

**POST-GRADUATE DEGREE (M.D.) EXAMINATION – JANUARY 2025**

**Time: 3 Hours**

**Max. Marks: 100**

**PATHOLOGY**

**PAPER – I**

*(General Pathology and cytopathology pathophysiology / immunopathology with recent advances and applied pathology)*

**Q.P. Code: 1213**

Answers should be specific to the Questions asked.  
Draw neat, labeled diagrams wherever necessary.  
All questions are compulsory.

<b>Question Number</b>	<b>Marks</b>
<b>ESSAY QUESTIONS:</b>	
<b>10 X 10 = 100</b>	
1. Classify chemical mediators of inflammation. Discuss about platelet derived mediators.	(4+6)
2. Discuss the mechanism of apoptosis. Analyze the role of apoptosis in health and disease.	(6+4)
3. Describe the various chromosomal translocations and their implications in causation and prognosis of diseases.	(2+6+2)
4. Explain Major Histocompatibility Complex molecules and discuss their role in disease.	(4+6)
5. List the molecular diagnostic tests for neoplasia. Describe the importance of imaging and molecular techniques in diagnosis of neoplasia.	(2+8)
6. Discuss pathogenesis of obesity and write a note on diseases associated with it.	(6+4)
7. A 70 years old, known diabetic patient had history of fever with chills and rigors. He also had right ureteric calculi, developed pyonephrosis. His pulse was feeble 106/min, BP= systolic- 70mm of hg, diastolic not recordable, skin was cold and clammy. a. What is the diagnosis? b. What is the etiopathogenesis for the same? c. Discuss the laboratory diagnosis for the same.	(2+4+4)
8. A 25-year female residing near a water clogged area presents with high fever with headache and body ache and petechiae since two days. Her Hb is 15gm% and BP 100/60. a. What is the diagnosis? b. Discuss the laboratory investigations for the same.	(2+8)
9. A 3-year-old child presented with pain in the eye, decreased visibility. On examination - white reflex present, USG and MRI shows retro orbital mass with calcification. a. What is the diagnosis? b. What is the etiopathogenesis for the same? c. Discuss the histology and histological grading for the same. d. Mention the differential diagnosis for the same.	(1+3+4+2)
10. A 35 years old male presented with a mass over the thigh. On microscopy there was a Spindle cell lesion. a. What are the differential diagnosis? b. Discuss the approach to the above lesion with pattern analysis and IHC.	(3+7)

**POST-GRADUATE DEGREE (M.D.) EXAMINATION – JANUARY 2025**

**Time: 3 Hours**

**Max. Marks: 100**

**MICROBIOLOGY**

**PAPER – I**

*(General Microbiology and Immunology)*

**Q.P. Code: 1217**

Answers should be specific to the Questions asked.  
Draw neat, labeled diagrams wherever necessary.  
All questions are compulsory.

<b>Question Number</b>	<b>Marks</b>
<b>LONG ESSAY QUESTIONS:</b>	<b>10 X 10 = 100</b>
1. Explain how bacteria acquire drug resistance to antibiotics? Describe the steps to formulate an antibiotic policy for a tertiary -care hospital.	(5+5)
2. A patient with Tuberculosis develops a positive skin test reaction to tuberculin (PPD). Explain the immunological basis of the tuberculin skin test and its interpretation.	(5+5)
3. Describe the principles of gram staining and its relevance in clinical microbiology. Discuss the modifications of gram staining and their applications.	(4+6)
4. Describe CSSD and its working principle. Discuss the CSSD requirements to support a health care facility of 100 beds.	(6+4)
5. Describe in detail methods of HLA typing. Discuss merits and demerits of each method.	(5+5)
6. Classify Enzyme Immuno Assays (EIA). Describe them with suitable examples.	(3+7)
7. Define laboratory accreditation. Name the methods used for quality control of culture media. What is proficiency testing and how does it differ from internal quality control?	(1+4+5)
8. What are antigen presenting cells (APC)? Enumerate the different types of APCs. Write the mechanisms involved in antigen processing by various APC's.	(2+3+5)
9. Define Biofilms. Describe their role in bacterial pathogenesis and various methods of biofilm detection.	(2+3+5)
10. Describe the structure of bacterial spore. Discuss the clinical relevance and its demonstration.	(5+5)

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POST-GRADUATE DEGREE (M.D.) EXAMINATION – JANUARY 2025

Time: 3 Hours

Max. Marks: 100

PHARMACOLOGY

PAPER – I

(Basic and General Pharmacology including Bio-statistics, Toxicology)

Q.P. Code: 1221

Answers should be specific to the Questions asked.

Draw neat, labeled diagrams wherever necessary.

All questions are compulsory.

Question Number	Marks
<b>LONG ESSAY QUESTIONS:</b>	<b>10 X 10 = 100</b>
1. A 45-year-old male with persistent asthma is admitted for an acute exacerbation. He has been taking theophylline (oral) for several years but admits to being a regular smoker (1 pack per day for 5 years). The physician suspects the patient's smoking habit might be affecting theophylline's effectiveness. a) Identify the drug-drug interaction in this case and explain the consequences of such interaction. b) Add a note on therapeutic drug monitoring (TDM) with suitable examples and explain if TDM is crucial in this case.	(5+5)
2. Describe historical aspects of autonomic neurohumoral transmission.	
3. Describe experimental methods that are used for evaluation of Neuromuscular blocking agents	
4. Outline membrane transporters and explain their role in drug response.	(5+5)
5. Enumerate the role and function of pharmacovigilance in monitoring adverse drug events.	
6. Discuss various Pharmacokinetic parameters to be considered while prescribing drugs in pediatric population	
7. A 52-year-old woman presents with symptoms of burning, itching, and vaginal discharge for the past two weeks. She also complains of occasional heartburn, for which she takes omeprazole 20mg daily. The doctor prescribes enteric coated itraconazole capsules (200mg once daily) for three days to treat the fungal infection. A week later on follow-up the patient reports with minimal improvement in her symptoms. The doctor re-examines her and finds persistent signs of vulvovaginal candidiasis suspecting failure of itraconazole therapy. a) Explain the pharmacological reason for failure of itraconazole therapy in this case. b) Discuss the factors affecting the pharmacokinetic parameters in this case.	(2+8)
8. Discuss various Novel methods of drug delivery systems	
9. A 45-year-old female patient with a history of migraine headaches has been prescribed a recently approved new migraine drug and is now being monitored in a Phase IV clinical trial. The patient reports a significant reduction in the frequency and intensity of her migraines, but also experiences new-onset gastrointestinal issues, including nausea and abdominal pain. a) Discuss the objectives of Phase IV clinical trials and explain how they differ from earlier phases of clinical trials. b) Evaluate the importance of post-marketing surveillance in Phase IV trials, focusing on the identification and management of adverse drug reactions (ADRs) in real-world clinical settings.	(5+5)
10. A 25-year-old male was brought to emergency department with symptoms of methanol poisoning after consuming excess of Refrigerator coolant. Discuss the treatment of methanol poisoning.	

**POST-GRADUATE DEGREE (M.D.) EXAMINATION – JANUARY 2025**

**Time: 3 Hours**

**Max. Marks: 100**

**FORENSIC MEDICINE**  
*(Applied Basic Sciences)*

**PAPER – I**

**Q.P. Code: 1225**

Answers should be specific to the Questions asked.  
Draw neat, labeled diagrams wherever necessary.  
All questions are compulsory.

**Question Number**

**Marks**

**LONG ESSAY QUESTIONS:**

**10 X 10 = 100**

1. Define and classify Chromatography. Add a note on its importance on Analytical Toxicology. (5+5)
2. Critically evaluate the conventional “Lecture” method of teaching.
3. Define and Classify various types of Necrosis with examples. Discuss pathological changes related to coagulative necrosis. (4+6)
4. Explain the process of facial reconstruction using skeletal remains in forensic anthropology (5+5)
5. Describe the blood supply of uterus. Add a note on Amniotic Fluid embolism. (6+4)
6. Discuss the blood supply of brain and explain the techniques used in the dissection of Brain. (5+5)
7. Discuss the Process of wound Healing. Give an account of the factors which influence wound healing. Write its Medico legal importance. (4+3+3)
8. Discuss the Physiological changes occurring in female at puberty and menopause. (5+5)
9. Discuss the Secret or Substances in body tissues and secretions and their medico legal significance.
10. Discuss Gastric emptying and its Medico legal importance.

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**POST-GRADUATE DEGREE (M.D.) EXAMINATION – JANUARY 2025**

**Time: 3 Hours**

**Max. Marks: 100**

**COMMUNITY MEDICINE**

**PAPER – I**

*(History of public health and community medicine, behavioral sciences and health, Information, education, communication and counseling, microbiology including parasitology and immunology, environmental health including entomology and ecology, general epidemiology, biostatistics and research methodology)*

**Q.P. Code: 1229**

Answers should be specific to the Questions asked.

Draw neat, labeled diagrams wherever necessary.

All questions are compulsory.

**Question Number**

**Marks**

**LONG ESSAY QUESTIONS:**

**10 X 10 = 100**

1. A school girl aged 10-year-old was brought to Health and Wellness Centre with the complaints of fever, painful tender right knee joint, chest pain, breathlessness and palpitations since **SIX** days. There was no history of fall or injury. (1+4+5)
  - a) What is the probable diagnosis?
  - b) Describe the diagnostic criteria used to diagnose this disease.
  - c) Discuss the preventive strategies.
2. Discuss the levels of prevention with reference to natural history of disease.
3. Describe Bradford Hill's criteria for association and causation.
4. A new nasal vaccine has been developed for Covid 19 infection. Research and Development cell is planning to evaluate the effectiveness of the newer vaccine as compared to the existing intra muscular vaccine.
  - a) Which study design would be appropriate in evaluating the effectiveness of the vaccine? Justify with reasons.
  - b) Describe the steps to conduct this study.
5. Discuss the epidemiological transition with respect to non-communicable diseases in India.
6. Cancer Cervix screening camp has been planned in an urban area with population of 20000.
  - a) Which type of screening do you select? Justify it.
  - b) Plan the screening programme for the same.
7. A 50-year-old nursing staff, working in a private hospital in Belagavi city for last 15 years, complains of chest pain, fever, sputum with occasional blood tinge for past one month. It was diagnosed as a case of Pulmonary Tuberculosis. Discuss the diagnostic algorithm, case management and prevention to her close contacts. (3+4+3)
8. Explain random and systematic errors in epidemiological studies
9. Discuss the investigation of adverse events following measles vaccination.
10. Belagavi city corporation is experiencing a surge in dengue fever cases during the monsoon season. Describe how the district public health authorities can establish and maintain effective disease surveillance to monitor the spread of dengue and mitigate its effect on urban population.

**POST-GRADUATE DEGREE (M.D.) EXAMINATION – JANUARY 2025**

**Time: 3 Hours**

**Max. Marks: 100**

**ANAESTHESIOLOGY**  
**PAPER – I**  
*(Basic Science as applicable to Anaesthesia)*

**Q.P. Code: 1233**

Answers should be specific to the Questions asked.  
Draw neat, labeled diagrams wherever necessary.  
All questions are compulsory.

**Question Number**

**Marks**

**LONG ESSAY QUESTIONS:**

**10 X 10 = 100**

1. Explain the anatomy of neuromuscular junction with the help of a neat labelled diagram.
2. Draw a neat labelled diagram of the oxygen dissociation curve? Discuss the factors affecting it. (3+7)
3. Discuss the anesthetic considerations during surgery in the prone position.
4. Discuss the contributions of Sir Ivan Magill.
5. A 56-year-old male patient, a known case of chronic bronchitis is posted for emergency laparotomy under general anaesthesia. Discuss the tests to be done at the bedside to assess his pulmonary function
6. Explain Pin index system with a neat diagram.
7. Define Minimum Alveolar Concentration (MAC). Enumerate the factors affecting MAC. (3+7)
8. A 90-Year-old patient with Parkinson's disease comes for MRI of the brain. Discuss in brief the anaesthetic challenges in MRI suite.
9. A 20-year-old female patient comes to the casualty with history of opioid overdose. The patient is unconscious with a respiratory rate of 4 per minute. Discuss the likely findings in Arterial Blood Gas report in this patient.
10. A 50-year-old superobese patient posted for laparoscopic cholecystectomy comes to the PAE clinic. Identify the predictors of difficult airway in this patient

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**POST-GRADUATE DEGREE (M.D.) EXAMINATION – JANUARY 2025**

**Time: 3 Hours**

**Max. Marks: 100**

**DERMATOLOGY, VENEREOLOGY AND LEPROSY**

**PAPER – I**

*(Basic sciences as applied to Dermatology, Venereology and Leprosy)*

**Q.P. Code: 1237**

Answers should be specific to the Questions asked.  
Draw neat, labeled diagrams wherever necessary.  
All questions are compulsory.

**Question Number**

**Marks**

**LONG ESSAY QUESTIONS:**

**10 X 10 = 100**

1. Discuss the following: (5+5)
  - a) Methotrexate monitoring guidelines
  - b) Retinoid monitoring guidelines.
2. A 39-year-old male comes with history of generalized itchy erythema & peeling of skin since **TWO** years. Discuss the differential diagnosis and management of the above case. (6+4)
3. A 17-year-old male comes with comedones, tender papules, nodules & abscess over the trunk, upper limb & buttocks since **TWO** months with no systemic symptoms. What is the most probable diagnosis? Discuss the differential diagnosis & management of the above case. (2+4+4)
4. Discuss the nail changes in psoriasis.
5. A 40 years old farmer comes with discharging sinus over his right foot since 2 years. Formulate a flow chart discussing the following: causative organism, clinical features and management. (3+4+3)
6. Discuss the techniques of skin biopsy.
7. A 25-year-old female patient presented to skin OPD with excessive hair growth on her face (lateral aspect and upper lips) and abdomen since the age of 17 years. She gives history of oligomenorrhoea and patient is overweight. Discuss the approach and management of this case. (5+5)
8. Discuss the following: (4+6)
  - a) Cyto-diagnosis in dermatology
  - b) Immunohistochemical stains for various dermatological conditions.
9. Discuss the anatomy of sweat glands with the help of neat labeled diagram. Explain Sweat formation. (6+4)
10. Discuss: a) Lichenoid tissue reaction (4+6)
  - b) Innate immunity in dermatology

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POST-GRADUATE DEGREE (M.D.) EXAMINATION – JANUARY 2025

Time: 3 Hours

Max. Marks: 100

GENERAL MEDICINE

PAPER – I

(Basic sciences, recent advances in medicine, nutrition and clinical pharmacology.  
Emergency and critical care medicine, Geriatric medicine)

Q.P. Code: 1241

Answers should be specific to the Questions asked.

Draw neat, labeled diagrams wherever necessary.

All questions are compulsory.

Question Number	Marks
<b>LONG ESSAY QUESTIONS:</b>	<b>10 X 10 = 100</b>
1. A 30-year-old male presents with a week-long history of severe diarrhea due to an intestinal infection. He reports weakness and muscle cramps. Laboratory findings show serum K <sup>+</sup> of 2.5meq/l and ABG reveals metabolic acidosis. Discuss your approach with management.	(5+5)
2. Outline the role of genetic testing in diagnosing medical disorders with a genetic component.	
3. Discuss the consequences of iodine deficiency and its impact on thyroid function. Describe the risks associated with excessive iodine intake.	(6+4)
4. Describe the mechanisms and classifications of Adverse Drug Reactions (ADR). How can ADRs be prevented and managed in clinical settings?	(5+5)
5. Describe the physiology of sleep cycle. Enumerate the various body responses in REM and NREM sleep cycle.	(4+6)
6. A 55-year-old male presents to the emergency department with bp: 80/60 mm HG, heart rate: 124 bpm and altered mental status. On examination, he appears pale and cold. His initial laboratory investigations show metabolic acidosis and elevated lactate levels. Describe the approach to the diagnosis and management of this patient discussing the differential diagnosis of the above said condition.	(4+3+3)
7. Describe the pathophysiology of epileptogenesis. Write the indications and role of EEG in clinical practice.	(5+5)
8. A 40-year-old female complains of persistent fatigue, palpitations, and shortness of breath on exertion. She also reports having a sore tongue and recurrent mouth ulcers. Physical examination reveals pallor and glossitis. Laboratory investigations show macrocytic anemia and low serum vitamin B12 levels. Interpret the findings and formulate a diagnostic and therapeutic plan for this patient	(5+5)
9. Discuss the pathophysiology, clinical features, and diagnostic criteria of acute respiratory distress syndrome (ARDS) in a critically ill patient.	(4+3+3)
10. Write the principles of neurocritical care in the management of a 60-year-old patient admitted with acute ischemic stroke. Discuss the initial assessment, including neurological examination, imaging and management.	(2+2+6)

**POST-GRADUATE DEGREE (M.D.) EXAMINATION – JANUARY 2025**

**Time: 3 Hours**

**Max. Marks: 100**

**PAEDIATRICS**

**PAPER – I**

*(Fetal and Newborn)*

**Q.P. Code: 1245**

Answers should be specific to the Questions asked.  
Draw neat, labeled diagrams wherever necessary.  
All questions are compulsory.

**Question Number**

**Marks**

**LONG ESSAY QUESTIONS:**

**10 X 10 = 100**

1. Preterm baby born at 27 weeks gestation on ventilator for RDS management. Explain the stages of Retinopathy of Prematurity and its management. (4+6)
2. A 3 week old newborn presents with persistent vomiting since last 3 days. Enumerate causes of persistent vomiting in a 3-week old child. Describe clinical features and management of hypertrophic pyloric stenosis. (3+3+4)
3. Newborn presents with central cyanosis since birth. Enumerate the various causes and outline the Management to a case of Shunt Dependent Cyanotic Heart Disease. (4+6)
4. Outline the Setting up of special care newborn unit in a district hospital and the discuss Predicting neonatal mortality scoring systems. (5+5)
5. A two days old new born presents with Abnormal Body Movements to emergency department. How do you approach the child with seizure on day **TWO** of life?
6. A term baby born to HIV positive mother by vaginal delivery. How do you approach this case?
7. What is Hydrops fetalis? Discuss etiology of Non immune hydrops fetalis. What is the Management of a case of Non immune hydrops fetalis? (2+5+3)
8. Discuss the Physiology of Lactation and Management of lactational failure. (5+5)
9. Outline and discuss the strategies to prevent lung injury and bronchopulmonary dysplasia in a preterm baby. (4+6)
10. Discuss the principles of safe and stable transport of a sick newborn.

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POST-GRADUATE DEGREE (M.D.) EXAMINATION – JANUARY 2025

Time: 3 Hours

Max. Marks: 100

PSYCHIATRY

PAPER – I

(Basic Sciences as related to Psychiatry)

Q.P. Code: 1249

Answers should be specific to the Questions asked.  
Draw neat, labeled diagrams wherever necessary.  
All questions are compulsory.

Question Number

Marks

LONG ESSAY QUESTIONS:

10 X 10 = 100

1. A 10-year-old boy presents with multiple motor and vocal tics. His symptoms are present over a year and causing significant distress in school. Describe the anatomy and neurocircuits of basal ganglia with diagrams. (5+5)
2. A 70-year-old male expresses regret and dissatisfaction with his life achievements and feels he has not contributed meaningfully to society. Describe how Erickson's stages of development are applied to understand his current psychological state. What therapeutic approaches should be considered in this case? (6+4)
3. Classify theories of personality. Explain various psychological methods to assess personality. (5+5)
4. Define and enumerate ego defense mechanisms. Enumerate the defense mechanism put into use in case of OCDs. (3+3+4)
5. Illustrate with a neat labelled diagram the anatomy, blood supply and circuits of temporal lobe.
6. Explain Chi Square test with example.
7. Explain Theories of Mind. List **four** clinical applications of the same. (6+4)
8. A 30-year-old male presents with memory loss and difficulty concentrating after a car accident two months ago. He has trouble remembering recent events and experiences frequent headaches. Enumerate and explain the tests to be performed to assess his memory. Describe theories of memory. (5+5)
9. Explain linkage analysis.
10. A 35-year-old female presents with **two**-year history of feeling hopeless and helpless. She describes feeling trapped in a cycle of failure and believes that any efforts to change her situation are futile and has given up to come out of this situation. Describe which theory of depression is explained here? Enumerate and explain the psychological theories of depression. (6+4)

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**POST-GRADUATE DEGREE (M.D.) EXAMINATION – JANUARY 2025**

**Time: 3 Hours**

**Max. Marks: 100**

**RADIO-DIAGNOSIS**  
**PAPER – I**  
(Basic Sciences as applied to Radio-diagnosis)

**Q.P. Code: 1253**

Answers should be specific to the Questions asked.  
Draw neat, labeled diagrams wherever necessary.  
All questions are compulsory.

<b>Question Number</b>	<b>Marks</b>
<b>LONG ESSAY QUESTIONS:</b>	
	<b>10 X 10 = 100</b>
1. Chest X-ray of a new born shows cystic lesion in the left lobe. Discuss possible differential diagnosis and pathophysiology of the cystic lungs lesions in neonates.	(5+5)
2. A new born presents with bilious vomiting; the USG shows midgut volvulus. Mention the clinical condition and underlying pathology. Discuss in detail its development.	(2+2+6)
3. Discuss the mechanism of production of X-rays with basic properties of X-ray. Discuss the factors affecting scatter radiation.	(4+3+3)
4. Enumerate different types of grids. Discuss factors affecting radiographic film quality.	(5+5)
5. Discuss various biological hazards of radiation. What is ALARA principle? Explain the variable factors affecting it.	(4+3+3)
6. Illustrate the recent atomic energy regulatory board (AERB) guidelines. Mention biological effects of radiation and measures taken against its protection for radiation worker and patient.	(4+3+3)
7. Discuss the radiological anatomy of mediastinum. Classify anterior mediastinal masses and discuss their imaging features.	(3+4+3)
8. Discuss in detail the construction and components of ultrasound probe with a neat diagram and a note on constituents of ultrasound gel.	(4+3+2)
9. Discuss the techniques of MR perfusion. List the advantages and disadvantages of chemical shift in MRI.	(3+3+4)
10. Discuss G.I. scintigraphy and scitigraphic evaluation of GI bleeding.	(3+7)

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**POST-GRADUATE DEGREE (M.D.) EXAMINATION – JANUARY 2025**

**Time: 3 Hours**

**Max. Marks: 100**

**RESPIRATORY MEDICINE**

**PAPER – I**

*(Basic sciences including anatomy and physiology pertaining to respiratory system)*

**Q.P. Code: 1257**

Answers should be specific to the Questions asked.  
Draw neat, labeled diagrams wherever necessary.  
All questions are compulsory.

<b>Question Number</b>	<b>Marks</b>
<b>LONG ESSAY QUESTIONS:</b>	<b>10 X 10 = 100</b>
1. Describe concept of lung compliance and its importance in pulmonary mechanics	(5+5)
2. Explain Alveolar- Arterial gradient and write its uses in ICU	(5+5)
3. Draw a schematic diagram on Oxygen Hemoglobin Dissociation Curve and Explain about its clinical importance	(3+7)
4. Explain about respiratory physiological changes during pregnancy. Give a brief note on management of acute exacerbation bronchial asthma during pregnancy.	(5+5)
5. Explain about the functions of diaphragm and describe about its clinical importance in various Respiratory diseases.	(4+6)
6. Describe the procedure, interpretation and clinical application of methacholine challenge testing.	(4+3+3)
7. A 47-year-old male patient, smoker for 10 years shows clubbing on general examination. What is the pathophysiology of clubbing? Classify and discuss the grading of clubbing and its clinical importance.	(4+3+3)
8. Describe control of ventilation with appropriate diagram and its clinical importance.	(5+5)
9. Explain the importance of ABG interpretation in COPD patients.	
10. A young diver comes to OPD for the routine checkup. Discuss the normal physiology in divers and health complications in them.	(5+5)

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**POST-GRADUATE DEGREE (M.S.) EXAMINATION – JANUARY 2025**

**Time: 3 Hours**

**Max. Marks: 100**

**GENERAL SURGERY**

**PAPER – I**  
*(Basic Sciences)*

**Q.P. Code: 1261**

Answers should be specific to the Questions asked.  
Draw neat, labeled diagrams wherever necessary.  
All questions are compulsory.

**Question Number**

**Marks**

**LONG ESSAY QUESTIONS:**

**10 X 10 = 100**

1. Discuss the importance of patient safety, common causes of adverse patient safety incidents and patient safety strategies / solutions. (3+3+4)
2. Discuss the current use of Plain and special X-rays in Surgical Practice. (5+5)
3. Discuss types, causes, clinical presentation and management of lymphedema of lower limbs. (2+2+3+3)
4. A 70-year-old female patient who has undergone Modified Radical Mastectomy 1 year back complains about severe pain in back. Discuss the evaluation of the symptom and diagnose the cause for this symptom. What are the treatment options available for this symptom and the cause for this symptom? (2+2+3+3)
5. Discuss the principles of Laparoscopic and Robotic Surgery. Add a note on advantages of Robotic Surgery. (6+4)
6. Discuss Systemic Inflammatory Response Syndrome and Multiple Organ Dysfunction Syndrome. (5+5)
7. A 60-year-old male presents with chronic ulcer measuring 6 x6 cm on his left foot Since last 6 years. Discuss the management of this case.
8. A 50-year-old is diagnosed with gallstone pancreatitis and is planned for Endoscopic Retrograde Cholangio-pancreaticography (ERCP). Describe the indications, procedure and complications of ERCP. (3+4+3)
9. Discuss the principles of various Diathermy used in Surgical Practice.
10. A 56-year-old male who is a known case of diabetes mellitus and hypertension since 10 years has to undergo Lichtenstein tension free hernioplasty. What is the basis of obtaining consent for this patient? What are the different types of consent? Add a brief note on ethical practice of surgery (3+3+4)

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POST-GRADUATE DEGREE (M.S.) EXAMINATION – JANUARY 2025

Time: 3 Hours

Max. Marks: 100

OBSTETRICS AND GYNAECOLOGY

PAPER – I

(Basic Sciences and medical genetics)

Q.P. Code: 1265

Answers should be specific to the Questions asked.  
Draw neat, labeled diagrams wherever necessary.  
All questions are compulsory.

Question Number

Marks

LONG ESSAY QUESTIONS:

10 X 10 = 100

1. Define lower uterine segment. Discuss the role of lower uterine segment during labour. Explain its applied aspects. (3+3+4)
2. Describe and discuss the development of female reproductive tract. Discuss the management of a case of 16 year old with primary amenorrhoea (5+5)
3. Describe the changes in cervix during pregnancy. A primigravida has come to the labor room with postdatism and Rh negative pregnancy. Discuss the methods of induction of labour. (4+6)
4. Discuss the changes during menstrual cycle. Add a note on evaluation of heavy menstrual bleeding in pubertal age group. (5+5)
5. Describe the physiological changes that occur during menopause. Write the long term impact of menopause on women 's health. Write the strategies to improve bone health to mitigate the menopausal effects. (4+3+3)
6. Outline the physiological changes during pregnancy that contribute to the development of gestational diabetes. Discuss the role of insulin in the management of gestational diabetes. (5+5)
7. Explain the composition and functions of amniotic fluid during pregnancy. How does amniotic fluid volume regulate fetal growth and development? (2+3+5)
8. Discuss the assessment of genetic risk in a couple considering pregnancy. What factors and information are crucial for determining potential genetic risks? (5+5)
9. A primigravida with 36 weeks gestation has come to the labor room with per vaginal bleeding. What are the differential diagnosis? Discuss the management of this case. (5+5)
10. A second gravida with 30 weeks gestation has come to the labor room with pain abdomen and per vaginal leak. Discuss the aetiology and management. Add a note on prediction of preterm labor. (3+4+4)

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**POST-GRADUATE DEGREE (M.S.) EXAMINATION – JANUARY 2025**

**Time: 3 Hours**

**Max. Marks: 100**

**OPHTHALMOLOGY**

**PAPER – I**

*(Basic Sciences, optics and refraction, ocular motility and strabismus,  
Ocular pharmacology, instrumentation and investigations in ophthalmology)*

**Q.P. Code: 1269**

Answers should be specific to the Questions asked.  
Draw neat, labeled diagrams wherever necessary.  
All questions are compulsory.

**Question Number**

**Marks**

**LONG ESSAY QUESTIONS:**

**10 X 10 = 100**

1. Discuss role of anti-metabolites and immunosuppressive drugs in Ophthalmology.
2. An elderly man presented with nodular mass in the conjunctiva since one year. Discuss the differential diagnosis of the same. Add a note on histopathology of conjunctival neoplasias. (8+2)
3. A young lady complains of acute pain and colored halos. Discuss medical management in this scenario and classify the drugs used accordingly. (5+5)
4. A swimmer has developed acute pain and blurring of vision in left eye. Draw life cycle and lab diagnosis of Acanthamoeba in the scenario of keratitis. (5+5)
5. What are the methods of evaluating Visual acuity in pre verbal children? Clarify concept of critical period of visual development. (5+5)
6. A 5-year-old boy is brought to OPD with diminution of vision in dim light. Explain the probable etiology and write a note on Electroretinogram. (4+6)
7. What is a cross cylinder? Where all is it used during refraction? Explain with an example. (2+4+4)
8. Describe briefly classification of exotropia and management. Describe Huber classification of Duane Retraction Syndrome (3+3+4)
9. Discuss evaluation of comitant squint. Explain in detail the uses and method of testing with Bagolini's Striated Glasses. (7+3)
10. Discuss the optics and uses of Specular microscopy. (5+5)

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**POST-GRADUATE DEGREE (M.S.) EXAMINATION – JANUARY 2025**

**Time: 3 Hours**

**Max. Marks: 100**

**ORTHOPAEDICS**

**PAPER – I**

*(Basic and clinical sciences as applied to orthopaedics)*

**Q.P. Code: 1273**

Answers should be specific to the Questions asked.  
Draw neat, labeled diagrams wherever necessary.  
All questions are compulsory.

<b>Question Number</b>	<b>Marks</b>
<b>LONG ESSAY QUESTIONS:</b>	<b>10 X 10 = 100</b>
1. Explain histology of growth plate with a neat diagram and discuss the factors causing growth disturbance in paediatric age.	(5+5)
2. Explain Pathophysiology of peripheral nerve regeneration following axonotmesis and its management.	(5+5)
3. Explain Role of Biofilm in implant infection in orthopedics and discuss Biomechanics & clinical uses of floor reaction orthosis.	(2+3+5)
4. Describe the mechanism of calcium homeostasis by parathyroid hormone and the skeletal changes that occur as a result of hyperparathyroidism. Discuss the uses and limitations of lab investigations in the diagnosis of primary hyperparathyroidism.	(5+5)
5. List the different components of blood transfusion therapy. Enumerate and mention uses of various blood fractions.	(4+3+3)
6. A 35-year-old lady presents with GCS 7 to casualty. List various types of shock and explain pathophysiology of septic shock and its management.	(2+3+5)
7. Enumerate types of rickets. Describe the radiological and biochemical features of renal osteodystrophy.	(3+3+4)
8. Describe in detail the synovial fluid analysis. How to differentiate various types of arthritis based on the analysis?	(5+5)
9. A 35-year-old Pregnant lady presents with bilateral hip pain. Describe the pathophysiology and management of Transient Migratory Osteoporosis of the hips.	(5+5)
10. A 60-year-old lady presents with post colles fracture after treatment. She comes with pain swelling, shiny skin, loss of hair and brittle nail. what is clinical diagnosis, its pathophysiology and management?	(2+3+5)

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POST-GRADUATE DEGREE (M.D.) EXAMINATION – JANUARY 2025

Time: 3 Hours

Max. Marks: 100

BIOCHEMISTRY

PAPER – I  
(Basic Sciences)

Q.P. Code:

Answers should be specific to the Questions asked.  
Draw neat, labeled diagrams wherever necessary.  
All questions are compulsory.

Question Number	Marks
<b>LONG ESSAY QUESTIONS:</b>	<b>10 X 10 = 100</b>
1. Discuss the role of Artificial intelligence (AI) in laboratory diagnostics.	
2. Describe the types of Autoanalysers and their salient features.	(6+4)
3. Describe at least ten attributes of good paper presentation	
4. A 52-year-old male patient with family history of hyperlipidemia was advised to undergo fasting lipid profile tests. Low Density Lipoprotein-Cholesterol (LDL-C) was found to be 210 mg/dL and High Density Lipoprotein-Cholesterol (HDL-C) was 22 mg/dL. a) List the tests done under lipid profile and give their normal values. b) Explain the familial defect leading to raised LDL-C. c) Discuss the metabolism of low-density lipoprotein.	(2+3+5)
5. Describe in detail odds ratio. Add a note on its indication and interpretation.	(5+5)
6. Describe the stages and regulation of cell cycle.	(7+3)
7. A 50 yr. old male with a history of chronic obstructive pulmonary disease (COPD) is brought to the emergency room with shortness of breath and respiratory infection. ABG analysis shows. pH- 7.23, pCO <sub>2</sub> - 65 mm Hg, HCO <sub>3</sub> <sup>-</sup> - 25 mEq/L a) What is the probable diagnosis? b) Discuss the acid base disturbance in this case.	(2+2+6)
8. A 20-year-old female patient was brought to the casualty in an irritable semi-comatose state. She was dehydrated with the pulse rate of 110 beats/min and respiratory rate of 30/min. Biochemical investigations of blood and urine showed the following: pH:7.02; Bicarbonate:11mEq/L; Creatinine:3.2 mg/dL and Glucose:650 mg/dL; Benedict's test in urine positive; Rothera's test in urine: positive. What is the probable diagnosis? Discuss the compensatory mechanisms of metabolic acidosis.	(2+8)
9. A 45-year-old male patient is admitted to the hospital with severe dehydration and hypovolemic shock following acute gastroenteritis. The patient is lethargic, with low blood pressure and elevated heart rate. The attending physician decides to administer intravenous fluids to stabilize the patient's condition. After initial assessment, the medical team considers the use of colloid solutions. a) Define colloids and describe their general properties. How do colloids differ from crystalloids? b) List and describe the various types of colloids used in medical practice, providing examples for each type. Discuss the mechanisms by which colloids help in restoring blood volume and improving hemodynamic in patients with hypovolemic shock.	(5+5)
10. Discuss the causes and compensatory mechanisms of metabolic alkalosis.	(2+8)

POST-GRADUATE DEGREE (M.S.) EXAMINATION – JANUARY 2025

Time: 3 Hours

Max. Marks: 100

OTORHINOLARYNGOLOGY

PAPER – I  
(Basic Sciences)

Q.P. Code: 1277

Answers should be specific to the Questions asked.  
Draw neat, labeled diagrams wherever necessary.  
All questions are compulsory.

Question Number

Marks

LONG ESSAY QUESTIONS:

10 X 10 = 100

1. Describe the anatomy of the inner ear, mention a note on anomalies of Cochlea. (7+3)
2. Describe the anatomy of laryngopharynx and write a short note on Zenker's diverticulum. (7+3)
3. Discuss the role of anti-cancer drugs in relation to various phases of cell cycle.
4. Discuss the anatomy of cavernous sinus with its clinical application. (7+3)
5. A 35-year-old school teacher comes with a history of hoarseness of voice. How will you evaluate the patient? Describe the physiology of voice production. (5+5)
6. A 30-year-old presented with a slow, progressive, painless swelling in the upper lateral one third of neck with intermittent discharge. How to evaluate this patient? Explain the development of branchial arches. (5+5)
7. Discuss the anatomy of Cerebello-Pontine angle with its applied aspect. (5+5)
8. Discuss the various types of intranasal corticosteroids for allergic rhinitis.
9. Write a note on tumour microenvironment. Explain about the tumour biomarkers. (5+5)
10. Explain the basis for otorhinolarygological presentations in autoimmune rheumatic diseases. Write in brief about the effects of immunosuppressive drugs on their prognosis. (5+5)

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