

22223

3 Hours / 80 Marks



0805

Seat No.

--	--	--	--	--	--	--	--

- Instructions* –
- (1) All Questions are *Compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. **Attempt any EIGHT of the following:** **16**
 - a) Write the importance of dosage form.
 - b) Write the applications of Prodrugs.
 - c) Name the container depending on their utility.
 - d) Explain any one mixing mechanism.
 - e) Write the criteria for selection of filter media.
 - f) Explain digestion process of extraction.
 - g) Differentiate between Dry heat sterilization and Moist heat sterilization
 - h) Name the tablets used to prepare solution.
 - i) Write the approximate capacity of capsule with respect to its number.
 - j) Write the Mantoux tuberculin test.
 - k) Calculate the quantity of dextrose required to prepare 1. Fl.oz of a 10%.
 - l) Define 'containers'. What are the basic materials used in making of container.

2. **Attempt any FOUR of the following:** **12**
 - a) Write any six salient features of IVth Edition of I.P.
 - b) Explain construction and working of Silverson mixer homogeniser with a well labelled diagram.
 - c) Calculate the volume of 18%, 15% and 3% cetrimide solution be mixed to get 8% cetrimide solution 200 ml.
 - d) Explain construction and working of cyclone separator with a well labelled diagram.
 - e) Write the principle, construction of Hot air oven with a well labelled diagram.
 - f) Describe the maceration process for concentrated preparation.

3. **Attempt any FOUR of the following:** **12**
 - a) Give the classification of dosage form.
 - b) Explain the construction and working with diagram of mill work on the mechanism of cutting.
 - c) Describe the apparatus used for separation of two miscible liquids.
 - d) Illustrate the steps involved in sugar coating.
 - e) Explain the method of preparation of small pox vaccine using animals.
 - f) Explain the factor affecting rate of filtration using Darcy's law.

P.T.O.

**4. Attempt any FOUR of the following:**

- a) Define the following terms:
 - i) Syrup
 - ii) Emulsion
 - iii) Gargles
- b) Explain Aerosol container with a well labelled diagram.
- c) Write the significance of size reduction.
- d) Explain Evaporating still with well labelled diagram.
- e) Define filter aid, write the ideal qualities and any two examples of it.
- f) Write the advantages and list the types of modern unit dose packaging.

5. Attempt any FOUR of the following:

- a) Define various grades of powder according to I.P.
- b) Explain construction and working of leaf filter with well labelled diagram.
- c) Write the applications of simple distillation.
- d) Describe the method of filling of soft gelatin capsule.
- e) Explain the factors affecting evaporation.
- f) Explain construction and advantages of fluidised bed dryer.

6. Attempt any FOUR of the following:

- a) Find the concentration of sodium chloride required to make 50 ml isotonic solution containing 0.5% ephedrine HCl and 1.5% chlorobutal [Note: The F.P. of 1% w/v solution of ephedrine HCl = -0.165°C and the F.P. of 1% w/v solution of -0.138°C]
- b) Compare the process of maceration for organised drug and unorganised drug and draw a well labelled diagram of Soxhlet apparatus.
- c) Define Aseptic techniques, write the source of contamination and name the methods of sterility testing.
- d) Write the excipients used in Formulation of tablet and explain the parts of single punch tablet machine with a well labelled diagram.
- e) Define immunity and explain the types of immunity.
- f) Explain the following equipments used for mixing (Any one)
 - i) Double cone blender
 - ii) Propeller mixer.

22223

3 Hours / 80 Marks



0806

Seat No.

--	--	--	--	--	--	--	--

- Instructions* –
- (1) All Questions are *Compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. **Attempt any FIVE of the following:** **20**
 - a) Define acid and base as per Arrhenius theory and write Advantages and disadvantages of it.
 - b) Define and classify Antacids with examples.
 - c) State the meaning of 'Quality Control'. Give its significance in Pharmacy.
 - d) Define Topical agents and classify with examples.
 - e) Discuss uses and storage condition for
 - i) Oxygen
 - ii) Carbondioxide
 - f) Define Antioxidants with examples. Write selection criteria for inorganic Antioxidants.
 - g) Define and classify Dental Products with examples.
 - h) Write synonym, chemical formula, properties and uses of Muriatic acid.

2. **Attempt any FOUR of the following:** **12**
 - a) Define and classify Laxatives with examples.
 - b) Discuss the role of oxygen in biological system.
 - c) Explain Electrolyte replacement therapy. Give official preparations of sodium chloride.
 - d) Give the properties of alpha and beta radiations.
 - e) Mention four official preparations of
 - i) Calcium
 - ii) Iron
 - f) Write principle and reaction involved in limit test for iron.

3. **Attempt any THREE of the following:** **12**
 - a) Explain the biological effects of raditions on human body.
 - b) Give the synonym and use of
 - i) Sodium Hydroxide
 - ii) Calcium Hydroxide
 - c) Define Antidote and classify with suitable examples.
 - d) State the precautions to be taken while handling and storage of Radio pharmaceuticals.
 - e) Write properties and uses of
 - i) Kaolin
 - ii) Calamine

P.T.O.



4. Attempt any **THREE** of the following: 12
- State synonym, molecular formula, properties and uses of sodium metabisulphite.
 - Define Respiratory Stimulants. Give molecular formula, properties and uses of Ammonium carbonate.
 - Define Expectorants and Classify them. Give uses of potassium iodide.
 - What are Anticaires agents? Discuss the role of fluoride as anticaries.
 - Enlist different sources of impurities in pharmaceuticals. Explain any two.
5. Attempt any **THREE** of the following: 12
- Define the terms with examples.
 - Achlorhydria
 - Astringent
 - Protectives
 - Emetics
 - What is 'Shadow meal'? Give its properties, uses and molecular formula.
 - Define the term 'Radioisotope'. Draw well labelled diagram of G.M. counter and explain construction and working.
 - Define buffers and classify buffers. Give ideal properties of it.
 - Draw well labelled diagram of Gutzeit apparatus and explain the principle of limit test for Arsenic.
6. Attempt any **THREE** of the following: 12
- Give any two identification tests for
 - Acetates
 - Chlorides
 - Explain metabolic acidosis and metabolic alkalosis. Give name of compounds used for their treatment.
 - Explain various applications of Radioisotoper.
 - What are ORS mixtures? Give it's composition recommended by WHO and UNICEF.
 - Explain the role of iron in human body.
-

22223

3 Hours / 80 Marks



0807

Seat No.

--	--	--	--	--	--	--	--

- Instructions* –
- (1) All Questions are Compulsory.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. **Attempt any EIGHT of the following:** **16**
- a) Define Pharmacognosy. Who and when coined the word pharmacognosy.
 - b) Explain role of Galen in the history of pharmacognosy.
 - c) Which part of the plant is used as crude drug in case of following:
 - i) Pyrethrum
 - ii) Ephedra
 - iii) Gymnema
 - iv) Ajowan
 - d) Differentiate between leaf and leaflet.
 - e) Name two crude drugs having following family:
 - i) Apocynaceae
 - ii) Zingiberaceae
 - f) Explain 'Gold Beater Skin test' for tannins.
 - g) Name the crude drug which contains following chemical constituents.
 - i) D-linalool
 - ii) Fenchone
 - iii) Vitamin A
 - iv) Reserpine
 - h) Define :
 - i) Antiseptics
 - ii) Disinfectants
 - i) Name the crude drug which is used as :
 - i) Carminative
 - ii) Antitussive
 - iii) Laxative
 - iv) Antileprotic
 - j) Write Morphological characters of coriander with diagram.
2. **Attempt any FOUR of the following:** **12**
- a) Define Evaluation of crude drugs. Describe any two physical methods of drug evaluation.
 - b) Describe chemical method of classification with its merits and demerits.
 - c) Name the crude drug which is used as antimalarial. Write its Biological source and chemical constituents.
 - d) Define surgical dressings. Give the ideal requirements of surgical dressings.
 - e) Write Biological source, chemical constituents and uses of Nutmeg.
 - f) Define volatile oil. Explain methods of isolation of volatile oil.

**3. Attempt any FOUR of the following:**

- a) Define Diuretics. Give biological source chemical constituents of Gokhru.
- b) Describe method of cultivation, collection and preparation of Rauwolfia for market.
- c) Define following with examples.
 - i) Dried juices
 - ii) Latex
 - iii) Balsam
- d) Define adulteration. Give various methods of adulteration with suitable examples.
- e) Write Biological source and uses of following
 - i) Garlic
 - ii) Black pepper
- f) Explain life cycle of Ergot.

4. Attempt any FOUR of the following:

- a) Define following with one example of each :
 - i) Astringents
 - ii) Antirheumatics
- b) Name the crude drug which contain cardiac glycoside. Explain chemical test for it.
- c) Define and classify pharmaceutical aids with examples.
- d) Give Biological source, chemical constituents and uses of vinca.
- e) Define Tannins. Differentiate between hydrolysed tannin and condensed tannin.
- f) Give Biological source of following:
 - i) Digitalis
 - ii) Sandal wood
 - iii) Aconite

5. Attempt any FOUR of the following:

- a) Describe method of preparation for cotton fibre.
- b) Define following : (any 3)
 - i) Stomatal No.
 - ii) Stomatal index
 - iii) Veinlet No.
 - iv) Vein termination No.
- c) Draw a well labelled diagram of T.S. of Fennel OR Ginger and describe it.
- d) Give chemical constituents and uses of following:
 - i) Chaulmoogra oil
 - ii) Vasaka
- e) Define and classify Resins and Resin-combination with examples.
- f) Name antidysentric drug. Give its biological source and chemical constituents.

6. Explain chemical tests of following drugs. (any FOUR)

- a) Datura
- b) Shark liver oil
- c) Nux vomica
- d) Gelatin
- e) Asafoetida
- f) Turmeric

22223

3 Hours / 80 Marks



0808

Seat No.

--	--	--	--	--	--	--	--

- Instructions* –
- (1) All Questions are *Compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any EIGHT of the following:

16

- a) Draw the structure of
 - i) Alanine
 - ii) Phenylalanine.
- b) What are lymphocytes? Give their role in health and disease.
- c) Define and classify vitamins.
- d) Give functions of Folic acid.
- e) Define:
 - i) Isoenzymes
 - ii) Constitutive enzymes
- f) Differentiate between fats and oils.
- g) Write the biological functions of protein.
- h) Define essential and non-essential fatty acids with examples.
- i) Draw neat labelled diagram of Animal cell.
- j) What are minerals? Give two biochemical functions of it.
- k) Explain Epimers and Anomers with examples.
- l) Define competitive and non-competitive enzyme inhibition.

2. Attempt any FOUR of the following:

12

- a) Define carbohydrates. Classify carbohydrates with examples.
- b) Give Pharmaceutical and therapeutic significance of enzymes.
- c) Explain the term:
 - i) Gluconeogenesis
 - ii) Glycogenolysis
 - iii) Glycogenesis
- d) Write structure, functions and deficiency symptoms of vitamin E.
- e) What are Phospholipids? Give biological importance and structure of 'Lecithin'.
- f) Explain Acid-Base behaviour of amino acids.



3. **Attempt any FOUR of the following:** 12
- Discuss the process of Transamination and Oxidative deamination in Protein catabolism.
 - What is Pathological urine? Name abnormal constituents with their significance.
 - Define and classify lipids with examples.
 - What are co-enzymes and name co-enzymes derived from different vitamins?
 - Give structures:
 - D-glucose
 - Sucrose
 - Lactose
 - Define with their significance:
 - Saponification Value
 - Acid Value
4. **Attempt any FOUR of the following:** 12
- Explain 'Lock and key model' of enzymes action and 'Induces fit model' of enzymes action.
 - Write the functions and structure of mitochondria.
 - Explain the following:
 - Pernicious anaemia
 - Scurvy
 - Give difference between reducing and non-reducing sugar.
 - Explain different protein deficiency diseases.
 - Write biochemical role and deficiency diseases of:
 - Zinc
 - Iodine
5. **Attempt any FOUR of the following:** 12
- Define enzymes. Classify them with examples.
 - How will you identify the following constituents in the given sample of urine?
 - Blood
 - Sugar
 - Ketone bodies.
 - Explain Rhodopsin cycle of vision.
 - Give structure and colour reactions of cholesterol.
 - Explain oxidation reactions of Glucose.
 - Give the following reactions of amino acids:
 - Reaction with FDNB
 - Reaction with Dansyl chloride.
6. **Attempt any FOUR of the following:** 16
- Explain the biosynthetic pathway of urea in body.
 - Give structure, physiological functions and deficiency symptoms of:
 - Niacin
 - Thiamine.
 - Explain pathway of glycolysis.
 - What are proteins? Classify them with suitable examples.
 - Explain reactions of beta-oxidation of fatty acid.
 - Explain the reactions of TCA cycle. Discuss energetic of TCA cycle.
-

22223

3 Hours / 80 Marks



0809

Seat No.

--	--	--	--	--	--	--	--

- Instructions* –
- (1) All Questions are *Compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. **Attempt any EIGHT of the following:** **16**
 - a) Define Anatomy and Physiology.
 - b) Enlist the functions of mitochondria.
 - c) Classify the tissues.
 - d) Write any four functions of bones.
 - e) Define and classify joints.
 - f) Name the bones of lower limb.
 - g) Define Stroke Volume and Cardiac output.
 - h) Write the composition of urine.
 - i) Mention the composition of blood.
 - j) Explain the role of calcium in muscle contraction.
 - k) Draw the well labelled diagram of T.S. of Spinal cord.
 - l) Mention the normal values of R.B.C. and W.B.C.'s in male and female.

2. **Attempt any FOUR of the following:** **12**
 - a) Explain physiology of external respiration.
 - b) Enlist any six cranial nerves with their functions.
 - c) Draw well labelled diagram of sagittal section of the eye.
 - d) Explain the formation of urine.
 - e) Define the terms Digestion and mastication. Where do they occur?
 - f) Write the effect of sympathetic nervous system stimulation on...
 - i) Heart
 - ii) Bronchi
 - iii) Eye

3. **Attempt any FOUR of the following:** **12**
 - a) Write the functions of liver.
 - b) Define the term of Hormone. Enlist the endocrine glands.
 - c) Draw a well-labelled diagram of Lymphnode.
 - d) Enlist the functions of testes and ovaries.
 - e) Write the composition and functions of Gastric juice.
 - f) Explain terms:
 - i) Osteoporosis
 - ii) Dwarfism
 - iii) Medial

P.T.O.

**4. Attempt any FOUR of the following:**

- a) Explain process of erythropoiesis.
- b) Draw a well labelled diagram of interior of the heart.
- c) Enlist the hormones released from anterior pituitary gland with their functions.
- d) Explain three functions of lymphatic system.
- e) Explain menstrual cycle.
- f) Define and give normal values of...
 - i) Blood pressure
 - ii) Vital capacity
 - iii) Cardiac cycle

5. Attempt any FOUR of the following:

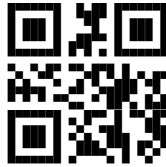
- a) Enlist bones of Axial skeleton.
- b) Explain ABO system of Blood grouping.
- c) Explain functions of cerebellum.
- d) Explain physiology of Hearing.
- e) Give the functions of Haemoglobin and mitochondria.
- f) Define the terms:
 - i) CHF
 - ii) Leucocytosis

6. Attempt any FOUR of the following:

- a) Explain physiology of neuromuscular junction.
 - b) What are auditory ossicles? Write their functions.
 - c) Describe the structure and functions of female reproductive system.
 - d) Explain mechanism blood clotting.
 - e) Explain structure and functions of simple epithelium.
 - f) Describe muscle tone and muscle fatigue.
-

22223

3 Hours / 80 Marks



0810

Seat No.

--	--	--	--	--	--	--	--

- Instructions* –
- (1) All Questions are *Compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any EIGHT of the following:

16

- a) What is Natural History of Diseases.
- b) What do the following acronyms stand for –
 - i) WHO
 - ii) BCG
 - iii) MMR
 - iv) CPR
- c) Define the following terms –
 - i) Microbiology; and
 - ii) Health
- d) Name any two diseases transmitted by rodents.
- e) Draw a well-labelled diagram of 'septic tank'.
- f) Name four different vaccines.
- g) Describe any one type of immunity.
- h) Define the following terms –
 - i) Fracture; and
 - ii) Burn and Scald
- i) What is hypertension?
- j) State need of staining microorganisms.
- k) Enlist any four factors affecting fertility.
- l) Name one each of the following –
 - i) Arthropod borne infection
 - ii) Surface infection
 - iii) Sexually transmitted infection
 - iv) Respiratory tract infection

2. Attempt any FOUR of the following:

12

- a) Name various dimensions of 'Health'. Elaborate any one in detail.
- b) What is disease agent? Classify them with examples.
- c) Describe different modes of intervention.
- d) Name a vitamin given in the treatment of the following deficiency disease –
 - i) Rickettes;
 - ii) Beri-beri;
 - iii) Scurvy;
 - iv) Pellagra;
 - v) Keratomalacia
 - vi) Osteomalacia
- e) Classify minerals with examples. Explain the role of Iodine.
- f) What is balanced diet? Give its advantages.



3. **Attempt any FOUR of the following:** 12
- Explain physical barrier methods of contraception.
 - Name various behavioral methods of contraception.
 - Describe 'Vasectomy' method.
 - What is 'First Aid Box'? Enlist articles present in first aid box.
 - What is CPR? Explain chest cardiac massage under CPR.
 - What are the general signs and symptoms of fracture? Describe in general management of fracture.
4. **Attempt any FOUR of the following:** 12
- Describe anatomy of bacteria with a well-labelled diagram.
 - Describe procedure and give the importance of Gram's staining method.
 - What is meant by 'Isolation of Pure Culture'? Enlist different methods used for isolation of bacteria.
 - Give details of 'Rapid Sand Filtration' for purification of water.
 - What is air pollution? Discuss its prevention and control.
 - What is excreta? Name different methods of excreta disposal.
5. **Attempt any FOUR of the following:** 12
- Give the mode of transmission of –

i) Chicken pox	ii) Diphtheria
iii) Poliomyelitis	iv) Typhoid
v) Plague	vi) Leprosy
 - Name the causative agent of the following –

i) Influenza	ii) Whooping cough
iii) Cholera	iv) Filariasis
v) Rabies	vi) Gonorrhoea
 - What is 'AIDS'? Explain its prevention.
 - Define –

i) Food Poisoning	ii) Blindness; and
iii) Non-communicable diseases	
 - What are the measures used in prevention and control of cancer?
 - Describe the prevention and control of diabetes mellitus.
6. **Attempt any FOUR of the following:** 16
- Define the following terms –

i) Cold chain;	ii) Epidemic;
iii) Quarantine; and	iv) Vaccine
 - Define the term Immunisation. Write 'National Immunisation Schedule'.
 - Explain in short elements of minor surgery and dressings.
 - What is disinfection? Describe in brief methods of disinfection.
 - Classify bacteria depending on their shape.
 - Draw a well-labelled diagram of Sewage Treatment Plant.
-