

December 2025

**PHARMACEUTICS**

Time Allowed: 3 Hours

Full Marks: 80

(Answer all questions as directed)

**I. A. Choose the correct alternative (answer all)****1x10=10**

- (i) Pharmaceutical aids are also called as -----  
 A. an additive B. a caramel  
 C. an annatto D. an achiote
- (ii) Annatto, a reddish-orange dye made from the seed of the-----  
 A. Betanin B. Caramel  
 C. Achiote D. Chlorella algae
- (iii) A green dye made from-----  
 A. Betanin B. Caramel  
 C. Achiote D. Chlorella algae
- (iv) -----is extracted from beets.  
 A. Betanin Caramel  
 C. Achiote D. Chlorella algae
- (v) Aqueous solutions are ----- mixture.  
 A. Heterogeneous B. Homogeneous  
 C. Not uniform D. None of these
- (vi) -----is used to prevent the oxidation of the product.  
 A. Preservatives B. Sweetening agents  
 C. Antioxidants D. Buffers
- (vii) Quality control of emulsions is done by ----- test.  
 A. Phase separation B. Globule size  
 C. Flow properties D. All
- (viii) -----is a coarse dispersion in which internal phase is dispersed uniformly throughout the external phase.  
 A. Solutions B. Suspensions  
 C. Emulsion D. Powder
- (ix) -----paraffin is prepared by bleaching yellow paraffin.  
 A. White hard B. Yellow soft  
 C. White soft D. Brown soft
- (x) ----- should be dispensed in coloured fluted bottles in order to distinguish them from preparations meant for internal use.  
 A. Solutions B. Pastes  
 C. Liniment D. Elixirs

**I.B. Answer all the following questions****1x10=10**

- i. Explain in dosage form.
- ii. What is antioxidant?
- iii. What is the range of particle size in suspensions?
- iv. Note on packing and labelling of parenteral formulation.
- v. How is a toxoid different from a toxin?
- vi. Define the term suppositories.
- vii. What is the purpose of the hydrolytic resistance test for glass containers?
- viii. What is the main difference between hard gelatin and soft gelatin capsules?
- ix. Name one material added to soft gelatin capsules to make the shell elastic.
- x. Which type of capsule is commonly used for filling liquids — hard gelatin or soft gelatin?

**2. Answer the following (any ten)**

**3x10=30**

- i. Differentiate between dry heat and moist heat sterilisation.
- ii. Define the term: validation, calibration and standardisation.
- iii. What do you mean by isotonic, hypotonic and hypertonic solutions?
- iv. Define bioavailability, stability and viscosity.
- v. Explain the characteristics, advantages and challenges of NDDS.
- vi. Define powder. Classify powder as per IP
- ~~vii.~~ Discuss different types of immunity.
- ~~viii.~~ Discuss the various defects in tablet manufacturing.
- ~~ix.~~ Differentiate between Hard & Soft Gelatine capsules.
- ~~x.~~ Write a short note on effervescent granules.
- ~~xi.~~ Differentiate between QC and QA.

**3. Answer the following question (any six)**

**5x6= 30**

- i. Differentiate between lotions and liniments.
  - ii. What is displacement value? How you will calculate displacement value of drug?
  - iii. What are pastes? How does it differ from ointment? Discuss in brief different bases used in preparation of paste.
  - iv. Differentiate between following terms: (i) ointments and pastes; (ii) suppositories and pessaries.
  - ~~v.~~ Write the principles, construction, working, advantages, disadvantages and application of ball mill or triple roller mill with a neat, labelled diagram.
  - vi. Define the techniques of size reduction, size separation, mixing, filtration and drying.
  - ~~vii.~~ Write a short note on different methods of extraction.
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December 2025

**PHARMACEUTICAL CHEMISTRY**

Time Allowed: 3 Hours

Full Marks: 80

(Answer all questions as directed)

**1. A. Fill in the blanks with appropriate words (any ten).**

1×10 = 10

- The closeness of two or more measurements to each other is known as \_\_\_\_\_
- $\beta$ -Lactams containing 3,6-dihydro-2H-1,3-thiazine rings are named as \_\_\_\_\_
- Ramipril is the prodrug for the drug \_\_\_\_\_
- Example of a dissociative anaesthetic is \_\_\_\_\_.
- What happened when Arsenious acid reacts with nascent hydrogen?
- Weakly basic drugs are generally assessed by \_\_\_\_\_ titration.
- Silver nitrate is used as \_\_\_\_\_ (primary/secondary) standard in \_\_\_\_\_ titration.
- Pheochromocytoma is \_\_\_\_\_
- \_\_\_\_\_ is the drug having antidiabetic as well as antineoplastic activity.
- Tocolysis is \_\_\_\_\_
- Anaket is the brand name of \_\_\_\_\_
- \_\_\_\_\_ antibiotic is generally used for the treatment of rocky mountain spotted fever.

**B. Choose the correct alternative (any ten)**

1×10 = 10

- Isosorbide dinitrate is mainly used for treating – (i) Gonorrhoea (ii) Meningitis (iii) Type-II DM (iv) Angina pectoris
- Which of the following drug belongs to Macrolide antibiotics – (i) Minocycline (ii) Clindamycin (iii) Chloramphenicol (iv) Azithromycin
- This drug is currently used for the possible treatment of Covid-19 in adults – (i) Remdesivir (ii) Favipiravir (iii) Zidovudine (iv) Acyclovir
- Vinblastine Sulphate is obtained from- (i) Catharanthus roseus (ii) Catharanthus penicillanic (iii) Catharanthus roseous (iv) None of these
- Endocarditis is an inflammation of - (i) Ear (ii) Heart (iii) Lungs (iii) Nose
- Molecular Formula of Potassium dichromate is – (a)  $KCrO_4$  (ii)  $K_2Cr_2O_2$  (iii)  $K_2Cr_2O_7$  (iv)  $K_2CrO_7$
- First edition of Indian Pharmacopoeia was published in the year – a)1960 b)1955 c)1966 d)1985.
- Limit of impurities is expressed as -a) mcg b) mg c) ppm d) ml.
- On complete reaction of acidified  $KMnO_4$  with oxalic acid, the colour of the solution becomes - a) pink b) colourless c) blue d) unchanged.
- Non-aqueous titration is carried out for- -a) water insoluble drug b) weakly acidic drug c) weakly basic drug d) all of a, b & c.
- Burnt infection is treated topically with the dilute solution of -a) Iodine b)  $KMnO_4$  c)  $AgNO_3$  d)  $ZnO$ .

**2. Answer any 10 (Ten) questions from the following:**

10×3 = 30

- Write the principle and chemical reaction involved in Limit Test for Iron
- Write the steps involved in Gravimetric analysis.
- What do you mean by broad spectrum antibiotics? Cite two examples.
- Write in brief about antiviral agents.
- Classify nonaqueous solvents with example.

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- f) Write a short note on Insulin preparations.
- g) Define Redox potential and write the names of different types of Redox titration.
- h) Write a short note on Primary Standard and Secondary Standard.
- i) Write down the chemical structure and name (any two)- (a) Thiopental sodium (b) Diazepam (c) Phenytoin.
- j) Define and classify with example- anti-arrhythmic drugs.
- k) Write down the uses, storage conditions, formulation of Idoxuridine and Pioglitazone.
- l) Write a brief note on (any one)- i) Co-trimoxazole ii) Antimetabolites.

3. Answer any 6 (Six) questions from the following:

6×5 = 30

- a) What are antidepressant agents? Classify antidepressants with example.
- b) Write down the chemical structure, IUPAC name and dosage forms – i) Frusemide ii) Propranolol.
- c) Discuss the various tests of impurities performed for pharmaceuticals.
- d) Define with examples (any two)- (a) Equivalence Point (b) Saline cathartics (c) Denture cleaners.
- e) Write down the molecular formula, synonym, pharmaceutical category and formulations of Ferrous sulphate and Aluminium hydroxide.
- f) Define and classify antibiotics depending on the basis of chemical structure.
- g) Give the chemical structure of – (i) Diazepam (ii) Ketoconazole (iii) Aspirin (iv) INH (v) Amoxicillin.
- h) Write short notes on (any one)- Sulphonamides OR Sedatives & Hypnotics.

**PHARMACOGNOSY**

Time Allowed: 3 Hours

Full Marks: 80

(Answer all questions as directed)

**1. Choose the correct alternative (any ten)**

1X10 = 10

- (i) The Indian Pharmacopoeia classify crude drugs by-  
 (a) Taxonomical (b) Pharmacological (c) Alphabetical (d) Morphological
- (ii) Antihypertensive drug reserpine is extracted from this part of Rauwolfia plant-  
 (a) Leaves (b) Stem bark (c) Flowers (d) Root
- (iii) Spirulina is used as-  
 (a) pharmaceutical aid (b) cathartic (c) nutraceutical (d) all of them.
- (iv) Barbaloin is an example of-  
 (a) Alkaloid (b) Glycoside (c) Resin (d) Tannin
- (v) Ayurvedic dosage form of tablets are known as-  
 (a) Churna (b) Lehya (c) Vati (d) Taila
- (vi) Punarnava leaf extract-  
 (a) Increases plasma insulin level (b) decreases plasma insulin level (c) no action on plasma insulin level  
 (d) none of them
- (vii) GLC refers to-  
 (a) Gamma liquid chromatography (b) Gamma level counter (c) Gas Level counter (d) Gas liquid chromatography
- (viii) *Ilaj bil-Dawa* in Unani system of medicine refers to-  
 (a) Pharmacotherapy (b) Regimental Therapy (c) Surgery (d) Diet-therapy.
- (ix) All of these alkaloids are from Solanaceae family except-  
 (a) Atropine (b) Cocaine (c) Hyoscine (d) Hyoscyamine
- (x) Nux Vomica belongs to the family-  
 (a) Lauraceae (b) Loganiaceae (c) Liliaceae (d) Lamiaceae
- (xi) Phenolic natural products that precipitate proteins from their aqueous solutions are called-  
 (a) Tannins (b) Alkaloids (c) Resins (d) Glycosides.

**2. Fill in the blanks- (Answer all)**

1X10 = 10

- a) The part of coca which is used as stimulant is \_\_\_\_\_
- b) The terpenoid present in ginger oil is \_\_\_\_\_
- c) Absorbent cotton is made with hairs of short length called \_\_\_\_\_
- d) The alkaloids of vinca are \_\_\_\_\_ and \_\_\_\_\_.
- e) Santalol is a chemical constituent of \_\_\_\_\_.
- f) Volatile oil is also called \_\_\_\_\_ oil.
- g) The protein in silk is \_\_\_\_\_.
- i) The active constituent of volatile oil in cardamom is \_\_\_\_\_.
- j) Ipecacuanha has \_\_\_\_\_ therapeutic property.
- k) Kattha is the common word used for the drug \_\_\_\_\_.

3. Answer any 10 (ten) questions –

3X10 = 30

- a) Write the basic principles of Siddha system of medicine.
- b) Write a short note on dietary fibres.
- c) Write down the chemical constituents and uses of Kaolin.
- d) State the biological source of diastase and yeast.
- e) Write a note on Ipecacuanha.
- f) Define anti-tussive. Write biological source, active constituents and uses of vasaka.
- g) Write down the chemical constituents of fennel, ginger and nutmeg.
- h) Write a short note on resin combinations.
- i) Write briefly about different isolation methods of volatile oils.
- j) Write in short about quantitative evaluation of crude drugs.
- k) Differentiate organized and un-organised crude drugs.

4. Answer the following questions any 6 (six)

5X6 = 30

- a) Explain the Morphological Classification of crude drugs mentioning its advantages and disadvantages with specific examples. [2+1.5+1.5=5]
- b) Briefly describe quality control methods for medicinal plant materials. [5]
- c) Explain the types of Percolation method for extraction of crude drug. [5]
- d) Explain various methods of adulteration of crude drugs with suitable examples. [5]
- e) Write down the biological sources and uses of arjuna, Hyoscyamus, podophyllum, myrrh and guggul. [5]
- f) Write notes on identification tests for glycosides and tannins. [5]
- g) Write in detail with examples about chemical classification of crude drugs. [5]

Arjuna

December 2025

**HUMAN ANATOMY AND PHYSIOLOGY**

Time Allowed: 3 Hours

Full Marks: 80

(Answer all questions as directed)

**1. A) Fill in the blanks- (any ten)****1x10**

- i. Pituitary is known as \_\_\_\_\_ gland.
- ii. Full form of ACTH is \_\_\_\_\_.
- iii. The appearance of blood in urine is called \_\_\_\_\_.
- iv. The enzyme renin is secreted by \_\_\_\_\_.
- v. Universal blood group recipient is \_\_\_\_\_.
- vi. Normal value of tidal volume is \_\_\_\_\_.
- vii. The name of 1<sup>st</sup> cervical vertebra is \_\_\_\_\_.
- viii. Hydrochloric acid is secreted from \_\_\_\_\_ cell of stomach
- ix. Basic unit of the nervous system is called \_\_\_\_\_.
- x. The hormone secreted by the testes is \_\_\_\_\_.
- xi. Bile is synthesized in \_\_\_\_\_.

**B) Answer in one sentence (any ten)****1x10**

- i. What is erythropoiesis?
- ii. What is acromegaly?
- iii. What is synapse?
- iv. What are islets of Langerhans?
- v. Which is the voice box?
- vi. What is thrombocytopenia?
- vii. Glucagon is secreted by which organ?
- viii. What is leukaemia?
- ix. What is dendron?
- x. What is ectopic pregnancy?
- xi. What is menarche?

**2. Short answer questions: (any ten)****3x10**

- a. Write the functions of trachea.
- b. Explain the conducting system of the heart.
- c. Name the four main types of tissue and explain adipose tissue.
- d. Give the functions of blood.
- e. Write a note on Liver.
- f. Differentiate between vein and artery.
- g. Describe reflex arc with diagram.
- h. Write down the function of spleen.

- i. Define vital capacity, expiratory reserve volume of lung and tidal volume of lung.
- j. Write in short, the process of formation of urine.
- k. Write the difference between endocrine and exocrine gland.
- l. Write the process of Spermatogenesis.

**3. Long answer questions- (any six)**

**5x6**

- a. Give an account on menstruation cycle giving correlation with female hormones.
  - b. Draw and label the different parts of human eye.
  - c. Explain the cycle of respiration.
  - d. Name the hormones secreted by the adrenal cortex and adrenal medulla. Write the function of glucagon.
  - e. What is lymph node? Draw the section of a lymph node and write the functions of lymphatic system.
  - f. Write the functions of cerebrospinal fluid.
  - g. Write the physiological importance of Rhesus system of blood.
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December 2025

**SOCIAL PHARMACY**

Time Allowed: 3 Hours

Full Marks: 80

(Answer all questions as directed)

**1. A. Choose the correct alternative (answer all)****1X10**

- i) Which of the following is a key component of health promotion?  
a) Disease treatment   b) Disease prevention   c) Health education   d) All of the above
- ii) Which of the following is bacterial disease?  
a) Malaria                      b) Athlete's foot                      c) Tetanus                      d) Glaucoma
- iii) Which of the following is not an occupational disease?  
a) Silicosis                      b) Asbestosis                      c) Diabetes                      d) COPD
- iv) Which of the following is a nutraceutical?  
a) Acetylsalicylic acid   b) Omega 3 fatty acid                      c) Citric acid                      d) Lactic acid
- v) Hepatitis is a systemic infection of -  
a) Lungs                      b) Liver                      c) Kidneys                      d) Eyes
- vi) Vitamin A is also known as -  
a) Retinol                      b) Calciferol                      c) Tocopherol                      d) Riboflavin
- vii) Fruits and vegetables are usually considered as good sources of -  
a) Protein                      b) Vitamins & minerals                      c) Unsaturated fatty acid                      d) All of the above.
- viii) HIV is the causative organism of -  
a) AIDS                      b) Syphilis                      c) Gonorrhoea                      d) Dysmenorrhoea
- ix) Kwashiorkor is caused by severe deficiency of -  
a) Vitamin B6                      b) Protein                      c) Mg                      d) None of the these
- x) The most important fertility reduction practice is -  
a) contraception                      b) vasectomies                      c) Breast feeding                      d) Abortion

**B. Answer the following questions: (answer all)****1X10**

- i) Causative agent of Typhoid \_\_\_\_\_.
- ii) Corona virus is a group of (RNA viruses / DNA viruses).
- iii) Vitamin K is essential for \_\_\_\_\_.
- iv) Pernicious anaemia occurs due to the deficiency of \_\_\_\_\_.
- v) The full form of H1N1 is \_\_\_\_\_.
- vii) MMR vaccine stands for \_\_\_\_\_.
- viii) MTP stands for \_\_\_\_\_.
- ix) Marasmus is the Lipid deficiency disease (True / False).
- x) Colostrum is highly rich in antibodies, proteins, minerals and vitamin A. (True/False)

**2. Answer the following questions: (any ten)**

**3X10**

- a) Write a short note on health systems in India.
- b) Define social pharmacy and mention its scope.
- c) Define: Health, Epidemic and Demography.
- d) Write the causative organism and mode of transmission of syphilis.
- e) What do you mean by health indicators?
- f) Explain briefly about ill effects of bottle feeding.
- g) Write a note on environmental pollution due to pharmaceuticals.
- h) What does SARS stand for? Explain it.
- i) What is macro-nutrient?
- j) Write about prevention and control of pneumonia.

**3. Answer the following questions: (any six)**

**5 X6**

- a) Discuss about vasectomy and tubectomy for their role in birth control. 5
  - b) Write the causative agent, mode of transmission and prevention of Poliomyelitis, Hepatitis, Chickungunya, and SARS (any two)  $2\frac{1}{2} + 2\frac{1}{2} = 5$
  - c) Briefly explain any five major National Health Programmes running in India.
  - d) Write short notes on (any two): i) Pharmaco-economics ii) Indicator of health  
iii) Dietary and food supplement. iv) medical costs  $2\frac{1}{2} + 2\frac{1}{2} = 5$
  - e) Explain the concept and principles of Immunization. Briefly discuss the importance of the Cold Chain in vaccine delivery. 5
  - f) Write in detail about the Vitamin C and Vitamin B-complex. 5
  - g) Write an account on the importance of Water, Sanitation, and Hygiene (WASH) in preventing diseases in a community. 5
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