

20111

21222

**3 Hours / 80 Marks**

Seat No.

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15 minutes extra for each hour

- 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. **Answer any SIX of the following:** **30**
- a) Define capsules with its advantages and disadvantages. Differentiate between hard and soft gelatin capsules.
  - b) Explain principle, construction, working of Hammer mill and applications with a neat labelled diagram.
  - c) Define emulsion. Describe the manufacturing, packaging, labelling and storage of dry powder for reconstitution.
  - d) Define tablet. Explain the different steps in film coating of tablets.
  - e) Define eye drops. Explain various excipients used in eye drops.
  - f) Define sera. Describe the preparation, storage use and dose of Typhoid vaccine.
  - g) Define pharmacopoeia. Name the various editions of I.P. published with the year and their publications. Write any four salient features and 5th edition of I.P.

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Marks

30

2. Answer any TEN of the following:

- a) What are the ideal requirements of eye ointments.
- b) Explain classification of powders according to I.P.
- c) Write advantages and disadvantages of glass as a packaging material.
- d) Explain the concepts of Quality assurance and Quality control in Pharma Industry.
- e) Define Injectables. Write classifications / types of injectables.
- f) Define capsule. Explain processing of hard gelatin capsule.
- g) Define N.D.D.S. Classify with examples.
- h) Describe advantages and challenges in N.D.D.S.
- i) Differentiate between creams and pastes.
- j) Define coating of tablet. Describe the method of coating.
- k) Explain concept of calibration and validation.

3. Answer ALL Questions of the following:

20

- a) Calamine lotion is used as a \_\_\_\_\_.
- b) Define Container.
- c) Why water is used as commonly vehicle?
- d) Define extended-release tablet.
- e) Define elixir.
- f) The 8<sup>th</sup> edition of I.P. was published in the year \_\_\_\_\_.
- g) Define quality control.
- h) Define Drying.
- i) Define extraction.
- j) Define size reduction.
- k) Who organizes the Indian Pharmaceutical Congress every year?
  - i) Indian Pharmaceutical Congress
  - ii) Indian Pharmaceutical Congress Association
  - iii) Indian Pharmacy Graduates Association
  - iv) Indian Pharmaceutical Association

- l) Who is known as the "Father of Pharmacy Education in India"?
- Acharya RC Ray
  - Porf. Mahadev Lal Shroff
  - Sushruta
  - Charaka
- m) The word 'Pharmacy' is derived from the Greek word
- Pharmaces
  - Pharma
  - Pharmacisto
  - Pharmakon
- n) Most simple and most frequently used method for size separation is \_\_\_\_\_.
- Sieve shaker
  - Cyclone separator
  - Air separator
  - Elutriation
- o) Ball mill work on the principal of
- Impact
  - Attrition
  - Crushing
  - Impact and attrition
- p) Simple syrup is a saturated solution of \_\_\_\_\_.
- Sucrose
  - Fructose
  - Dextrose
  - None of these
- q) The first edition of I.P was published in \_\_\_\_\_.
- 1965
  - 1975
  - 1955
  - 1985

- r) Who is the father of medicine?
- i) Ebers
  - ii) Hippocrates
  - iii) Egyption
  - iv) Pontus
- s) The efficiency of a ball mill is maximum at
- i) Low speed
  - ii) High speed
  - iii) Very speed
  - iv) 2/3<sup>rd</sup> speed
- t) What is USP?
- i) The United States Pharmacology
  - ii) The United States Pharmacy
  - iii) The United States Pharmacopoeia
  - iv) The United States Pharmaceuticals
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Marks

1. Attempt any SIX of the following: 30
- a) What is parasympatholytic agent ? Classify it with suitable examples. Give the chemical structure, chemical name, and uses of Dicyclomine Hydrochloride.
- b) Define Gravimetric analysis. State its principle and describe various steps involved in it.
- c) Draw the chemical structure of antipsychotics having piperidine nucleus. Give its chemical name, uses, formulations and popular brand name.
- d) Draw the structure from the IUPAC name and write name of drug
- (i) 2-(2,4-difluorophenyl)-1, 3-di (1H-1,2,4-triazol-1-yl) propan-2-ol
- (ii) 2-amino-1, 9-dihydro-9-((2-hydroxyethoxy) methyl)-3H-purin-6-one

P.T.O.

- e) Define and classify Antimicrobial agents and explain their mechanism of action. Give pharmaceutical formulations, marketed preparations, storage conditions and uses of Boric Acid.
- f) Classify antibiotics according to chemical structure with examples. Draw and explain the structure of basic nucleus of Penicillins. Also give structure of Amoxicillin with its chemical name.
- g) Explain reaction and principle involved in limit test of arsenic and draw a neat, labelled sketch of Gutzeit apparatus.

2. Attempt any TEN of the following:

30

- a) Give any two brand names of –  
(i) Diazepam  
(ii) Amitriptyline  
(iii) Carbamazepine
- b) Draw the chemical structure of chloramphenicol. Give its uses and brand name.
- c) State what is meant by 'Volumetric analysis'. Enlist its types and explain one precipitation type of titration.
- d) What are diuretics ? Draw the chemical structure of diuretics having furan nucleus. Give its chemical name and uses.
- e) Define 'Neoplasm' and classify antineoplastic agents with example.
- f) Enlist different "sources of impurities" and describe any two sources.
- g) What is co-trimoxazole ? Explain its mechanism of action and give two brand names of Co-trimoxazole.
- h) Define and classify anti-hypertensive agents. Draw the chemical structure of captopril.
- i) Give structure, properties, uses and brand names of Ibuprofen.

- j) Classify Adrenergic drugs. Draw the structure and give chemical name of Naphazoline.
- k) Explain diabetes mellitus. Classify hypoglycemic agents with examples.

3. Attempt the following:

20

- a) Select the drug from following which acts as alkylating agents.  
(A) 5-Fluorouracil (B) Doxorubicin  
(C) Cyclophosphamide (D) Vincristine
- b) In what dosage form Azithromycin is given ?
- c) The basic heterocyclic ring present in phenytoin is \_\_\_\_\_.  
(A) Pyrazole (B) Imidazole  
(C) Imidazolidine (D) Pyrazolidine
- d) To prepare a solution of accurately known volume, use a  
(A) Beaker (B) Conical Flask  
(C) Volumetric Flask (D) Measuring Cylinder
- e) Cathartics are the drugs used to  
(A) Relieve acidity  
(B) Relieve constipation  
(C) Reduce gastrointestinal irritations  
(D) All of the above
- f) In limit test for sulphate, to prevent the super saturation of  $BaSO_4$ , a small amount of \_\_\_\_\_ has been added in the reagent.  
(A) Alcohol (B) Dil. HCl  
(C) Potassium sulphate (D) Barium chloride
- g) To prevent dental caries, toothpaste should contain  
(A) Strontium chloride (B) Zinc chloride  
(C) Sodium metaphosphate (D) Sodium fluoride

- h) The antifungal drug, ketoconazole contains — heterocyclic ring.
- (A) Imidazole (B) Pyridine  
(C) Acridine (D) Pyrimidines

- i) Lasix is a popular brand of
- (A) Hydrochlorothiazide (B) Furosemide  
(C) Amiloride (D) Acetazolamide

- j) Name the antidepressant agent, which is a dibenzazepine derivatives
- (A) Citalopram (B) Fluoxetine  
(C) Imipramine (D) Paroxetine

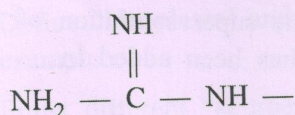
- k) Match the followings.

- |              |                               |
|--------------|-------------------------------|
| 1. Class I   | a) Calcium channel blockers   |
| 2. Class II  | b) Beta - blockers            |
| 3. Class III | c) Sodium channel blockers    |
| 4. Class IV  | d) Potassium channel blockers |

Options.

- a. 1-a, 2-b, 3-c, 4-d  
b. 1-d, 2-b, 3-a, 4-c  
c. 1-b, 2-c, 3-a, 4-d  
d. 1-c, 2-b, 3-d, 4-a

- l) The name of following group is



- (A) Anilino (B) Amidino  
(C) Guanidino (D) Amino

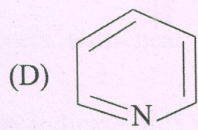
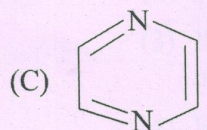
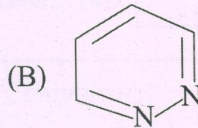
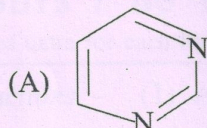
- m) In what dosage form Isosorbide Dinitrate is given ?

- n) Which of the following NSAIDS is phenylacetic acid derivatives ?

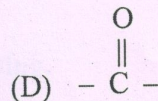
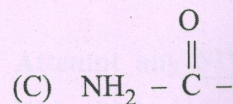
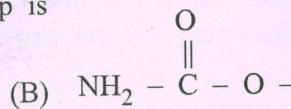
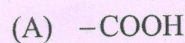
- (A) Diflusal (B) Aspirin  
(C) Mefenamic acid (D) Diclofenac



- o) Give structure and method of numbering for Acridine.  
 p) Write name and uses of drug containing imidazoline heterocycle.  
 q) The structure of pyridine ring is



- r) 2-acetoxybenzoic acid is IUPAC name of ?  
 (A) Paracetamol (B) Aspirin  
 (C) Mefenamicacid (D) Ibuprofen
- s) The structure of carbamoyl group is



- t) Which of the following drug is direct acting cholinomimetic agent ?  
 (A) Parathion (B) Physostigmine  
 (C) Carbachol (D) Pyridostigmine

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3 Hours / 80 Marks

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Seat No.

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15 minutes extra for each hour

- 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 SIX of the following.

30

- Write biological source and chemical constituents and uses of Belladonna and Ephedra.
- Explain pharmacological classification of crude drug with merits and demerits.
- Which parameters are consider for the evaluation of crude drug. Write any four methods or adulterations and substitutions.
- Define alkaloids and volatile oil. Explain the tests which performed for the identification of anthraquinone glycosides and tropane alkaloids.
- Define Oxytocics. Explain Ergot cycle with diagram.
- Explain the basic principles involved in Ayurvedic and homeopathic system of medicines.
- Define laxatives. Write chemical tests of
  - Turmeric.
  - Asafoetida.

P.T.O.

2. Attempt any TEN of the following.

- a) Define pharmacognosy. Write the name of scientist who described the method of extraction. Also explain galenical pharmacy.
- b) Define Herbal Formulations. Write two examples of herbal solid dosage form. Give therapeutic applications of Garlic.
- c) Explain and write the significance of Ash value and extractive value.
- d) Define surgical dressings. State the Ideal requirements of surgical dressing.
- e) State the therapeutic applications of Ipecac, Artemisia and Ephedra.
- f) Write uses of Spirulina and Prebiotics.
- g) Differentiate between -
  - i) Antiseptics and Disinfectants with examples.
  - ii) Organised and unorganised crude drugs with examples.
- h) Define neutraceuticals and antioxidants. Also give their therapeutic applications.
- i) Define medicinal and aromatic plants. State the role of medicinal and aromatic plants in the national economy.
- j) Write the method of preparation of Arishta and Gutika.
- k) Write biological source and uses of lavender oil and sandal wood oil.

3. Attempt all of the following.

- a) Name the fibre which contain Keratin.
- b) Name the drug called as 'banda soap'.
- c) Write the name or drug having synonym bishop's weed.
- d) Name the drug which contain shogaol.

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Marks

- e) Which drug use in treatment of Rheumatism.
  - f) Name the drug which contain Reserpine.
  - g) Write the name of drug having synonym puncture vine.
  - h) Give one example of Probiotics.
  - i) In case of vasaka and clove which part of plant is used as drug.
  - j) Write two main constituents of guggul.
  - k) Write two cosmetic uses of olive oil.
  - l) Name the drug which contain alillin.
  - m) Name the drug belonging to combretaceae family.
  - n) Name the drug for which thalloquin test is performed.
  - o) Write one commercial preparation of aloevera gel.
  - p) Name the drug for which killer-killani test is performed.
  - q) Write two main constituents of rosemary oil.
  - r) Name the phytoconstituents for which Libbermann burchard test is performed.
  - s) Give one example of modern herbal for formulation.
  - t) Effleurage method is use for the isolation of which phytochemicals.
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21222

3 Hours / 80 Marks

15 minutes extra for each hour

13  
Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
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  - (3) Figures to the right indicate full marks.

**Marks**

1. Answer any SIX of the following :

30

- (a) Define Skeleton. Name the bones of axial and appendicular Skeleton.
- (b) Describe the process of blood coagulation. Name the factors which accelerate & retard blood clotting.
- (c) Describe the structure and functions of skin with a neat labelled diagram.
- (d) Name the valves and chambers of human heart. Explain Cardiac cycle.
- (e) Draw a neat labelled sketch of L.S. of kidney and explain its structure.
- (f) Define reflex action. Describe the basic components of reflex arc with labelled diagram.
- (g) Name the organs of digestive system. Give the composition and functions of gastric juice.

2. Answer any TEN of the following :

- (a) Name four fundamental tissues of body. Differentiate between smooth and skeletal muscles.
- (b) Define the terms :
- (i) Cardiac output
  - (ii) Stroke volume
  - (iii) Blood pressure
- (c) Draw a neat sketch of human cell and label :
- (i) Nucleus
  - (ii) Golgi apparatus
  - (iii) Mitochondria
  - (iv) Cytoplasm
  - (v) Lysosomes
  - (vi) Endoplasmic reticulum
- (d) Write six functions of liver.
- (e) Define hormones. Name hormones of anterior pituitary gland.
- (f) Classify leukocytes with their functions.
- (g) Draw a neat labelled diagram of lymph node and state its two functions.
- (h) Explain the physiology of respiration.
- (i) Write the effect of stimulation of sympathetic system on :
- (i) Heart
  - (ii) Eye
  - (iii) Small intestine
- (j) Explain the role of insulin and glucagon in the body.
- (k) Name different parts of male reproductive system with their functions.

## 3. Answer ALL questions :

- (a) Name three layers of heart.
- (b) The blood vessel which carry deoxygenated blood from heart to lungs is \_\_\_\_\_.
- (c) The right lung has \_\_\_\_\_ white left lung has \_\_\_\_\_ lobes.
- (d) Intrinsic factor is necessary for absorption of \_\_\_\_\_.
- (e) \_\_\_\_\_ is hormone secreted by testes.
- (f) Name the bones involved in elbow joint.
- (g) Neurotransmitter released at neuromuscular junction is \_\_\_\_\_.
- (h) Peripheral nervous system consists of \_\_\_\_\_ pairs of cranial nerves and \_\_\_\_\_ pairs of spinal nerves.
- (i) Name the cranial nerve responsible for equilibrium and hearing.
- (j) In which part of female reproductive system fertilization of ovum takes place ?
- (k) The study of physical structures of body is
- |                 |                 |
|-----------------|-----------------|
| (i) Anatomy     | (ii) Physiology |
| (iii) Histology | (iv) Cytology   |
- (l) The term "medial" means
- |                               |                      |
|-------------------------------|----------------------|
| (i) Away from surface of body | (ii) Near to head    |
| (iii) Away from the head      | (iv) Near to midline |
- (m) Which of the following is not a connective tissue ?
- |                      |                     |
|----------------------|---------------------|
| (i) Blood            | (ii) Bone           |
| (iii) Cardiac Muscle | (iv) Adipose Tissue |
- (n) The exchange of gases between air and lungs is called as :
- |                            |                           |
|----------------------------|---------------------------|
| (i) Internal respiration   | (ii) Cellular respiration |
| (iii) External respiration | (iv) Bronchodilation      |

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- (o) Organ of corti helps in
- (i) Balancing
  - (ii) Hearing
  - (iii) Vision
  - (iv) All of the above
- (p) Taste cells on tongue that receive the stimulation of taste are :
- (i) Olfactory receptor
  - (ii) Gustatory receptors
  - (iii) Baroreceptor
  - (iv) Photoreceptor
- (q) \_\_\_\_\_ focuses light in retina.
- (i) Sclera
  - (ii) Iris
  - (iii) Cornea
  - (iv) Ciliary muscles
- (r) Following is an example of hinge joint
- (i) Shoulder joint
  - (ii) Hip joint
  - (iii) Knee joint
  - (iv) All joints in body
- (s) The functional unit of contractile system in striated muscle is known as :
- (i) M-line
  - (ii) Actin
  - (iii) Sarcomere
  - (iv) Myotibril
- (t) The reasons why right kidney is slightly lower than the left kidney is :
- (i) Right kidney is bigger than the left
  - (ii) Right kidney is smaller than the left
  - (iii) Considerable space occupied by liver on right side
  - (iv) Considerable space occupied by heart
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20115

21222

3 Hours / 80 Marks

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17  
Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
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  - (3) Figures to the right indicate full marks.

**Marks**

1. Attempt any SIX from the following :

6 × 5 = 30

- (a) Define Health and discuss various indicators of Health.
- (b) What are problems of over population ? How the population can be controlled ?
- (c) Discuss in detail about importance of breast feeding, write ill effects of infant milk substitutes.
- (d) Write symptoms, prevention and treatment of tuberculosis. Write full form of DOTS.
- (e) Write causative organism, mode of transmission, prevention and control of AIDS.
- (f) Write about causative agent and prevention of Typhoid Fever and Chikungunya.
- (g) Discuss about various National Health programmes of India focusing on communicable diseases.

**2. Attempt any TEN from the following :****10 × 3 = 30**

- (a) Describe National health policy.
- (b) Write about ill effects of air pollution and its prevention.
- (c) Write about hazards of water pollution and its prevention.
- (d) What is malnutrition ? Write ill effects of junk food.
- (e) Write functions and daily requirement of proteins.
- (f) Write clinical presentation and control of malaria.
- (g) Draw the diagram of a typical bacterial cell and name the components.
- (h) Describe Gram staining method for Bacteria.
- (i) Write prevention and treatment of leprosy.
- (j) Write about Ayushman Bharat (PM-JAY).
- (k) What is health insurance ? Give its types.

**3. Solve the following multiple choice questions :****20 × 1 = 20**

- (a) Write full form of SDG.
- (b) Write full form of NHP.
- (c) BCG stands for \_\_\_\_\_.
- (d) MTP stands for \_\_\_\_\_.
- (e) Write deficiency disorder caused by deficiency of vitamin C.
- (f) Name any one pandemic disease.
- (g) Write the name of one vaccine to prevent COVID-19.
- (h) Name the micro-organism causing cholera.
- (i) Write name of one National Health programme focusing on NCDs.
- (j) What is HMO ?
- (k) Carcinogens cause
  - (a) Cancer
  - (b) Diabetes
  - (c) Hypertension
  - (d) T.B.
- (l) Life styles are learnt from
  - (a) Parents
  - (b) Mass media
  - (c) Friends
  - (d) All of these

- (m) Increased levels of air pollution results in \_\_\_\_\_.  
(a) Soil erosion (b) Global warming  
(c) Respiratory problem (d) All of these
- (n) Which is the most common method used to dump solid wasters ?  
(a) River (b) Ocean  
(c) Land Fill (d) None of these
- (o) Write full form of 'GM' food.
- (p) Rabies is a  
(a) Viral disease (b) Bacterial disease  
(c) Fungal disease (d) None of these
- (q) Polio virus mainly replicates in  
(a) Lungs (b) Liver  
(c) GIT (d) None of these
- (r) PHC stands for  
(a) Primary Hospital Centres (b) Primary Healthcare Centres  
(c) Public Healthy Centres (d) Prime Human Centres.
- (s) National mental health programme was launched in the year  
(a) 1985 (b) 1979  
(c) 1982 (d) 1990
- (t) Which organization provides blood to patients ?  
(a) Medical store (b) Dispensary  
(c) Hospital (d) Blood bank
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3 Hours / 80 Marks



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Seat No.

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- Instructions* –
- (1) All Questions are Compulsory.
  - (2) Illustrate your answers with neat sketches wherever necessary.
  - (3) Figures to the right indicate full marks.
  - (4) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.
  - (5) In case student has attempted sub-question of Que. No. 3 more than once, only first attempt should be considered for assessment.

1. Attempt any SIX of the following:

Marks

30

- a) Write short note on history of pharmacy profession related to pharmacy education and pharmacy practice in India.
- b) Explain the principle, construction and working of cyclone separator with neat labeled diagram.
- c) Enumerate the various tests for quality control of tablets. Describe the disintegration or friability test.
- d) Define capsule. Describe the process of involved in manufacturing of hard gelatin capsule.
- e) Write short note on:
  - i) Elixirs
  - ii) Suspensions.
- f) Write the formulation parameters for parental in detail.
- g) What are toxoids? Discuss the general method for preparation toxoids.

2. Attempt any TEN of the following:

30

- a) Write advantages and disadvantages of plastics as a packaging material.
- b) Give classification of powders as per I.P.
- c) Write down the advantage and disadvantage of tablets.
- d) Differentiate between lotions and liniments.
- e) Enlist the various bases used for formulation of ointments.
- f) Classify the method of preparation of effervescent granules.
- g) Write any six characteristics of ophthalmic formulation.
- h) Define the term calibration and validation in brief.
- i) Define cGMP and explain its importance.
- j) Define drug delivery system. Classify various drug delivery systems.
- k) What are the future applications of NDDS ?

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Marks  
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3. Attempt the following:

- a) Who is known as father of pharmacy profession in India ?
- b) Pharmacopoeia contains of
- i) Monograph of drug and substance
  - ii) Standard test
  - iii) Description formulae
  - iv) All of the above
- c) The first edition of pharmacopoeia was published in \_\_\_\_.
- d) Name materials used to prepare pharmaceutical containers
- e) \_\_\_\_ glass is glass of highest pharmaceutical grade.
- f) Saccharin is used as a \_\_\_\_ agent.
- g) Name two antimicrobial preservatives.
- h) To increase viscosity of liquid which of following agents are used.
- i) PVP
  - ii) Sodium Carboxy Methyl Cellulose
  - iii) Methyl Cellulose
  - iv) All of above
- i) Define sieve number.
- j) Which type of mixture are easily formed
- i) Positive
  - ii) Neutral
  - iii) Negative
  - iv) Ampholytic
- k) Write the name of one equation which describes theory of filtration.
- l) Define maceration.
- m) Which of the following is not used as diluent?
- i) Lactose
  - ii) Microcrystalline cellulose
  - iii) Calcium Carbonate
  - iv) Poly Vinyl Pyrolidon
- n) Which type of coating is done to disintegrate tablet in intestine \_\_\_\_.
- o) HLB value of SLS is
- i) 10
  - ii) 12
  - iii) 40
  - iv) None of above
- p) Define suppository is not vegetable oil ?
- q) Write at least two differences between pastes and ointments.
- r) Name two vehicles used in the formulation of ear drops.
- s) Nasal drops should be isotonic with \_\_\_\_% sodium chloride.
- t) Name vaccine used for prevention of tuberculosis.
- \_\_\_\_\_

22223

3 Hours / 80 Marks



20112

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.
  - (6) 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) Name any 2 of the following:
 

i) Hematinics	ii) Antacids
iii) Dental Products	iv) Cathartics
v) Antiseptics / Disinfectants	
  - b) Define - "Volumetric analysis". List the apparatus needed in volumetric analysis. mention the types of volumetric analysis.
  - c) Define the term "epilepsy". Classify Anti-epileptic agents with suitable examples.
  - d) Draw chemical structure of Dapsone. Give it chemical name, uses, formulations and storage conditions.
  - e) Explain reaction and principle involved in Limit Test of Arsenic and draw neat and labelled sketch of Gutzeit's apparatus.
  - f) What are adrenergic drugs? Classify with examples. Draw the structure of Norepinephrine.
  - g) Define and classify anti-neoplastic agents. Draw structure of 5 Fluorouracil.
- 2. Attempt any TEN of the following:** **30**
- a) Discuss any three different sources of impurities in pharmaceuticals.
  - b) Classify Antimalarials. Draw structure of chloroquine phosphate.
  - c) Give storage-stability, uses and brand name of drug Penicillin G.
  - d) What are para sympathomimetic agents? Draw structure of drug Acetylcholine. Give its storage and stability conditions.
  - e) Define and classify sedatives and Hypnotics with examples. Draw the structure of Phenobarbitone.
  - f) Give the structure, chemical name and uses of Frusemide.
  - g) Define diabetes mellitus. Draw structure of metformin and give its popular brand names.
  - h) What are narcotic analgesics? Give its classification with examples.
  - i) Give uses for
 

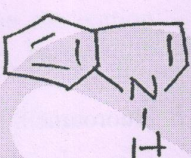
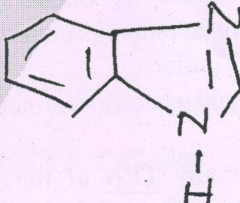
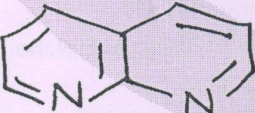
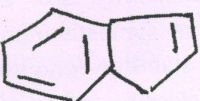
i) Chlorpromazine	ii) Chloramphenicol
iii) Propranolol	
  - j) Classify Antihypertensive agents with suitable examples.
  - k) Draw structure for:
 

i) $\beta$ -Lactum antibiotic	ii) Sulfa Drug
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P.T.O.



## 3. Attempt the following:

- Define antibiotics.
- Write any 2 uses of Azithromycin.
- Draw structure of acetyl group and chloro group.
- Draw structure of Pyridine and give its method of numbering.
- Chemical formula for bleaching powder is \_\_\_\_\_.
  - $\text{Ca}(\text{clo})_2$
  - $\text{Ca}(\text{clo})_4$
  - $\text{CaCo}_3$
  - $\text{Ca}_2\text{Co}_3$
- Prazosin drug is used for \_\_\_\_\_.
  - Hypertension
  - Brain tumor
  - Diarrhoea
  - Cancer
- Name any 2 indicators used in Acid-base titration.
- The synonym of Calcium Carbonate is \_\_\_\_\_.
- The precipitating agent used in Limit Test for chloride is \_\_\_\_\_.
- Define "Redox Titration".
- Draw structure of Atropine sulfate.
- Doxycycline belongs to the structural class of Antibiotics.
  - Penicillins
  - Macrolides
  - Tetracyclines
  - None of these
- IUPAC name of Paracetamol is \_\_\_\_\_.
  - N - (2, 2- diethyl hydroxy) acetamide
  - N - (4 - hydroxy phenyl) anilide
  - 4 - hydroxy - Acetanilide
  - None of the above.
- Full form of NSAID is \_\_\_\_\_.
  - Non-steroidal anti-inflammatory drugs
  - Non-steroidal anti-infective drugs
  - Non-steroidal anti-inflammatory drugs
  - Non-steroidal anti-infective drugs
- Structure of Indole ring is \_\_\_\_\_.
  - 
  - 
  - 
  - 

- State whether true or false for Antacids are meant for constipation and hypoacidity.
- Define "non-aqueous titration".
- Gravimetric Analysis is a Semi-quantitative method. True or False.
- Give 2 uses of Atenolol.
- Name any 2 Anti-depressant drugs.

22223

3 Hours / 80 Marks



24  
20113

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.
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  - (6) 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) Why crude drugs are classified? Enlist different methods of classification of crude drugs and discuss morphological method with their merits and demerits.
- b) State the meaning of adulteration. Explain different methods of adulteration with examples.
- c) Define laxative with examples and give biological source, chemical constituents and therapeutic uses of aloe.
- d) What are the pharmaceutical aids? Give biological source and chemical constituents of
  - i) Bees wax
  - ii) Tragacanth
- e) Enlist different traditional systems of medicine and explain any one.
- f) Define and give therapeutic applications of
  - i) Probiotics
  - ii) Antioxidants
- g) Mention commercial preparations and cosmetic uses of
  - i) Olive oil
  - ii) Sandalwood oil

2. Attempt any TEN of the following:

30

- a) Differentiate between organized and unorganized drugs.
- b) Enumerate various limitations in manufacturing of herbal formulations.
- c) Discuss the role of medicinal and aromatic plants in national economy.
- d) Define surgical dressings. State the ideal requirements of surgical dressings.
- e) State the uses of following drugs.
  - i) Vinca
  - ii) Gokhru
  - iii) Ipecachunha
- f) Write the method of preparation of Avaleha and Bhasma.
- g) State biological sources, chemical constituents and uses of Neem.
- h) What are antihypertensives? Give biological source and chemical constituents of Rauwolfia.
- i) Define glycosides. Explain chemical tests for cardiac glycosides.
- j) State the role of moisture content and extractive value in evaluation of crude drug.
- k) Give contribution of
  - i) Seydler
  - ii) Galen
  - iii) Dioscoride in pharmacognosy

P.T.O.



3. Attempt ALL of the following:

- a) Name the drug which consist of 'Quinine' as a chemical constituents.
- Cinchona
  - Tolu balsam
  - Castor oil
  - Arjuna
- b) Balsams consist of \_\_\_\_\_ and \_\_\_\_\_ acids.
- c) Mention any one oil used as source of vitamins.
- d) Gym nema is used as \_\_\_\_\_
- Antimalerial
  - Antitumour
  - Antidiabetics
  - Antitussive
- e) Family of colchicum seed is \_\_\_\_\_
- Loganaceae
  - Liliaceae
  - Lauraceae
  - Leguminosae
- f) Mention the synonym of
- Ephedra
  - Vasaka
- g) In case of Clove and Black pepper which part of plant used as drug.
- h) State the volatile oil content of fennel fruit.
- i) Determination of stomatal index is \_\_\_\_\_ type of evaluation.
- j) Name the drug which belongs to following synonym.
- Puncture vine
  - Indian saffron
- k) Give major chemical constituents present in
- Turmeric
  - Vinca
- l) Mayer's reagent consist of \_\_\_\_\_ solution.
- m) What you mean by Asava?
- n) Define the term 'Gutika'.
- o) Lycopodium spore method is a \_\_\_\_\_ method of evaluation of crude drug.
- Morphological
  - Microscopic
  - Physical
  - Chemical
- p) Extraction method used for preparation of delicate perfumes.
- Steam distillation
  - Enflurage
  - Eculle
  - Liquid carbon
- q) The pungent principle of ginger is \_\_\_\_\_.
- r) The Greek physician \_\_\_\_\_ known as 'Father of Medicine'.
- s) What are herbal cosmetics?
- t) Mention two drugs having family Solanaceae.  
\_\_\_\_\_

22223

3 Hours / 80 Marks



26 TS  
20114

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) Assume suitable data, if necessary.
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**Marks**

1. **Attempt any SIX of the following:** **30**
- a) Describe the process of blood clotting.
  - b) Explain conducting system of the heart with neat diagram.
  - c) Write the composition and functions of gastric juice. Name the three phases of gastric juice secretion.
  - d) Explain the functions of cerebrum. Name the functional areas of cerebrum with diagram.
  - e) Describe the process of urine formation.
  - f) Write the functions of skin.
  - g) Classify bones. Explain anatomical features of synovial joint with diagram.
2. **Attempt any TEN of the following:** **30**
- a) Write anatomy and functions of the mitochondria.
  - b) Give an account of simple epithelium.
  - c) Describe the functions of lymphatic system.
  - d) Name the parts of respiratory system. Write applications of a peak flow meter.
  - e) Create a flow diagram that describes the sequence of events that causes contraction of ventricles and ejection of blood flow from heart.
  - f) Write physiology of carbohydrate digestion.
  - g) Differentiate between sympathetic and parasympathetic nervous system.
  - h) Name the three layers of eye. Draw a well labelled vertical section of an eye-ball.
  - i) Name the hormones secreted by pancreas. Explain physiological role of insulin.
  - j) Describe phases of menstrual cycle.
  - k) Enlist the endocrine glands with their location in the body.

P.T.O.



3. Attempt ALL of the following:
- State the meaning coronal plane.
  - Mention the tissue that lines blood vessels.
  - List the bones forming ankle joint.
  - Define cardiac output.
  - State meaning of myopathy.
  - Write two functions of CSF.
  - Classify tissues.
  - Define Tidal Volume.
  - List indications of blood transfusion.
  - Write normal values of RBC count.
  - Which statement is correct?
    - The knee is proximal to hip
    - The hip is proximal to knee
    - The shoulder is distal to elbow
    - The knee is distal to ankle
  - Sperm maturation occurs in the :
    - Seminiferous tubule
    - Epididymis
    - Vas deference
    - Urethra
  - The hormone responsible for puberty in females is :
    - Prolactin
    - Follicle stimulating hormone
    - Oxytocin
    - All of the above
  - The largest bone in the body is :
    - Humerous
    - Femur
    - Tibia
    - Sternum
  - Classify WBC into its two types.
  - The largest blood vessel of body is \_\_\_\_\_.
  - The part of respiratory system mostly affected by COVID-19 is :
    - Nasal cavity
    - Alveoli
    - Pharynx
    - Trachea
  - What does liver do to help digestion?
  - Coughing and sneezing are controlled by which part of brain?
  - Name the functional unit of kidney.  
\_\_\_\_\_

22223

3 Hours / 80 Marks



20115

Seat No. 

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- Instructions –*
- (1) All Questions are *Compulsory*.
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  - (3) Illustrate your answers with neat sketches wherever necessary.
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**Marks**

1. **Attempt any SIX of the following:** **30**
- a) Give the definition and Scope of Social Pharmacy. What is the role of pharmacist in public health?
  - b) Define family planning. Write in brief about various types of contraceptive methods.
  - c) Define the term Epidemiology. Enlist and explain different types of Epidemiology.
  - d) i) Discuss various solid waste disposal methods.  
ii) What is Sewage?
  - e) i) Describe any one National Health Programme for mother and child.  
ii) What is Pradhan Mantri Jan Arogya Yojna (PM-JAY)?
  - f) Describe causative agent, clinical presentation and role of pharmacist in prevention of Tuberculosis.
  - g) Give causative agent and clinical presentation for following infections (any two).  
i) Dengue  
ii) COVID-19  
iii) Typhoid
2. **Attempt any TEN of the following:** **30**
- a) Differentiate between Prokaryotic and Eukaryotic Microorganisms.
  - b) What are FIP Development Goals? When was it launched?
  - c) Define Noise. Write about ill effects of Noise pollution on health.
  - d) Write various causes of Pharmaceutical pollution.
  - e) Discuss types and importance of fibres in diet.
  - f) State what is Food Safety. What are nutraceuticals?
  - g) State objectives of National Health Programme for prevention and control of cancer, Cardiovascular diseases, Diabetes and stroke.
  - h) Write note on Gram Staining of Bacteria.
  - i) Write note on Pharmacoeconomics
  - j) State the causative agent and mode of transmission of  
i) Malaria  
ii) Cholera
  - k) Define: Epidemic, Pandemic and Endemic

P.T.O.

29

20115

[ 2 ]



Marks  
20

3. Attempt the following questions

- a) The International Pharmaceutical Federation (FIP) was founded in year \_\_\_\_\_.
- b) Write full form of MDG.
- c) Health is a state of complete \_\_\_\_\_, mental and social well being and not merely the absence of disease.
- d) The National Health Mission was launched in year \_\_\_\_\_
- e) Define the term Demography.
- f) Breastfeeding awareness week is celebrated in month of
  - i) September
  - ii) August
  - iii) January
  - iv) May
- g) Give two examples of psychotropic substances.
- h) Write one common cause of air pollution.
  - i) Kwashiorkor develops due to deficiency of \_\_\_\_\_.
- j) The practise of adding vitamins and minerals to foods during processing to increase it's nutritional value is known as:
  - i) Fortification of food
  - ii) Food Adulteration
  - iii) Artificial ripening
  - iv) Food Security
- k) Filariasis is caused by \_\_\_\_\_.
- l) Following are examples of Respiratory tract infections, except
  - i) Small pox
  - ii) Amoebiasis
  - iii) Mumps
  - iv) Whooping Cough
- m) The causative organism for plague is:
  - i) Salmonella typhi
  - ii) Vibrio cholerae
  - iii) Yersinia pestis
  - iv) M. Tuberculosis
- n) Write full form of MERS
- o) What do you mean by mortality?
- p) Write full form of WHO.
- q) Give one example of any one national health programme focussed on Nutrition.
- r) First National Health Policy was launched by Government of India in year
  - i) 2013
  - ii) 2002
  - iii) 1983
  - iv) 1985
- s) In which year National Health programme on Mental Health was launched ?
- t) What is the measure of quality of life in different disease states?

\_\_\_\_\_

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.
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*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 media
 State 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) Lotion
 Compare 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.



23124

3 Hours / 80 Marks



20112

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

**Marks****30**

1. Attempt any SIX of the following :

- 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  $\beta$  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.  
\_\_\_\_\_

23124

3 Hours / 80 Marks



Seat No.

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W-23

34

20113

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

Marks  
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.



- 35
- 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 –
    - i) Average number of palisade cells below each upper epidermal cell.
    - ii) Total number of parenchyma cells
    - iii) None
    - iv) Total number of stomata cells.
  - m) Give significance of Ash value.
  - n) Oleoresins are mixtures of following two
    - i) resin and volatile oil
    - ii) resin and gum
    - iii) resin and benzoic acid
    - iv) resin and cinnamic acid
  - o) Name two antimalarial drug.
  - p) Following part of vinca is used as medicine source.
    - i) Flower
    - ii) Stem
    - iii) Root
    - iv) Entire plant.
  - q) Family of Hyoscyamus is .....
  - i) Solanaceae
    - ii) Umbelliferae
    - iii) Combretaceae
    - iv) Rubiaceae.
  - r) Lavender oil belongs to which family.
    - i) Oleaceae
    - ii) Rosaceae
    - iii) Liliaceae
    - iv) Labiate.
  - s) Give two examples of probiotics.
  - t) Unani system of medicine based on which theories.
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23124

3 Hours / 80 Marks



20114

Seat No.

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- Instructions* –
- (1) All Questions are Compulsory.
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  - (3) Illustrate your answers with neat sketches wherever necessary.
  - (4) Figures to the right indicate full marks.
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  - (6) In case student has attempted sub-question of Q. 3 more than once, only first attempt should be considered for assessment.

**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?

(Win 24)

P-4

12425

03 Hours / 80 Marks



38

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.

Marks

1. Attempt any SIX of the following: 30
  - a) Explain Pharmacy as a career.
  - b) Explain Principle, Construction, Working and application of Silverson Mixer.
  - c) Explain the types of coating of tablets.
  - d) Define capsules. Differentiate between hard gelatin and soft gelatin capsules.
  - e) Define Emulsion and explain methods of Emulsion preparation.
  - f) Define powders and give its classification, Write advantage and disadvantages of powder.
  - g) Explain briefly SVP and LVP.
  
2. Attempt any TEN of the following : 30
  - a) Explain any two types of packaging materials.
  - b) Explain the working and application of Ball mill.
  - c) Name the quality control tests of tablets.
  - d) Define and classify ointments.
  - e) Define creams and classify with examples.
  - f) Define Ear drops and state one formula with method of preparation of ear drops.
  - g) Write method of preparation of effervescent granules.
  - h) Explain Pharmaceutical Plant Layout.
  - i) State the outline of GMP.
  - j) Classify with example Controlled Release Drug Delivery System.
  - k) State the advantages of Novel Drug Delivery System.
  
3. Attempt ALL questions. 20
  - a) Who is stated Hindu god of medicine ?
  - b) Define Pharmacopoeia.
  - c) When and where first Pharma Company started in India.
  - d) Define Packaging.
  - e) Define closures.
  - f) Define Pharmaceutical aid.
  - g) Name any four colouring agents.

P.T.O.

20111

[ 2 ]



Marks

- 39
- h) Define preservative.
  - i) Name mechanisms involved in Size Reduction.
  - j) Enlist various grades of powder.
  - k) Define sieve number.
  - l) Enlist methods of Extraction.
  - m) Film coated tablets are coated by \_\_\_\_\_.
    - i) Polymers
    - ii) Sugar
    - iii) Gelatin
  - n) What agents are used in wet granulation
    - i) Binding agents
    - ii) Emulsifiers
    - iii) Suspending agents
  - o) What are Elixirs.
    - i) Aqueous sol
    - ii) hydro-alcoholic
    - iii) biphasic
  - p) Antibiotic ointment are used to
    - i) Kill micro-organism
    - ii) Kill fungi
    - iii) Both
  - q) In simple ointment wool fat is used as
    - i) Base
    - ii) Emollient
    - iii) Stiffening agents
  - r) Nasal drops are stored at temperature
    - i) 40 – 50°C
    - ii) 50 – 60°C
    - iii) 20 – 25°C
  - s) Drug absorption from nasal spray is
    - i) slow
    - ii) rapid
    - iii) None of these.
  - t) Sterile formulation should be
    - i) hypotonic
    - ii) hypertonic
    - iii) Isotonic
-

12425

03 Hours / 80 Marks



40

20112

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.
  - (6) 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) Explain reaction and principle involved in limit test for Arsenic and draw neat and labelled sketch of Gutzeit apparatus.
- b) Give a brief account of:
  - i) Acid-base titration
  - ii) Complexometric titration
- c) Define Antibiotics. Classify with suitable example. Write uses of Azithromycin.
- d) State what are Hypnotics and sedatives? Classify them giving suitable examples. Draw structure of chlorpromazine.
- e) State what are sympathomimetic drugs? Classify and give the structure and uses of Adrenaline.
- f) Draw chemical structure of Dapsone. Give its chemical name; uses, formulations and storage conditions.
- g) Write uses for the following compounds:
  - i) Ferrous Sulfate
  - ii) Aluminium hydroxide gel
  - iii) Potassium permanganate
  - iv) Calcium carbonate
  - v) Oxygen.

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

**30**

- a) Explain principle and procedure involved in limit test for chloride.
- b) Enlist different types of volumetric analysis. Explain at least one precipitation type of titration.
- c) Define and classify general anaesthetics giving suitable examples of compounds under each class.
- d) What are anticholinergic drugs? Give the therapeutic uses of anticholinergic drugs.
- e) Draw the structure; uses and popular brand names (Any two) of propranolol.
- f) Give the structure; chemical name and uses of furosemide.
- g) What is diabetes mellitus? Give pharmaceutical formulations of Insulin. Draw structure of Metformin.
- h) Define antipyretic analgesics. Give uses and popular brand names of paracetamol.

P.T.O.









12425

03 Hours / 80 Marks



20114

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.
  - (6) 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) Classify bones based on their shapes. Describe the structure of a typical synovial joint with diagram.
- b) Describe the process of blood clotting.
- c) Explain conduction system of the heart with neat diagram.
- d) Describe the structure and functions of Liver.
- e) Explain the functional areas of the cerebrum with diagram. Give the functions of cerebrospinal fluid.
- f) Draw a neat and labelled diagram of T.S. of eyeball. Give the functions of skin.
- g) Explain the process of urine formation with neat and labelled diagram of nephron.

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

**30**

- a) State the functions of the following:
  - i) Ribosome
  - ii) Mitochondria
  - iii) Plasma membrane
- b) Write an account of simple epithelial tissue.
- c) Enlist different types of blood cells with their normal values.
- d) Enlist the components of the lymphatic system. Give the functions of the lymphatic system.
- e) Write an account of basics of electrocardiogram.
- f) Name the upper and lower parts of respiratory system. Give the functions of respiratory system.
- g) Write the physiology of carbohydrate digestion.
- h) Write the effect of parasympathetic stimulation on following body parts
  - i) Eye
  - ii) Cardiac muscles
  - iii) Salivary glands
- i) Write the principal actions of anterior pituitary hormones.
- j) Describe the phases of menstrual cycle.
- k) Write the functions of insulin and thyroid hormones.

P.T.O.

3. Attempt ALL of the following:

- a) Define the term Physiology.
- b) State the meaning of medial plane.
- c) Define the term cardiac output.
- d) \_\_\_\_\_ present in the respiratory system helps in voice production.
- e) Name the salivary glands.
- f) Name any two cranial nerves.
- g) Name the two types of photoreceptors present in the retina.
- h) If a muscle is frequently stimulated contract, its response to the stimulus progressively decreases. Such a conditions is called \_\_\_\_\_ .
- i) State the composition of urine.
- j) Name the accessory reproductive glands in the males.
- k) Voluntary muscles are present in the
  - i) Heart
  - ii) Limb
  - iii) Liver
  - iv) Lungs
- l) The first vertebra or G, that supports the skull present at the top of the spine is
  - i) Hyoid
  - ii) Axis
  - iii) Atlas
  - iv) Mandible
- m) The shortest bone in the human body is
  - i) Stapes
  - ii) Malleus
  - iii) Incus
  - iv) Patella
- n) The plasma protein responsible for blood clotting is
  - i) Fibrinogen
  - ii) Globulin
  - iii) Serum amylase
  - iv) Albumin
- o) The amount of air that moves in or out of the lungs with each normal respiratory cycle is \_\_\_\_\_ .
- p) When a nerve impulse reaches the neuromuscular junction, acetylcholine is released into the \_\_\_\_\_ .
- q) Coughing and Sneezing are controlled by which part of brain?
- r) The \_\_\_\_\_ membranes separates the external ear and middle ear.
- s) Which receptor is present in the nose?
  - i) Photoreceptor
  - ii) Gustatory receptor
  - iii) Olfactory receptor
  - iv) Adrenoreceptor
- t) The primary sex organ of female reproductive system is \_\_\_\_\_ .
  - i) Uterus
  - ii) Cervix
  - iii) Ovaries
  - iv) Fallopian tubes

12425

03 Hours / 80 Marks



46  
Seat No.

20115

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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.

Marks

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

30

- a) Define Health. Explain dimensions of health.
- b) What is scope of family planning? Classify methods of contraception.
- c) Define Vaccine and Immunization. Describe various types of vaccines.
- d) What is microbiology? Differentiate between bacteria and virus. Give examples of protozoa.
- e) Write causative agent, mode of transmission symptoms and types of Tuberculosis.
- f) Write causative agent, mode of transmission and prevention of any two:
  - i) AIDS
  - ii) Dengue
  - iii) Leprosy
- g) List any four ongoing National health program for NCDs and explain one.

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

30

- a) Enlist the priority areas in NHP 2017. When was first National Health Policy launched?
- b) Explain sources and effects of water pollution.
- c) What is Demography? Explain demographic cycle.
- d) Describe junk food. What are ill effects of consuming junk food?
- e) Give suitable example of following:
  - i) Fortification of food
  - ii) Adulteration of food
  - iii) Genetically modified food
- f) Define communicable diseases. Discuss modes of Transmission of communicable diseases.
- g) Define:
  - i) Quarantine
  - ii) Pandemic
- h) Draw structure of bacteria with diagram.
- i) Write causative agent, mode of transmission, clinical presentation of typhoid.
- j) Describe Pradhan Mantri Jan Arogya Yojna.
- k) Define Pharmacoeconomics. Explain importance or benefits of pharmacoeconomics.

P.T.O.



23242

3 Hours / 80 Marks



20111

Seat No.

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

Marks

1. Attempt any SIX of the following :

30

- a) Discuss development of pharmacy profession in India.
- b) What are different types of containers commonly used in pharmacy? Write in brief about glass containers.
- c) Define preservatives. Write it types with examples and uses.
- d) Define size reduction. Write in detail about ball mill.
- e) Enlist excipients in tablet. Define sustain release tablet, Extended release tablet, fast dissolving tablet multi layered tablet.
- f) Draw a layout design of pharmaceutical manufacturing plant. Write its sections and activities.
- g) Define Noval drug delivery system. How will you classify it? Write in brief about examples and challenges in Noval drug delivery system.

2. Attempt any TEN of the following :

30

- a) Define quality control, quality assurance and CGMP.
- b) Give in brief the method of preparation of smallpox vaccine.
- c) Describe the method of preparation of effervescent granules.
- d) Define ointment. Write classification of ointment bases.
- e) How will you differentiate between a hard gelatin capsule and soft gelatin capsule?
- f) Define extraction. Write classification of extraction.
- g) Draw a well labelled diagramme of F.B.D. write its principle.
- h) Draw a well labelled diagramme of Tripple roller mill. Write its advantages and disadvantages.
- i) Define pharmaceutical aid-write role of colouring, flavoring and sweetening agents.
- j) Write about career opportunities in pharmacy.
- k) Write short note on Indian pharmacopeia.

P.T.O.



3. Attempt ALL of the following :

- a) Define extended-release tablet.
- b) Define elixir
- c) Write full form of USP (U.S.P.)
- d) Define container
- e) The disintegration time for coated tablet is \_\_\_\_\_ minutes.
- f) What is use of Non-staining Iodine ointment.
- g) Which is the most commonly used vehicle in eye drops?
- h) Define Pessaries.
- i) Name any two preservatives.
- j) The rate of filtration is \_\_\_\_\_ proportional to the surface area of filter media.
- k) Hammer mill work on principle of \_\_\_\_\_.
- l) In cyclone separator the powder is separated depending on its
- i) Particle size
  - ii) Density of particle
  - iii) Shape of powder
  - iv) Particle size and density
- m) Sublimation of water from ice phase to gas phase is known as \_\_\_\_\_
- n) The \_\_\_\_\_ drugs cannot be filled in hard gelatin capsule.
- o) Dusting powder is dispensed in \_\_\_\_\_ container.
- p) Gum acacia is used as \_\_\_\_\_ in emulsion.
- i) Solvent
  - ii) Solute
  - iii) Emulsifying agent
  - iv) Colourant
- q) Solution is stored in \_\_\_\_\_
- i) Wide mouth bottle
  - ii) Narrow mouth bottle
  - iii) Both i) and ii)
  - iv) None of above
- r) Name two identification test for emulsion.
- s) Solutions are which type of liquids?
- i) Bi-phasic
  - ii) Monophasic
  - iii) Suspension
  - iv) Other than these
- t) What is the use of glycerin in elixir?
- i) Preservative
  - ii) Vehicle
  - iii) Colouring agent
  - iv) Flavouring agent
- \_\_\_\_\_

23242

3 Hours / 80 Marks



20112

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.

Marks

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

30

- a) Draw the structure of chlorpromazine hydrochloride give its IUPAC name, therapeutic uses, formulations and brand names.
- b) Draw the structure, IUPAC name, uses, formulations, and brand names of propranolol.
- c) Enlist various sources of impurities in pharmaceuticals. Write any 4 effects of impurities.
- d) Write uses of the following drugs:
 

i) Ketoconazole	ii) Chloroquine
iii) Norfloxacin	iv) Remdesivir
v) Pretomanid	
- e) Enlist two examples and uses for each of the following -
 

i) Medicinal gases	ii) Dental Products
--------------------	---------------------
- f) Define Antibiotics. Classify antibiotics based on chemical structure.
- g) Explain complexometric titrations and Acid-base titrations.

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

30

- a) Enlist any 3  $\alpha$ -adrenergic blockers and any 3  $\beta$ -adrenergic blockers.
- b) Classify Anti-arrhythmic agents with examples.
- c) Explain the principle and procedure involved in the limit test for sulphates.
- d) Classify Non-steroidal anti-inflammatory agents with suitable examples.
- e) Explain principle and reactions in the Assay of Ferrous sulfate.
- f) Draw the structure of Metformin, write its uses and enlist brand names.
- g) Classify Anti-depressants with examples. Draw the structure of Imipramine.
- h) Draw the structure of Isoniazid, write its IUPAC name and enlist any 2 brand names.
- i) Write uses of -
 

i) Chloramphenicol	ii) Streptomycin
iii) Azithromycin.	
- j) Draw the structure of 5-Fluorouracil and enlist its uses and write its storage condition.
- k) Draw the structure of Frusemide and give its storage condition and uses.

P.T.O.



23242

3 Hours / 80 Marks



20113

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) 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 SIX of the following:

30

- a) Explain pharmacological system of classification of crude drug with merits and demerits.
- b) Define drug evaluation. Enlist different microscopical evaluation parameters. Explain any three leaf constants used for evaluation of leaf.
- c) Write biological source, chemical constituents and uses of Black pepper and Rauwolfia.
- d) Define oxytocic drug. Give synonym B.S. chemical constituent and uses of Ergot.
- e) Enlist different traditional system of medicine and describe in brief Ayurveda system of medicine.
- f) Define and classify Nutraceuticals with examples. Give any four therapeutic applications of nutraceuticals.
- g) Give biological source, chemical constituent, commercial preparation, therapeutic and cosmetic use of Sandalwood oil.

2. Attempt any TEN of the following:

30

- a) Define pharmacognosy, who, when coined the term pharmacognosy?
- b) Define drug adulteration. Describe any two methods of drug adulteration with example.
- c) Define volatile oil. Describe any two isolation methods of volatile oil.
- d) Define antidiabetic drug. Write biological source, chemical constituent of gymnema.
- e) Write names of drug having following chemical constituents.
 

i) Fenchone	ii) Emetine
iii) Quinine	iv) Caffeine
v) Catechine	vi) Papain
- f) Name the drug which gives following test positive
 

i) Match stick test	ii) Modified borntrager test
iii) Killer-Killani-test	
- g) Write chemical constituents and uses of
 

i) Isapghula	ii) Vinca
iii) Vasaka	
- h) Give ideal properties of surgical dressing.

P.T.O.



- i) Explain role of medicinal and aromatic plants in national economy.  
j) Define and classify herbal formulations with suitable examples.  
k) Define phytoconstituents and describe general test for identification of alkaloids.  
(any two)

3. Attempt ALL of the following:

20

- a) The reasons for drug adulteration includes
- |                           |                        |
|---------------------------|------------------------|
| i) Scarcity of drug       | ii) High price of drug |
| iii) Drugs sold illegally | iv) All of the above   |
- b) Define 'Ash Value'.  
c) Goldbeater's skin test is performed for identification of
- |                |              |
|----------------|--------------|
| i) Tannin      | ii) Resin    |
| iii) Fixed oil | iv) Alkaloid |
- d) Name chemical test for identification of cardiac glycosides.  
e) The substance which increase evacuation of bowel is called as \_\_\_\_\_.  
f) Which part of the plant is used as drug for Ephedra and Belladonna?  
g) Jesuits bark is synonym of \_\_\_\_\_ drug.  
h) \_\_\_\_\_ is the drug belongs to Apocyanace family.
- |  |              |
|--|--------------|
| i) Cinchona is used as _____.  |              |
| j) Give name of drugs belongs to the families of umbelliferae and zingiberaceae. |              |
| k) Which drug having synonym 'Indian Saffron'                                    |              |
| i) Coca  | ii) Benzoin  |
| iii) Vinca   | iv) Turmeric |
- l) Define diuretic with example.  
m) Neem belonging to \_\_\_\_\_ family.
- |                |                   |
|----------------|-------------------|
| i) Rubiaceae   | ii) Meliaceae     |
| iii) Liliaceae | iv) Zingiberaceae |
- n) In the preparation of silk, the cocoons are heated at \_\_\_\_\_.  
o) Define Bhasma.  
p) Sodhana and Marana are the steps involved in manufacturing of
- |             |           |
|-------------|-----------|
| i) Churna   | ii) Taila |
| iii) Bhasma | iv) Leha  |
- q) Define dietary fiber with example.  
r) Define prebiotic with one example.  
s) Write main chemical constituents of Aloe vera.  
t) Write two cosmetic uses of Lavender oil.
- \_\_\_\_\_

23242

3 Hours / 80 Marks



20114

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) 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 SIX of the following:

30

- a) Describe Internal structure of the heart with a diagram.
- b) Define joint and classify. Name the bones of axial skeleton.
- c) Define blood. Describe its composition and function.
- d) Give composition and function of saliva and write any six functions of liver.
- e) Describe the physiology of urine formation. Draw a well labelled diagram of nephron.
- f) Draw a sagittal section of eye and explain its parts.
- g) Describe the structure of spinal cord with neat and labelled diagram.

2. Attempt any TEN of the following:

30

- a) Explain nervous tissue.
- b) Which part of the cell is called as power house of cell? Why?
- c) Define anemia. Explain its types.
- d) Define the term
  - i) Cardiac output
  - ii) Blood pressure
  - iii) Stroke volume
- e) Explain structure and function of lymph node.
- f) Write composition and function of pancreatic juice.
- g) Define the term
  - i) Tidal volume
  - ii) Residual volume
  - iii) Vital capacity
- h) Describe menstrual cycle.
  - i) Which gland is called as endocrine and exocrine? Why?
  - j) Define hormone. Enlist all the endocrine glands with their hormones in the body.
- k) Write the effect of parasympathetic stimulation on
  - i) Eye
  - ii) Salivary gland
  - iii) Urinary bladder

P.T.O.

55

20114

[ 2 ]



Marks

20

3. Attempt ALL of the following:

- a) Name the 2<sup>nd</sup> cranial nerve.
- b) The blood vessel which carry oxygenated blood from the lung to heart is \_\_\_\_\_.
- c) Name the muscles of respiration.
- d) Which hormone is secreted by testis?
- e) Name the four fundamental taste.
- f) Which neurotransmitter is responsible for muscle contraction?
- g) Name the bones of elbow joint.
- h) What are heart sound?
- i) Define anatomy and physiology.
- j) Name the fundamental tissues of the body.
- k) Structural and functional unit of kidney is \_\_\_\_\_.
- l) Name the bones of cranium.
- m) The fertilization in female takes place in
  - i) Uterus
  - ii) Vagina
  - iii) Fallopian tube
  - iv) Ovary
- n) Which of the following is property of skeletal muscle?
  - i) Muscle tone
  - ii) Muscle contraction
  - iii) Muscle fatigue
  - iv) All of the above
- o) Organ of corti helps in
  - i) Hearing
  - ii) Balancing
  - iii) Vision
  - iv) All of the above
- p) Exchange of gases at the cellular level in lungs and tissue is described as
  - i) Inspiration
  - ii) Internal respiration
  - iii) External respiration
  - iv) All of the above
- q) \_\_\_\_\_ is the inner most nervous coat of the eye.
- r) Which of following function belongs to bile juice?
  - i) Laxative action
  - ii) Fat digestion
  - iii) Buffer action
  - iv) All of the above
- s) The term 'Proximal' refers to
  - i) Towards the front of body
  - ii) Towards the back of body
  - iii) The upper part nearest to the point of attachment
  - iv) In the midline
- t) Write any two functions of 'CSF'.  
\_\_\_\_\_

23242

3 Hours / 80 Marks



20115

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) 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 SIX of the following:

30

- a) Describe the stages of demographic cycle and state objectives of family planning.
- b) Define health. Enlist various determinants of health and explain any three with examples.
- c) i) Write causes and ill effects of water pollution.  
ii) What is social impact of drug addiction?
- d) Write causative agents, clinical presentation, and role of pharmacists in educating the public in the following communicable disease. (any two)
  - i) Acute diarrhoeal diseases
  - ii) AIDS
  - iii) Dengue
- e) Enlist all ongoing National Health Programme in India and explain any one focussed on vector borne diseases.
- f) Define the following :
  - i) Microbiology
  - ii) Morbidity
  - iii) Quarantine
  - iv) Endemic
  - v) Pandemic
- g) Define epidemiology. Explain different types of epidemiological methods.

2. Attempt any TEN of the following:

30

- a) Write causes and prevention of food poisoning.
- b) State advantages and disadvantages of bottle feeding in infants.
- c) What is pharmacoconomics? Write its importance.
- d) Enlist various respiratory infections and write causative agent for any one respiratory infection.
- e) Write about
  - i) Artificial ripening
  - ii) Balanced diet
- f) Write the causative agent, mode of transmission and types of leprosy.
- g) Write note on sources, functions of proteins.
- h) Define social pharmacy. Give any two examples of FIP development goals.
- i) Write causative agent and mode of transmission of
  - i) Tetanus
  - ii) COVID-19
  - iii) Filariasis
- j) Discuss role of pharmacist in national health programmes.
- k) Name various methods of solid waste disposal. Explain any one.

P.T.O.





3. Attempt ALL of the following:

- a) Name the program launched by the Government of India to address the issue of prevalence of orodental disease.
- b) Match the followings :

Type of Bacteria		Shapes	
1.	Cocci	a.	Rod
2.	Bacilli	b.	Comma
3.	Vibrios	c.	Spiral
4.	Spirilla	d.	Spherical

- i) 1-d , 2-a , 3-b , 4-c
- ii) 1-d , 2-c , 3-b , 4-a
- iii) 1-c , 2-b , 3-a , 4-d
- iv) 1-a , 2-b , 3-c , 4-d
- c) HMO stands for \_\_\_\_\_.
- d) Name the disease characterized by the deficiency of iron.
- e) Name the protozoan that causes amebiasis.
- f) \_\_\_\_\_ is the immunity induced by vaccines which are the preparations of live or killed microorganisms or their products.
- i) Artificial active immunity
- ii) Natural active immunity
- iii) Natural passive immunity
- iv) Artificial passive immunity
- g) Name one national health programme focussed on nutrition.
- h) Define noise.
- i) BCG stands for \_\_\_\_\_.
- j) What is sewage?
- k) Write full form of NHP.
- l) Which one of the following diseases is transmitted easily through droplet infection?
- i) Plague
- ii) Tetanus
- iii) Syphilis
- iv) Chickenpox
- m) Vitamin A is also known as \_\_\_\_\_.
- n) Give example of health programme for maternal health.
- o) Name any two dimensions of health.
- p) Write a full form of SDG.
- q) Which of the following is not an example of a mechanical contraceptive?
- i) Condoms
- ii) Diaphragms
- iii) IUCD
- iv) Rhythm method
- r) WHO stands for \_\_\_\_\_.
- s) Name any one national health program for mental health.
- t) Tuberculosis is spread by \_\_\_\_\_.
- i) Droplets spread while coughing
- ii) Shaking someone's hand
- iii) Touching bed linens or toilet seats.
- iv) Sharing toothbrushes