

00810

21718

3 Hours / 80 Marks

Seat No.

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- 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.

Marks

1. Answer any EIGHT of the following :

16

- (a) Define the terms :
 - (i) Health Education
 - (ii) Disease
- (b) Name the causative organism for the disease :
 - (i) Chicken pox
 - (ii) Gonorrhoea
- (c) Give the long forms of following abbreviations :
 - (i) AIDS
 - (ii) TB
 - (iii) BCG
 - (iv) TT
- (d) Name different sources of water.
- (e) Define :
 - (i) Incubation period
 - (ii) Antiseptic

- (f) Define hypertension. Write about prevention and control of hypertension.
- (g) Give modes of transmission of :
 - (i) Malaria
 - (ii) Trachoma
- (h) Give ill effects of light.
- (i) Write the disinfection procedure for dead body.
- (j) Name the disease caused due to deficiency of :
 - (i) Iodine
 - (ii) Thiamine
- (k) Enlist types of diabetes.
- (l) Classify micro-organisms.

2. Answer any FOUR of the following :

12

- (a) Define the terms :
 - (i) Social health
 - (ii) Mental health
 - (iii) Physical health
- (b) Write sources, functions, deficiency of Vit. A.
- (c) What are disease agents ? Classify them with examples.
- (d) Give the first aid treatment for burns.
- (e) What are proteins ? State the functions of proteins.
- (f) Define Immunity. Discuss its types.

3. Answer any FOUR of the following : 12

- (a) Define the term demography and explain demographic cycle.
- (b) Write a note on fungal infections.
- (c) Name various techniques for staining of bacteria. Give procedure for Acid fast staining.
- (d) Discuss the design and mechanism of septic tank.
- (e) With the help of a neat labelled diagram describe the structure of virus.
- (f) Explain in detail Cardio-Pulmonary Resuscitation. (C.P.R.)

4. Answer any FOUR of the following : 12

- (a) Define first-aid. Mention major principles of first-aid. List the content of first-aid kit.
- (b) Explain elements of minor surgery and dressing in short.
- (c) Define fertility and give the factors affecting fertility.
- (d) Name the methods for small scale purification of water. Draw a well labelled diagram for slow sand filter.
- (e) Define epidemiology. Differentiate between case control study and cohort study of epidemiology.
- (f) Give causes, prevention & control of blindness.

5. Answer any FOUR of the following : 12

- (a) Discuss in brief about Nosocomial infections. How it can be prevented ?
- (b) Explain various indicators of health in short.

- (c) Mention and give functions of any six minerals present in the body.
 - (d) What are intrauterine devices ? Give their advantages.
 - (e) Name the methods for solid waste disposal and explain any one.
 - (f) Define fracture. Name types of fracture and give first aid treatment for fracture.
6. Write causative agent, mode of transmission, symptoms and control of following : (any **four**)
- (a) Plague
 - (b) Syphilis
 - (c) Rabies
 - (d) Poliomyelitis
 - (e) Diphtheria
 - (f) Tetanus
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0805

21718

3 Hours / 80 Marks

Seat No.

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(5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. **Answer any EIGHT of the following:** **16**
- Name some of the modern dosage forms.
 - In which year the various editions of pharmacopoeia of India came out?
 - Define ‘Containers’. What are the basic materials used in making of containers?
 - What are the various factors which affect the size reduction of drugs?
 - Name the various standards of sieves.
 - Give the list of equipments used for mixing of semi-solids.
 - Name the factors which affects the rate of filtration.
 - What is ‘Water for Injection’?
 - What are the two main steps in drying of materials?
 - Give a list of chemicals which are used as bactericide.
 - What does the term “Desiccation” mean?
 - Differentiate between fine powders and granules.

P.T.O.

- 2. Answer any FOUR of the following:** **12**
- a) Define 'Viscosity'. Write its applications in pharmacy.
 - b) What are the equipments used for mixing of liquids? Give in detail about 'Propeller Mixer'.
 - c) Explain the construction and working of 'Meta filter'.
 - d) Write the qualities of an ideal filter aids. Give examples of filter aid.
 - e) Why imbibition is necessary before packing of the drug into the percolator?
 - f) Write in detail about modified percolation process.
- 3. Answer any FOUR of the following:** **12**
- a) Explain how heat is transferred from the source of the article.
 - b) Explain with the help of a neat sketch one of the evaporators covered under the group of natural circulation evaporators.
 - c) Explain with a neat sketch the working of the apparatus used for distillation on a laboratory scale.
 - d) Explain the theory of fractional distillation.
 - e) Write the applications of drying.
 - f) Write the advantages and disadvantages of fluidised bed dryer.
- 4. Answer any FOUR of the following:** **12**
- a) Classify the different methods of sterilization.
 - b) Describe dry heat method of sterilization in detail.
 - c) Name the various manufacturing defects in tablets.
 - d) Describe in brief about dissolution test for tablets.
 - e) Write the approximate capacity in mg of a capsule having number 000, 0, 1, 2, 4 and 5.
 - f) Differentiate between hard gelatin capsule and soft gelatin capsule.

5. Answer any FOUR of the following:**12**

- a) What are the different types of vaccines? Write the method of preparation of small pox vaccine.
- b) Discuss natural immunity in brief.
- c) Differentiate between maceration process for organised drugs and unorganised drugs.
- d) Write the importance of dosage forms.
- e) Write the salient features of third edition of Indian pharmacopoeia.
- f) Calculate the percentage of sodium chloride required to make a 1% solution of hyosine hydrobromide ISO-Isometric with body fluid. The sodium chloride equivalent of 1% hyosine hydrobromide = 0.12.

6. Answer any FOUR of the following:**16**

- a) Give the full form of B.C.G. Discuss in brief about B.C.G. vaccine.
 - b) Explain the different types of excipients used in formulation of tablets with suitable examples of each.
 - c) Discuss in brief freeze drying.
 - d) Define the term 'Closures'. Write in detail about different types of closures commonly used in pharmaceutical industry.
 - e) Give the principle construction and working of hammer mill with a neat diagram.
 - f) Name different methods of size separation. Explain any one with a neat labelled diagram.
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0806

21718

3 Hours / 80 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
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(4) Assume suitable data, if necessary.
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Marks

1. **Attempt any FIVE of the following:** **20**
- Define acid and base as per Arrhenious theory and write drawbacks of it.
 - Define Antioxidants. Explain it's mechanism of action.
 - Explain mechanism action of Antimicrobial agents.
 - Write reactions involved in Assay of Boric acid with Glycerine.
 - Define and classify antacids with examples.
 - Write different allotropic forms of sulphur and give the properties and uses of precipitate sulphur.
 - Define topical agents and classify with examples.
 - Define 'Astringents'. Discuss their uses.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) Define term Achlorhydria and write synonym, chemical formula, properties and uses of Muriatic acid.
 - b) Write mechanism action of osmotic laxatives. Classify cathartics with examples.
 - c) Give reasons why combination antacids are required with examples.
 - d) List official preparations of buffers and write its roles in pharmacy.
 - e) Define 'Volume Strength' and calculate volume strength of 20% W/V H₂O₂ solution.
- 3. Attempt any THREE of the following:** **12**
- a) Define following terms with examples. (any four)
 - (i) Internal protective and absorbents
 - (ii) Desensitizing agents
 - (iii) Respiratory stimulants
 - (iv) Buffers
 - (v) Inhalants
 - (vi) Expectorants.
 - b) Write biological role of oxygen or carbondioxide.
 - c) Define and classify dental products with examples.
 - d) What is 'Slaked Lime'? Give its properties, uses and molecular formula?
 - e) Write advantages of providone Iodine over other Iodine preparations and write properties and uses of providone Iodine.

4. Attempt any THREE of the following:**12**

- a) Write synonyms of following (any four)
 - (i) Calcium carbonate
 - (ii) Sodium hydroxide
 - (iii) Talc
 - (iv) Boric acid
 - (v) Aqueous iodine solution
 - (vi) Magnesium sulphate
- b) Write properties and uses of Alum.
- c) Write chemical formulae for following (any four)
 - (i) Chlorinated lime
 - (ii) Borax
 - (iii) Antimony potassium tartrate
 - (iv) Sodium potassium tartrate
 - (v) Sodium thiosulphate
 - (vi) Hypophosphorus acid
- d) Explain mechanism action of sodium thiosulphate and sodium nitrite in cyanide poisoning.
- e) Write storage and labelling condition of sulphurdioxide and oxygen gases.

5. Attempt any THREE of the following:**12**

- a) Write four sources of impurities in the pharmaceuticals with examples.
- b) Draw well-labelled diagram of Gutzeit apparatus.
- c) Write importance of quality control and quality assurance in pharmacy.
- d) Write principle and reactions involved in limit test for Iron.
- e) Write principle and reactions involved in Assay of Iodine or ferrous sulphate.

6. Attempt any THREE of the following:**12**

- a) Write acid-base balance of the body.
 - b) Explain the biological effects of radiations on human body.
 - c) What is ORS? Give different formulae given by WHO and UNICEF.
 - d) Distinguish between α , β and γ rays.
 - e) Solve any two of the following:
 - (i) Define radio opaque contrast media with example
 - (ii) Write any four compounds official of calcium.
 - (iii) Discuss Role of iron in human body.
 - (iv) Give uses of stannous fluoride and selenium sulphide.
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0807

21718

3 Hours / 80 Marks

Seat No.

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Marks

- 1. Attempt any EIGHT of the following:** **16**
- a) What is Ayurveda? Describe contribution of “Sushrut” in Indian History.
- b) Why Saponin glycosides are not safe for intravenous administration?
- c) Define and write one example of
- (i) Antiseptic
 - (ii) Diuretics
- d) Which parts of the plant is used as a drug in case of
- (i) Aloe
 - (ii) Gymnema
 - (iii) Coriander
 - (iv) Rauwolfia

P.T.O.

- e) Write the name of drug for which following chemical test is applied
- (i) Borntrager Test
 - (ii) Klunge's Test
 - (iii) Fiehe's Test
 - (iv) Keller Killiani Test
- f) Define pharmacognosy. Give the contribution of Hippocrates.
- g) Give any four characteristics features of Umbelliferous fruits.
- h) Mention the synonym of following drugs
- (i) Asafoetida
 - (ii) Dioscorea
 - (iii) Castor oil
 - (iv) Cinnamon
- i) Draw a well labelled diagram showing morphological characters of "Datura leaf".
- j) Name the family of following drugs.
- (i) Colchicum
 - (ii) Ashwagandha
 - (iii) Ginger
 - (iv) Tragacanth
- k) Suggest the drugs containing following chemical constituents.
- (i) Reserpine
 - (ii) Rhein
 - (iii) Bassorin
 - (iv) quinine, quinidine
- l) Differentiate between organised and unorganised crude drug.

2. Attempt any THREE of the following: 12

- a) Explain the chemical method of classification with its merits and demerits.
- b) Define Pharmaceutical aids. Give the classification of it with examples.
- c) Describe method of cultivation, collection and preparation for market of opium.
- d) What are volatile oil? What are the methods of extraction of volatile oil.
- e) Write the name of the drug which passes the following Chemical Test and explain it.
 - (i) Vitali-Morin Test
 - (ii) Swelling factor Test.

3. Attempt any THREE of the following: 12

- a) Describe life cycle of Ergot.
- b) Write the synonyms, biological source of (any two)
 - (i) Liquorice
 - (ii) Gokhru
 - (iii) Sandalwood
- c) What is Ash value? Write its types and Give the importance of Ash value in evaluation of drug.
- d) Mention the adultrants and substituents of (any two).
 - (i) Digitalis
 - (ii) Clove
 - (iii) Nux-vomica
- e) Give the chemical constituents and uses of (any two)
 - (i) Sandalwood
 - (ii) Vasaka leaf
 - (iii) Garlic

- 4. Attempt any THREE of the following:** **12**
- a) Draw a well labelled diagram of T.S. of Nux-Vomica seed and describe the same.
 - b) Define suture and Ligature. Write the ideal requirement of Surgical dressings.
 - c) Differentiate between
 - (i) Gum and mucilage
 - (ii) Leaf and leaflet
 - d) Define Anti Rheumatic. Give the example of it and write Biological source, chemical constituents of any one drug.
 - e) Define “Drug Adulteration”. Describe any four method of adulteration with suitable examples.
- 5. Attempt any THREE of the following:** **12**
- a) Define fibre. Describe the method of preparation of cotton fibre.
 - b) Define the following with example:
 - (i) Antihypertensives
 - (ii) Antileptotics
 - (iii) Enzymes
 - (iv) Antitussive
 - c) What are vitamins? Describe biological source, chemical constituents and uses of drug containing vitamin ‘C’.
 - d) Define Resin. Classify resin combination with example.
- 6. Write chemical tests of crude drugs (any FOUR):** **16**
- a) Benzoin
 - b) Wool
 - c) Starch
 - d) Gelatin
 - e) Acacia
 - f) Pale catechu
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00808

21718

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Marks

1. Solve any EIGHT of the following :

16

- (a) Define & explain metabolism.
- (b) What is enediol reaction of carbohydrate ? Give its biological importance.
- (c) What are essential amino acids ? Give structure of any one of them.
- (d) Explain with chemical reaction, saponification reaction of simple fats.
- (e) What is egg-white injury ? Give its symptoms.
- (f) Define pathology. Name any one pathological condition in human being.
- (g) What do you mean by 's-GOT' in enzymes ? What is its significance ?
- (h) What is the importance of electron transport & oxidative phosphorylation in carbohydrate metabolism ?
- (i) Explain the process of transamination in protein catabolism.
- (j) What are Keton bodies ? What is Ketogenesis ?
- (k) Give only structure of Folic Acid.
- (l) How water is distributed in the different compartments in the body of human being ?

2. Solve any FOUR of the following :**12**

- (a) Define 'cell'. Draw neat labelled diagram of a typical animal cell & give two functions of mitochondrion.
- (b) Give structures of the following :
 - (i) α -D Glucose
 - (ii) α -D Mannose
 - (iii) β -D Fructose
- (c) Discuss 'acid-base' nature of amino acids & explain isoelectric point of an amino acid.
- (d) Define lipids. Classify lipids with examples.
- (e) Explain any six biological functions of 'Calcium'.
- (f) Give significance of abnormal constituents of urine. (any six)

3. Solve any FOUR of the following :**12**

- (a) Give pharmaceutical & therapeutic use of enzymes.
- (b) Explain 'Coris' cycle & give its biological importance.
- (c) How ammonia is produced in the body ? Enlist different ways of disposal of ammonia from the body.
- (d) What are lipid storage diseases ? Explain arteriosclerosis.
- (e) Explain biological role of carbohydrates.
- (f) Define polysachharides. Explain the structure of glycogen.

4. Solve any FOUR of the following :**12**

- (a) Explain any one protein deficiency disease.
- (b) Define the following :
 - (i) Polensky value
 - (ii) Iodine value
 - (iii) Sap. value
- (c) Explain the role of lipids in biological membrane with the help of models.
- (d) Define dehydration. Explain causes, symptoms & treatment of dehydration.
- (e) What are coenzymes ? Name co-enzymes of the following vitamins :
 - (i) Thiamin
 - (ii) Pyridoxin
 - (iii) Riboflavin
 - (iv) Nicotinamide
- (f) Explain causes, symptoms & treatment of the following diseases :
 - (i) Scurvy
 - (ii) Pellagra

5. Solve any FOUR of the following :**12**

- (a) Explain functions & pathology of lymphocytes & platelets.
- (b) Give structure & two colour reaction of cholesterol.

P.T.O.

- (c) Define compound lipids. Explain any two important biological functions of phospholipids.
- (d) Explain the following colour reactions :
 - (i) Seliwanoff's reaction
 - (ii) Ninhydrin reaction
 - (iii) Newman's reaction
- (e) Discuss –
 - (i) Pernicious anemia
 - (ii) Sickle-cell anemia
- (f) Define & explain Glycogenesis. Give in brief, importance of the process.

6. Solve any FOUR of the following :

16

- (a) Explain reactions of beta oxidation of fatty acids.
 - (b) Explain reactions of Kreb's cycle.
 - (c) Explain Urea cycle in detail.
 - (d) Discuss extramitochondrial fatty acid synthesis.
 - (e) Explain reactions of Glycolysis.
 - (f) Discuss secondary structures of protein.
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00809

21718

3 Hours / 80 Marks

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Marks

1. Solve any EIGHT of the following :

8 × 2 = 16

- (a) Give the functions of hypothalamus.
- (b) Name the bones of lower limb.
- (c) Define Anatomy & Physiology.
- (d) Give the functions of tongue.
- (e) Name different organs of respiratory system.
- (f) Draw a well labelled diagram of a simple living cell.
- (g) Name the bones forming shoulder joint.
- (h) Mention disease caused by hyposecretion and hypersecretion of growth hormones.
- (i) Give the composition of intestinal juice.
- (j) Mention muscles of facial expressions.
- (k) How male urethra differs from female urethra ?
- (l) Give the components of lymphatic system.

[1 of 4]

P.T.O.

2. Solve any FOUR of the following :**4 × 3 = 12**

- (a) Explain digestion of proteins.
- (b) Draw and label L.S. of skin.
- (c) Explain, how urine is formed.
- (d) Name the bones forming thoracic cage & cranium.
- (e) Give the role of oestrogen and progesterone in body.
- (f) What will be the effect of parasympathetic nervous system stimulation on :
 - (i) Salivary gland ?
 - (ii) Heart ?
 - (iii) Respiratory system ?

3. Solve any FOUR of the following :**4 × 3 = 12**

- (a) Give composition and functions of cerebrospinal fluid.
- (b) Give the functions of stomach.
- (c) Name the arteries supplying blood to liver, kidney and intestine.
- (d) Draw a well labelled diagram of internal ear.
- (e) Explain, how kidneys help to maintain water balance of body.
- (f) What do you mean by
 - (i) Muscle contraction ?
 - (ii) Muscle fatigue ?

4. Solve any FOUR of the following :

4 × 3 = 12

- (a) Draw and label the diagram of L.S. of kidney.
- (b) Give classification and functions of leukocytes.
- (c) Explain the role of anterior pituitary hormones in the body.
- (d) Mention the different cranial nerves.
- (e) Name the different parts of male reproductive system with their functions.
- (f) Define and give normal values of (any two) :
 - (i) Tidal volume
 - (ii) Vital capacity
 - (iii) Residual volume

5. Solve any FOUR of the following :

4 × 3 = 12

- (a) Explain physiology of respiration.
- (b) Describe with a neat diagram how circulation of blood takes place through heart.
- (c) Enlist different types of blood cells with their normal values.
- (d) Describe cardiac muscle in detail.
- (e) Explain physiology of hearing.
- (f) Define the terms :
 - (i) Glaucoma
 - (ii) Night blindness

P.T.O.

6. Solve any FOUR of the following :

4 × 4 = 16

- (a) Describe the structure and functions of uterus.
 - (b) Give the composition of blood and explain, how blood clot is formed.
 - (c) Draw a well labelled diagram of cerebrum showing all the lobes.
 - (d) Give composition and functions of pancreatic juice.
 - (e) Define shock. Explain different types of shock.
 - (f) What is neuromuscular junction ? Explain physiology of neuromuscular junction.
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