

23124

3 Hours / 80 Marks



20111

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

Special Instruction :

In case student has attempted sub-question of Question No. 3 more than once, only first attempt should be considered for assessment.

Marks

1. Attempt any SIX of the following :

30

- a) Define Parenterals. State any 3 ideal properties of Parenterals. Differentiate between small volume parenterals and large volume parenterals.
- b) Define :
 - i) Filtration
 - ii) Filter mediaState and explain Darcy's equation for theory of filtration.
- c) List out salient features of Fifth edition of I.P. write importance of pharmacopoeia with respect to
 - i) Pharmaceutical industry
 - ii) Drug administration
 - iii) Academics
- d) Define :
 - i) Immunity
 - ii) Immunological products.Write a note on BCG vaccine highlighting its;
 - i) Method of Preparation
 - ii) Description
 - iii) Storage
 - iv) Use
 - v) Dose
- e) Differentiate between hard and soft gelatin capsules. Explain the method of manufacturing of soft gelatin capsule by rotary die process.
- f) Explain in detail components of suspension formulation. Add a note on methods of preparation of suspension.
- g) Classify granulation techniques and describe the wet granulation method with advantages and disadvantages.

2. Attempt any TEN of the following :

30

- a) Describe the steps involved in sugar coating with suitable examples of ingredients used in each step.
- b) Discuss any three types of glass used as a packaging material in pharmaceuticals.
- c) Define :
 - i) Liniment
 - ii) LotionCompare liniment with lotion in respect of
 - i) Type of preparation
 - ii) Application method
 - iii) labelling instructions
 - iv) Example
- d) Classify Novel drug delivery systems on approach of Novel drug delivery system with one example of each.

P.T.O.



- e) Differentiate between powders and granules.
- f) Define current good manufacturing practices. State importance and objectives of CGMP.
- g) Draw a neat diagram of Fluidized bed dryer and label the following components.
 - i) Inlet
 - ii) Outlet
 - iii) Fluidized solid
- h) State and explain any three types of ointment bases.
- i) Enlist the evaluation tests for parenterals. Discuss the sterility test in details.
- j) Differentiate between Quality assurance and Quality control.
- k) Write advantages and disadvantages of Liposomes.

3. **Attempt ALL question of the following :**

20

- a) Define sublimation.
- b) Name the first pharmaceutical industry started in India.
- c) Give two examples of natural gel forming substances.
- d) What is the pH value of tears ?
- e) Which step involves moistening of drug during percolation process?
- f) ----- Container protects the product from dust, moisture and air.
- g) Give two examples of artificial sweetening agents.
- h) Give the disintegration time of sugar coated tablet.
- i) Define Nasal drop.
- j) The preparations containing antibodies are called as -----
- k) The dissolution test has been introduced in ----- edition of I.P.
- l) Define Pharmacy.
- m) The extraction of vegetable drugs with cold or boiling water for a short period of time is -----.
- n) The major component of glass is -----
 - i) Limestone
 - ii) Soda ash
 - iii) Silica
 - iv) Boron
- o) An example of inorganic or mineral colour is -
 - i) Titanium dioxide
 - ii) Betacyanin
 - iii) Amaranth
 - iv) Patent Blue
- p) Define Sieve number.
- q) What will be the allowed weight variation if the average weight of tablet is 300mg.
 - i) 10%
 - ii) 5%
 - iii) 2.5%
 - iv) 7.5%
- r) Elixirs are -----
 - i) Hydroalcoholic liquids
 - ii) Aqueous liquids
 - iii) Viscars liquids
 - iv) Semisolids
- s) Which of the following is the example of artificial preservative.
 - i) Honey
 - ii) Lemon
 - iii) Sodium chloride
 - iv) Sodium benzoate
- t) Calamine lotion is used as a -----

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20112

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Marks

1. **Attempt any SIX of the following :** **30**

- a) Define the term Impurity. Discuss any four sources of impurities in pharmaceuticals.
- b) What do you mean by volumetric analysis? Give its classification depending on chemical reactions with one example each.
- c) Define Gastrointestinal agents classify with examples. Give uses of sodium bicarbonate and magnesium hydroxide.
- d) Draw the structure of Haloperidol. Give its chemical name, uses, formulations and popular brand names.
- e) State what are sympathomimetic drugs? Classify and give the structure and uses of Nor-Epinephrine.
- f) Define and classify antimalarial drugs with example. Give structure and uses of chloroquine phosphate.
- g) Define and classify antibiotics giving suitable examples. Give structure and uses of chloramphenicol.

2. **Attempt any TEN of the following:** **30**

- a) Explain principle and procedure involved in limit test for Iron.
- b) Describe Mohr's method for precipitation titrations with reaction.
- c) Draw the structure from given IUPAC name
 - i) 5, 5-diphenylimidazolidine-2, 4-dione.
 - ii) 3 (2-chloro-10H-phenothiazin-10-yl)-N, N-dimethylpropan-1-amine
 - iii) 7-chloro-1, 3-dihydro-1-methyl-5-phenyl-1, 4-benzodiazepine-2-one.
- d) What are cholinergic antagonists? Give their examples. Name the drug used in Parkinsonism.
- e) Draw the structure of propranolol. Give its uses and popular brand name.
- f) Classify diuretics with example. Write structure of frusemide.
- g) What is Diabetes mellitus? Give structure and chemical name of metformin.
- h) State what are NSAID's ? Give uses and popular brand names of Aspirin.
- i) Define and classify antitubercular drugs. Draw the structure of Isoniazid (INH).
- j) What are β lactum antibiotics? Give the structure and uses of Amoxicillin.
- k) Classify antineoplastic drugs with example. Discuss uses of cisplatin.

P.T.O.



3. Attempt ALL of the following:

- a) Guitzet's test apparatus is used to carry out limit test of _____.
- b) Name the indicator used in the assay of sodium chlorid.
- c) State the uses of Hydrogen peroxide.
- d) Use of ferrous sulphate is _____.
- e) Which one of the following five membered unsaturated heterocycle containing oxygen?
 - i) pyridine
 - ii) Oxazole
 - iii) Pyrrole
 - iv) Furan
- f) The suffix "ole" is used for -
 - i) Five membered unsaturated ring
 - ii) Six membered unsaturated ring
 - iii) Five membered saturated ring
 - iv) Six membered saturated ring.
- g) Which of the following is not a five membered ring -
 - i) pyridine
 - ii) Furan
 - iii) Imidazole
 - iv) Oxazole
- h) The prefix Thia/Thio is used for a heteroatom - _____ .
 - i) Write brand name of phenytoin.
- j) In what dosage form diazepam is given?
- k) Acetyl-choline is an -
 - i) Cholinergic blocker
 - ii) Adrenergic blocker
 - iii) Adrenergic agent
 - iv) Cholinergic agent
- l) _____ is an imidazoline derivative and a direct active sympathomimetic amine with vasoconstrictive activity.
- m) Name the pharmacological category of quinidine sulphate.
- n) Captopril is used in treatment of _____ .
- o) Which of the following diuretic is a derivative of anthranillic acid -
 - i) Frusemide
 - ii) Urea
 - iii) spironolactone
 - iv) Ethacrynic acid
- p) Mefanamic acid is used in - _____
- q) Crocin is a popular brand name of -
- r) Brand name of Remdesivir is -
- s) In what dosage form azithromycin is given?
- t) Name antimetabolites used as antineoplastic agents.

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20113

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Marks

1. **Answer any SIX of the following :**

30

- a) What are Nutraceuticals and Antioxidants. Give therapeutic applications of both.
- b) Write biological source, chemical constituents, commercial preparations, therapeutic uses and cosmetic uses of Almond oil.
- c) Give principle in detail about Homeopathic system of medicine.
- d) Define Laxatives. Give examples of it. Give synonym Biological source and chemical constituent of any one drug.
- e) Give Biological source, chemical constituents of Vasaka and Rauwolfia.
- f) What is crude drug evaluation? Enlist various types of evaluation of crude drug and explain in detail about physical evaluation of crude drug.
- g) Describe in detail about chemical method of classification of crude drugs with suitable examples and give merits and demerits of it.

2. **Answer any TEN of the following :**

30

- a) Explain qualitative test for Alkaloids in detail. (Any three)
- b) Describe novel drug delivery of herbal formulation with its advantages and disadvantages.
- c) Five role of medicinal and aromatic plant in national economy.
- d) Write synonym, Biological source and chemical constituent of coriander.
- e) What are cardiotonics? Enlist 2 examples of crude drug of it and name the drug which gives killer killani test positive.
- f) Write Biological source, chemical constituent and therapeutic uses of cardamom.
- g) Give difference between antiseptic and disinfectants.
- h) Define structure and ligatures. Write ideal requirements of sutures.
- i) Define glycosides. Classify glycosides on the basis of linkage.
- j) Define 'Adulteration'. Describe any two methods of adulteration.
- k) Define 'Pharmacognosy'. Who coined the term pharmacognosy and when.

3. **Answer all questions:**

20

- a) Write two chemical constituents of Aloe Vera gel.
- b) Spirulina belongs to which family.
- c) Define Gutika.
- d) Silk contains a protein known as
- e) Define carminative.

P.T.O.



- f) Synonym for black pepper is
- g) Family of Asafoetida is
- h) Hog Wood is used as synonym for
- i) Write two examples of antiseptic crude drug.
- j) Synonym for Ginger is
- k) Give one difference between volatile oil and fixed oil.
- l) Palisade ratio is –
- Average number of palisade cells below each upper epidermal cell.
 - Total number of parenchyma cells
 - None
 - Total number of stomata cells.
- m) Give significance of Ash value.
- n) Oleoresins are mixtures of following two
- resin and volatile oil
 - resin and gum
 - resin and benzoic acid
 - resin and cinnamic acid
- o) Name two antimalarial drug.
- p) Following part of vinca is used as medicine source.
- Flower
 - Stem
 - Root
 - Entire plant.
- q) Family of Hyoseyamus is
- Solanaceae
 - Umbelliferae
 - Combretaceae
 - Rubiaceae.
- r) Lavender oil belongs to which family.
- Oleaceae
 - Rosaceae
 - Liliaceae
 - Labiata.
- s) Give two examples of probiotics.
- t) Unani system of medicine based on which theories.
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20114

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Marks

1. Attempt any SIX of the following:

30

- a) Describe the structure and functions of skin.
- b) Explain how circulation of blood takes place through heart chambers with neat labeled diagram of L.S. of human heart.
- c) Define Blood. Write classification and functions of leucocytes.
- d) Give the functions of liver.
- e) Explain mechanism of urine formation. Write any five functions of kidney.
- f) Sketch and label central nervous system and explain various functions of medulla oblongata.
- g) Classify bones. Differentiate between male and female pelvis.

2. Attempt any TEN of the following:

30

- a) Give the composition and functions of saliva.
- b) What are the functions of lymphatic system? Draw a well labelled diagram of 'Lymph node'.
- c) Why pancreas is called exo-endocrine gland?
- d) Draw a neat labelled sketch of human cell.
- e) Give the composition and functions of CSF.
- f) Enlist different types of blood cells with their normal values.
- g) Explain the structure and functions of ovary.
- h) Define and give normal values of:
 - i) Vital capacity
 - ii) Tidal volume
 - iii) Residual volume
- i) Define hormones. Explain the role of hormones secreted by Adenohypophysis.
- j) Define blood pressure. Explain all factors that modify blood pressure.
- k) Name fundamental tissues of body. Classify simple epithelium with their locations.

3. Attempt ALL of the following:

20

- a) The exchange of gases take place in ----- in the respiratory system.
- b) Name any two cranial nerves.
- c) Name the largest cell in the human body.

P.T.O.



- d) Mechanical and chemical processes which break down ingested food into small molecules is called as -----.
- e) Structure of the body away from the midline is called as -----.
- f) The fluid that enters the glomerulus is:
- Serum
 - Blood
 - Water
 - Mucus
- g) Name the bones of auditory ossicles.
- h) The function of the thoracic cage is:
- Protect the stomach
 - Protect the Kidneys
 - Protect the heart and lungs
 - Protect the brain and spinal cord
- i) Which of the following is not property of muscle?
- Elasticity
 - Degradability
 - Contractility
 - Excitability
- j) Define cardiac cycle.
- k) Testosterone hormone is secreted by ----- cells.
- l) Which statement is correct in case of cone cells in retina?
- Stimulated in dim light and do not produce colour vision.
 - Responsible for colour vision
 - Stimulated in bright light which do not produce colour vision.
 - Stimulated in dim light which produce colour vision.
- m) Define the term Anatomy.
- n) Give an example of ball and socket joint.
- o) Acetylcholine in the nerve ending is broken down by an enzyme -----.
- p) What is ECG?
- q) Which receptor is present in the nose?
- Photoreceptors
 - Gustatory receptors
 - Olfactory receptors
 - Phonoreceptors
- r) Choose the correct sequence of respiratory organs in human
- Pharynx - Larynx - Bronchi - Trachea - Alveolus
 - Pharynx - Larynx - Trachea - Bronchi - Alveolus
 - Pharynx - Bronchi - Larynx - Trachea - Alveolus
 - Pharynx - Trachea - Bronchi - Larynx - Alveolus
- s) Name various types of cartilages in body.
- t) Posture, balance and equilibrium of body is regulated by which part of the brain?

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20115

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Marks

1. Attempt any SIX of the following:

30

- a) Write in detail about causative agent, mode of transmission, symptoms, prevention and treatment of Typhoid.
- b) State in detail about principal solid waste disposal (refuse) methods highlighting its advantages.
- c) Enumerate ongoing National Health Programmes in India. Explain National Iodine Deficiency Disorder Control Programme and National Mental Health Programme.
- d) Identify the components given in figure No. 1. and give specific functions of labelled parts.

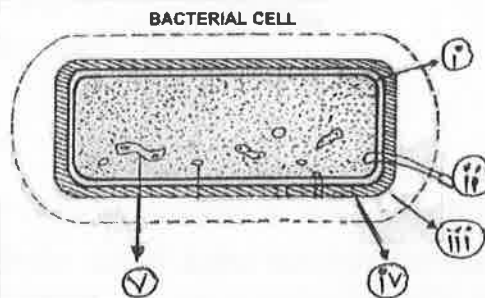


Fig No. 1.

- e) Define the term Health. Discuss various dimensions of Health.
- f) State the meaning of contraceptive methods. Classify them with examples. Describe method of male sterilisation.
- g) What is AIDS. Give its causative agent, mode of transmission, symptoms. How pharmacist can help in prevention and control of AIDS.

2. Attempt any TEN of the following:

30

- a) Write about sources, hazards and prevention of water pollution.
- b) Define Epidemiology. Give its applications.
- c) State various ill effects of junk food.
- d) Describe causative agents, mode of transmission and clinical symptoms of COVID-19. Write about various precautionary measures of COVID-19.
- e) Define and classify Determinants of health. Explain any ONE determinant in detail.
- f) What do you mean by pharmacoconomics? Why there is need of it? Give its applications.

P.T.O.



- g) Identify and name the disease which is caused due to following micro organisms.
- | | |
|------------------------|----------------------|
| i) P. Vivax | iv) Hansen bacillus |
| ii) Treponema pallidum | v) Myxovirus |
| iii) Brugia malayi | vi) Viricella zoster |
- h) State sources and functions of Protein. Explain any ONE deficiency disease of Protein.
- i) Explain the objectives and Outcomes of Janani Suraksha Yojana (J.S.Y.) of Govt. of India.
- j) State how breast feeding is beneficial to mother and baby.
- k) What do you mean by Food poisoning. How it can be identified, prevented and controlled.

3. Attempt ALL of the following:

20

- a) Head quarter of NACO in India is located at -----.
- b) State the meaning of Isolation.
- c) SDG stands for -----
- d) Compare the advantages of Condom over IUD.
- e) Universal Immunization Programme in India was introduced in the year -----.
- f) Vibrios have ----- shape.
- g) Give full form of F.I.P.
- h) Which one of the following is not an Arthropod-borne disease.
- | | |
|-----------------|------------------------|
| i) Chikungunya | ii) Dengue |
| iii) Filariasis | iv) None of the above. |
- i) Define the term:
- i) Drug abuse
- j) State the meaning of Health insurance.
- k) What happens when Tetracycline is given with milk?
- l) When did G.O.I. launched national urban health mission as sub-mission under N.H.M.
- m) As per WHO which infectious disease is completely eradicated from India.
- n) Increased level of Air pollution can result in
- | | |
|---------------------------|----------------------|
| i) Soil erosion | ii) Global Warming |
| iii) Respiratory Problems | iv) All of the above |
- o) What does 'D.O.T.S.' stand for?
- p) Govt. of India started Non diabetic control programme in 1987 in 03 states except,
- | | |
|------------------|---------------|
| i) Tamilnadu | ii) J and K |
| iii) Maharashtra | iv) Karnataka |
- q) Which chemical substance is produced by plants which breakdowns starch into sugar and fruits get riped.
- | | |
|------------------|----------------------|
| i) Ethylene | ii) Calcium carbide |
| iii) Chlorophyll | iv) All of the above |
- r) Define occupational disease.
- s) Which one of the following is not MDG.
- | | |
|---|---|
| i) Improve maternal health | ii) Combat HIV |
| iii) Develop local partnership in state | iv) Ensure environmental sustainability |
- t) In 1995, ----- programme was launched by government of India.