting on Her-2-neu status in breast carcinoma

3C. CISH

3D. Telepathology

3E. Tissue microarray

3F. Stem cells in tissue homeostasis

3G. Automated tissue processing

3H. Bioterrorism

3I. Barrets esophagus

3J. Liquid based cytology for cervical screening

(7 marks × 10 = 70 marks)

