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Roll No. :

341451(41)

**B. Pharmacy (Fourth Semester) Examination,
April-May 2020
(PCI Scheme)
(Branch : Pharmacy)**

PHARMACEUTICAL ORGANIC CHEMISTRY-III

[Theory (BP401T)]

Time Allowed : Three hours

Maximum Marks : 75

Note : Question paper is of three parts i.e. (A), (B) and (C). Part (A) consist of 20 MCQs each of 1 marks each. All questions are compulsory. Part (B) consist of 3 long answer questions of which attempt any two. Each of 10 marks. Part (C) consist of 9 short answer questions, attempt any seven questions. Each of 5 marks.

Part-‘A’

Note : Attempt all questions. Each question carries 1 mark.

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1. Multiple Choice Questions :

20×1=20

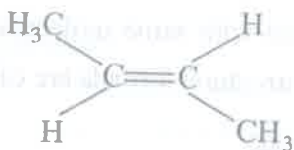
- (i) As per exchange rule during odd exchange, the configuration :
- (a) (R) remains (R) and (S) changes to (R)
- (b) (R) changes to (S) and (S) changes to (R)
- (c) (R) changes to (S) and (S) remains (S)
- (d) (R) remains (R) and (S) remains (S)

- (ii) The configuration of $\begin{array}{c} \text{Cl} \\ | \\ \text{I}-\text{C}-\text{Br} \\ | \\ \text{F} \end{array}$ is :

- (a) R
- (b) S
- (c) R and S
- (d) Neither R nor S
- (iii) The isomers of the substances must have :
- (a) Same chemical properties
- (b) Same molecular weight
- (c) Same structural formula
- (d) Same functional group

- (iv) Compound with same molecular formula and different structural formula are called :
- (a) Alkoxide
 - (b) Iso compounds
 - (c) Isomers
 - (d) Ortho compounds
- (v) A molecule is said to be chiral :
- (a) if it contains plane of symmetry
 - (b) if it contains centre of symmetry
 - (c) if it cannot be superimposed on its mirror image
 - (d) if it can be superimposed on its mirror image
- (vi) Which of the following compounds exhibit geometrical isomerism?
- (a) 1-pentene
 - (b) 2-methyl-2-pentene
 - (c) 2-pentene
 - (d) 2-methyl 1-2-butene

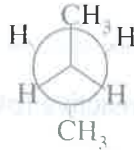
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- (vii) The configuration of following compound is :
- (a) Cis-2-butene
 - (b) Trans-2-butene
 - (c) Cis-3-butene
 - (d) Both (a) and (b)
- (viii) The order of stability of different conformers of cyclohexane is :
- (a) Chair > boat > twist boat > half chair
 - (b) Boat > twist boat > chair > half chair
 - (c) Half chair > chair > twist boat > boat
 - (d) Chair > twist boat > boat > half chair
- (ix) Conformational isomers are formed :
- (a) Due to restricted rotation about C-C double bond
 - (b) Due to restricted rotation about C-C single bond in cyclic ring

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- (c) Due to rotation about C-C single bond
- (d) Due to rotation about C-C double bond



- (x) The conformation of given n-butane is :
 - (a) Gauche
 - (b) Eclipsed
 - (c) Skew
 - (d) Anti
- (xi) Which of the following is a not a five membered ring?
 - (a) Pyridine
 - (b) Pyrrole
 - (c) Furan
 - (d) Thiophene
- (xii) Which of the following five membered ring is most resonance stabilized?
 - (a) Furan

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(b) Thiophene

(c) Pyrrole

(d) Pyridine

(xiii) Which is most reactive towards electrophile?

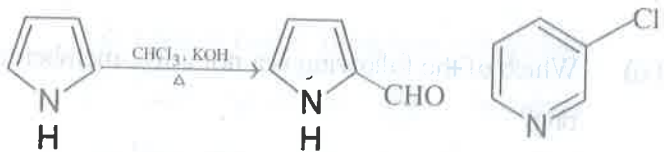
(a) Pyrrole

(b) Furan

(c) Thiophene

(d) Pyridine

(xiv) What is the name of the following reaction?



(a) Gattermann reaction

(b) Riemer tiemann reaction

(c) Friedal craft reaction

(d) Birch reaction

(xv) Which of them is a diazole?

(a) Pyrazole

(b) Pyrrole

- (c) Pyridine
 - (d) Pyrimidine
- (xvi) Gabriel synthesis is used to synthesize :
- (a) Pyrazole
 - (b) Pyrrole
 - (c) Pyridine
 - (d) Imidazole
- (xvii) The reaction of phenylhydrazine with aldehyde or ketone in presence of $ZnCl_2$ gives :
- (a) Oxazole
 - (b) Thiazole
 - (c) Indole
 - (d) Quinoline
- (xviii) Electrophilic aromatic substitution reaction in pyridine takes place at :
- (a) C-2
 - (b) C-3
 - (c) C-4
 - (d) C-5

- (xix) Which of the following isomeric compounds show optical isomerism?
- (a) 1-aminopentane
 - (b) 2-aminopentane
 - (c) 3-aminopentane
 - (d) 2, 2-dimethylpropylamine
- (xx) Reduction of hydrazones, semicarbazones or azines of aldehydes and ketones to hydrocarbons in vigorously basic conditions (C_2H_5ONa or $NaOH$) with the evolution of nitrogen is known as
- (a) Wolf-Kishner reduction
 - (b) Claisen-Schmidt condensation
 - (c) Oppenauer-oxidation
 - (d) Clemmensen reduction

Part-'B'

(Long Answer Type Questions)

*Note : Attempt any two question out of 3 question.
Each question carries 10 marks.*

2. What do you mean by conformation? Explain in detail the conformational isomerism in cyclohexane.

3. Explain the synthesis, reactions and medicinal uses of Pyrrole.
4. Explain the mechanism of Oppenauer-oxidation and Wolff Kishner reduction.

Part-‘C’

(Short Answer Type Questions)

*Note : Attempt any 7 questions out of 9 questions.
Each question carries 5 marks.*

5. Define optical isomerism and explain the optical isomerism of Lactic acid in detail.
6. Differentiate the following :
 - (i) Enantiomers & Diastereomers
 - (ii) Cis & Trans isomers
7. Explain the relative aromaticity and reactivity of Pyrrole, Furan and Thiophene with proper reasoning.
8. Explain the mechanism and synthetic importance of Dakin reaction.

9. Define Atropisomerism and explain the R, S notation and conditions to show atropisomerism.
10. Pyridine is more basic than pyrrole and aniline, while it is less basic than imidazole. Give reason?
11. Explain in brief synthesis, reactions and uses of quinoline.
12. Write a note on Geometrical isomerism.
13. Explain in brief synthesis, reactions and uses of indole.

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**B. Pharmacy (Fourth Semester) Examination,
April-May 2020**

(PCI Scheme)

(Pharmacy Branch)

MEDICINAL CHEMISTRY-I

THEORY (BP402T)

Time Allowed : Three hours

Maximum Marks : 75

Note : *The question paper consists of three parts i.e. A, B and C. Part A consists of 20 MCQs of 1 mark each. All questions are compulsory. Part B consists of 3 questions out of which 2 questions should be attempted, 10 marks each. Part C consists of nine questions out of which attempt 7 questions 5 marks each.*

Part-A **20×1=20**

Note : *Attempt all questions.*

1. Multiple Choice Questions :

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- (i) Location of M1 Receptor is :
- (a) Autonomic Ganglia
 - (b) Heart
 - (c) Smooth Muscle
 - (d) All of the above
- (ii) Bioisosteres are similar in which parameter :
- (a) Physical
 - (b) Chemical
 - (c) Biological
 - (d) Both (a) and (b)
- (iii) Solubility of drug in a particular solvent depends on :
- (a) Chemical structure
 - (b) Particle size
 - (c) Crystal formation
 - (d) All of the above
- (iv) What is the protein content of cytochrome P450 :
- (a) Heme protein CYP450
 - (b) NADPH- CYP450 reductase

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- (c) NADH- CYP450 reductase
 - (d) Both (b) and (c)
- (v) Which of the following is not Phase 1 metabolic reaction :
- (a) Reduction of ketone
 - (b) Conjugation of alcohol
 - (c) Monoamine oxidase
 - (d) Ester hydrolysis
- (vi) All muscarinic receptors are :
- (a) Ligand Gated ion channels
 - (b) G-protein coupled receptor
 - (c) Enzyme linked receptors
 - (d) Nuclear receptor
- (vii) The amino acid precursor for the catecholamine is :
- (a) Serine
 - (b) Phenylalanine
 - (c) Tyrosine
 - (d) Choline

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- (viii) The alpha methyl substitution on the ethylene bridge of Acetylcholine shows increase in :
- (a) Muscarinic activity
 - (b) Nicotinic activity
 - (c) Both of the above
 - (d) None of the above
- (ix) Dicyclomine belong to which of the following category?
- (a) Antiparkinsonian
 - (b) Vasoselective
 - (c) Antisecretory-antispasmodic-Quaternary Compounds
 - (d) Antisecretory-antispasmodic-Tertiary amine
- (x) Tolazoline is :
- (a) Alpha 1 selective
 - (b) Alpha 2 selective
 - (c) Both Alpha 1 and Alpha 2 selective
 - (d) None of the above

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- (xi) Naturally occurring Noradrenaline is rapidly metabolized by :
- (a) COMT
 - (b) MAO
 - (c) Cholinesterases
 - (d) None of the above
- (xii) Barbiturates act by :
- (a) Increasing GABA inhibition
 - (b) By binding to A1 receptor
 - (c) Through GPCR
 - (d) All of the above
- (xiii) Antipsychotic drugs are also called :
- (a) CNS depressant
 - (b) CNS Stimulant
 - (c) Neuroleptics
 - (d) Antidepressant
- (xiv) Which of the following is a D2 blocker?
- (a) Clozapine
 - (b) Loxapine Succinate

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- (c) Haloperidol
- (d) Prochlorperazine Malcate
- (xv) Hydantoin is :
- (a) Imidazolidine-2, 2-dione
- (b) Imidazolidine-2, 4-dione
- (c) Imidazolidine-2, 5-dione
- (d) Imidazolidine-2, 3-dione
- (xvi) Which of the following is selective NMDA receptor antagonist?
- (a) Ketamine
- (b) Thiopental
- (c) Diazepam
- (d) Methohexital
- (xvii) Which of the following is the drug of choice in cardiac surgery for anesthesia?
- (a) Enflurane
- (b) Isoflurane
- (c) Halothane
- (d) Thiopentone

- (xviii) Which one is not an Opioid receptor?
- (a) Mu
- (b) Kappa
- (c) Delta
- (d) Gamma
- (xix) Aspirin is a :
- (a) p-amino phenol derivative
- (b) Salicylic acid Derivative
- (c) Anthranilic acid derivative
- (d) Oxicam Derivative
- (xx) Which one of the following is a selective COX-2 Inhibitor?
- (a) Etorcoxib
- (b) Piroxicam
- (c) Miloxicam
- (d) Diflunisal

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Part-B

2×10=20

Note : Answer any two question from Part-B. All question carry equal marks.

2. Define and classify the cholinergics with examples along with their receptors location. Write SAR of acetylcholine and give synthesis, properties and uses of Carbachol.
3. Give the schematic diagram for biosynthesis of catecholamines. What is the location of different adrenergic receptors? Elaborate the synthesis, properties, uses and SAR of Propranolol.
4. What are sedatives and hypnotics? Write the synthesis, properties, uses and SAR of Diazepam.

Part-C

5×7=35

Note : Answer any seven question from Part-C. All question carry equal marks.

5. Write a note on Bioisosterism.
6. Elaborate the effect of different physico chemical properties of a drug molecule on its biological action.

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7. Write the structure, synthesis, properties mechanism of action and uses of Salbutamol.
8. Explain the Phase I metabolic reactions of the drugs.
9. Write the structure, synthesis, properties mechanism of action and uses of Procyclidine hydrochloride.
10. Classify Non steroidal anti-inflammatory drugs. Give the synthesis of Ibuprofen.
11. Explain the SAR of Anticonvulsants. Write the Synthesis of Phenytoin.
12. Define and classify General Anaesthetics. Give the synthesis of Halothane.
13. Elaborate the SAR of Phenothiazines.

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**B. Pharmacy (Four Semester) Examination,
April-May 2020**

(PCI Scheme)

(Pharmacy Branch)

PHYSICAL PHARMACEUTICS-II

THEORY (BP403T)

Time Allowed : Three hours

Maximum Marks : 75

Note : Answer questions A, B and C as per the given options.

Part-A

1×20=20

Note : Attempt all questions.

1. Multiple Choice Questions :

[2]

- (i) According to the Universal Gas law :
- (a) $V \propto 1/P$
 - (b) $V \propto T$
 - (c) $P \propto V$
 - (d) $V \propto RnT/P$
- (ii) Which of the following does not influence polymorphism :
- (a) Crystallization process
 - (b) Temperature at which crystallization occurs
 - (c) Size of the crystals formed
 - (d) Solvent used for crystallization
- (iii) Which of the following crystals cannot conduct electricity :
- (a) Tetragonal
 - (b) Rhombic
 - (c) Cubic
 - (d) Hexagonal
- (iv) Which of the following statements is correct :

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- (a) Lipophilicity of an organic compound is usually described in terms of its partition coefficient
 - (b) The distribution coefficient of a drug does not affect the pharmacological action of the drug
 - (c) It cannot be used to calculate lipophilic character of a drug
 - (d) The values of pIC_{50} or pEC_{50} indicate the safety of a therapeutic agent
- (v) Microfiltration process is used to separate :
- (a) Colloidal particle from macroparticle
 - (b) Bacteria from injectable solution
 - (c) Electrolyte from water
 - (d) Nonelectrolyte from water
- (vi) Which of the following statement is correct :
- (a) Solubility and dissolution are same
 - (b) Solubility is an extrinsic property of a substance
 - (c) Dissolution is an intrinsic property
 - (d) Dissolution is an extrinsic property

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- (vii) Solution is a :
- (a) Molecular dispersion of solute in a solvent
 - (b) Dispersion of particles in a solvent
 - (c) Dispersion of fine particles in a solvent
 - (d) None of the above
- (viii) Which of the following solvent is aprotic :
- (a) Pyridine
 - (b) Methanol
 - (c) 2-propanol
 - (d) Ethyl acetate
- (ix) Which of the following statements is correct :
- (a) Solvates are obtained when some water of crystallization is removed from the original crystal
 - (b) Solvates are obtained when some water molecules are entrapped within the original crystal
 - (c) Solvates and amorphous solids are same
 - (d) None of the above

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- (x) Dipole moment of a polar compound is expressed as :
- (a) $\mu = q + r$
 - (b) $\mu = q - r$
 - (c) $\mu = q / r$
 - (d) $\mu = q \times r$
- (xi) The molar mass of a compound is called :
- (a) Constitutive property
 - (b) Additive and constitutive property
 - (c) Additive property
 - (d) Chemical property
- (xii) The variation in optical rotation due to variation in the wavelength in polarized light is called :
- (a) Raman effect
 - (b) Cotton effect
 - (c) Dispersion effect
 - (d) Rotator effect
- (xiii) Sedimentation method is useful for :
- (a) Very fine particles

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- (b) The materials which do not settle fast
 - (c) The materials which do not settle easily
 - (d) Particles less than 0.2 μm in size
- (xiv) Average particle size in terms of mean diameter is expressed as :

$$(a) \quad d_{\text{mean}} = \left(\frac{\sum nd^{p+f}}{\sum nd^f} \right)^{1/p}$$

$$(b) \quad d_{\text{mean}} = \left(\frac{\sum nd^{p-f}}{\sum nd^f} \right)^{1/p}$$

$$(c) \quad d_{\text{mean}} = \left(\frac{\sum nd^{p \times f}}{\sum nd^f} \right)^{1/p}$$

$$(d) \quad d_{\text{mean}} = \left(\frac{\sum nd^{p+f}}{\sum nd^f} \right)^{1/p}$$

- (xv) Which of the following statements is correct :
- (a) The value of ionization constant depends on the temperature

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- (b) The ionization constant does not depend on the temperature
- (c) The ionization constant is independent of the temperature
- (d) The ionization constant depends on the pressure

(xvi) Acetic acid is a weak acid, because :

- (a) It has low ionization
- (b) It has high molecular weight
- (c) It exists as dimer
- (d) It is volatile

(xvii) The drug-protein complexes can cause :

- (a) Poor distribution of drug within the body
- (b) Increased therapeutic action of drug
- (c) Increase in metabolism of drug
- (d) Decrease in biological half-life of the drug

(xviii) The stability constant of a complex increased, when the ligand contains :

- (a) Highly soluble group

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- (b) Less ionization potential
 - (c) Bulky group
 - (d) The donor group of high electron density
- (xix) Ethylenediamine tetra-acetic acid is a ligand of :
- (a) Bidentate type
 - (b) Unidentate type
 - (c) Tetridentate type
 - (d) Hexadentate type
- (xx) Latent heat is associated with :
- (a) Polymorphism
 - (b) Chemical reaction
 - (c) Transformation of state of matter
 - (d) Transportation of matter

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Part-B $2 \times 10 = 20$

Note : Answer any two question from Part-B. All question carry equal marks.

2. Describe how a drug can diffuse through biological membrane.
3. Describe the method of determination of particle size by sedimentation method.
4. Explain the term 'thermodynamic stability of a complex' with relevant example.

Part-C $5 \times 7 = 35$

Note : Answer any seven question from Part-C. All question carry equal marks.

5. Briefly explain the factors related dosage form that influence the solubility of a drug.
6. Explain Hildebrand solubility parameter.
7. Explain the phase diagram of ice-water vapor system.

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8. How the optical activity is re-related to chemical composition?
9. Explain how optical rotation is a constitutive property?
10. Discuss about additive constitutive property of a compound.
11. Define the term porosity. What is its application in pharmacy?
12. Explain briefly the working principle of a Galvanic cell.
13. What are the various applications of drug-protein complexes?

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**B. Pharmacy (Fourth Semester) Examination,
April-May 2020**

(PCI Scheme)

PHARMACOLOGY-I-THEORY (BP404T)

(Pharmacy Branch)

Time Allowed : Three hours

Maximum Marks : 75

Note : This question paper contains three parts. A, B and C. Part-A contains 20 MCQ's of 1 mark each. All questions are compulsory in part-A. Part-B contains 3 long answer questions from part-B attempt any two carries 10 marks each. Part-C contains 9 short answer questions each of 5 marks. Attempt any 7 out of 9 questions from part-C.

Part-A

20×1=20

1. Attempt all sub-questions. Each sub-question carries 1 mark :

[2]

- (i) The study dealing with the mechanism of action of drugs is called :
- (a) Pharmacology
(b) Toxicology
(c) Pharmacodynamics
(d) Pharmacokinetics
- (ii) Transportation of drug from site of administration to blood is called :
- (a) Absorption
(b) Distribution
(c) Metabolism
(d) Excretion
- (iii) Drug that binds to its receptor and produces effect is called :
- (a) Agonist
(b) Antagonist
(c) Inverse agonist
(d) None of the above
- (iv) Which route of drug administration is the fastest?
- (a) Oral

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- (b) Intravenous
(c) Intramuscular
(d) Subcutaneous
- (v) Most of the drugs are excreted by :
- (a) GIT
(b) Skin
(c) Lungs
(d) Kidneys
- (vi) Adenylyl cyclase (AC) is associated with :
- (a) Ion channel coupled receptor
(b) G-protein coupled receptor
(c) Enzyme coupled receptor
(d) Nuclear receptor
- (vii) One of the following statement is FALSE for simple passive diffusion :
- (a) Movement of drug molecule from region of higher concentration to region of lower concentration
(b) Movement of unionized molecule through phospholipid bilayer of cell membrane

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- (c) Energy for the movement of molecule is provided by hydrolysis of ATPs
- (d) Rate of diffusion increases as concentration gradient increases
- (viii) Which of the followings is NOT the Adverse Effect of a drug?
- (a) Therapeutic effect
 - (b) Side effect
 - (c) Toxic effect
 - (d) Allergy
- (ix) Comparison of the maximum effect produced by two drugs is called
- (a) Effectiveness
 - (b) Efficacy
 - (c) Potency
 - (d) None of the above
- (x) Which of the followings is NOT a part of clinical trials?
- (a) Establishment of dose range
 - (b) Identification of side effects

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- (c) Toxicity studies
- (d) Drug interaction studies
- (xi) Post-Marketing Surveillance of a drug in the clinical trials is a part of:
- (a) Phase I
 - (b) Phase II
 - (c) Phase III
 - (d) Phase IV
- (xii) Which of followings is a class of neurotransmitters:
- (a) Amines
 - (b) Neuropeptides
 - (c) Neurosteroids
 - (d) All of the above
- (xiii) Category of Propranolol is:
- (a) Sympathomimetic
 - (b) Sympatholytic
 - (c) Parasympathomimetic
 - (d) Parasympatholytic

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- (xiv) Which one of the followings is local anaesthetics?
- (a) Atenolol
 - (b) Lignocaine
 - (c) Phenobarbitone
 - (d) Neostigmine
- (xv) Which one of the following effects is NOT produced by Acetylcholine?
- (a) Increased heart activity
 - (b) Increased salivary secretions
 - (c) Constriction of pupil
 - (d) Constriction of bronchial muscle
- (xvi) Valproate belongs to which category?
- (a) General anaesthetic
 - (b) Antiparkinsonian
 - (c) Antipsychotic
 - (d) Antiepileptic
- (xvii) Which drug is used for the management of alcoholism?
- (a) Rivastigmine
 - (b) Levodopa

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- (c) Disulfiram
 - (d) Diazepam
- (xviii) Which one of the followings is a mixed agonist-antagonist of opioid receptors?
- (a) Morphine
 - (b) Pentazocin
 - (c) Codeine
 - (d) Naloxone
- (xix) Nootropic drugs are used to :
- (a) Enhance mental ability
 - (b) Reduce pain
 - (c) Treat hypertension
 - (d) None of the above
- (xx) Selective serotonin reuptake inhibitors are mainly used for treatment of :
- (a) Schizophrenia
 - (b) Depression
 - (c) Epilepsy
 - (d) Alzheimer's disease

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[8]

Part-B

2×10=20

Long Answer Type Questions (Answer any 2 out of 3)

2. Define neurohumoral transmission. Describe various steps involved in neurohumoral transmission.
3. Classify antipsychotic drugs. Describe mechanism of action, uses and adverse effects of chlorpromazine.
4. Describe various pharmacological actions and adverse effects of adrenaline.

Part-C

7×5=35

Short Answer Type Questions (Answer any 7 out of 9)

5. Write a short note on pharmacodynamic drug interactions.
6. How hepatic enzyme induction and inhibition affects bioavailability of drugs?
7. Enlist various routes of drug administration. Write advantages and disadvantages of oral route.
8. Write different stages of inhalation general anaesthesia.

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9. Write mechanism of action and adverse effects of lignocaine.
10. Classify opioids. Discuss their adverse effects.
11. Classify antiparkinsonian drugs. What are the benefits of combination therapy of levodopa with carbidopa?
12. Enlist the drug used in Alzheimer's disease. Write their mechanism of action.
13. Write a short note on phenytoin.

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**B. Pharmacy (Fourth Semester) Examination,
April-May 2020**

(PCI Scheme)

(Pharmacy Branch)

PHARMACOGNOSY-I

(Theory : BP405T)

Time Allowed : Three hours

Maximum Marks : 75

Note : Question paper is of three parts i.e. Part A, B and C. Part A consist of 20 MCQ's each of 1 mark. All questions are compulsory. Part B consists of 3 long answer questions of which attempt any two. Each of 10 marks. Part C consists of 9 short answer questions, attempt any seven question. Each of 5 marks.

[2]

Part-A

(Multiple Choice Questions) 20×1=20

1. (i) Who is known as father of medicine :
- (a) Aristotle
 - (b) Dioscorides
 - (c) Hippocrates
 - (d) Galen
- (ii) Which one is not come under the class of organized drug :
- (a) Leaves
 - (b) Flowers
 - (c) Fruits
 - (d) Gums
- (iii) Morphological classification of crude drugs include :
- (a) Barks
 - (b) Leaves
 - (c) Gums
 - (d) All the above

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- (iv) The estimation of potency of crude drug or its preparation on living organisms is known as :
- (a) Bioassay
 - (b) Radio immunoassay
 - (c) Lycopodium spore method
 - (d) None of the above
- (v) In method, the plants are raised from seed.
- (a) A sexual method
 - (b) Sexual method
 - (c) Seedlings
 - (d) Vegetative propagation
- (vi) The disease in which greyish-white irregular spots formed on the leaf is known as :
- (a) leaf necrosis
 - (b) leaf spot
 - (c) Phytophthora root
 - (d) Phytophthora rot disease

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- (vii) Which one is not naturally occurring auxin ?
- Indole acetic acid (IAA)
 - Indole-3 acetonitrile (IAN)
 - 4-chloro indole 3-acetic acid
 - 2, 4-dichloro phenoxy acetic acid (2, 4-D)
- (viii) hormone is responsible for seed germination.
- Auxin
 - Gibberellin
 - Ethylene
 - Absciscic acid
- (ix) Name the term given to the ability of single cells to divide and produce all differentiated cell in the plant :
- Unipotent
 - Pluripotent
 - Multipotent
 - Totipotency

- (x) Saponin method is used for extraction of :
- Glycoside
 - Alkaloid
 - Terpenoids
 - Resins
- (xi) Keller-Kiliani test is positive for :
- Digitoxose
 - Gitoxose
 - Digitoxigenin
 - Gitoxigenin
- (xii) The proto alkaloids are also called as :
- Pseudo alkaloid
 - True alkaloid
 - Extra alkaloid
 - Amino alkaloid
- (xiii) Homogenous mixture of resin & oil are called as :
- Oleogum
 - Oleoresin

- (c) Glycoresin
 - (d) Balsam
- (xiv) Condensed tannins are called as :
- (a) Hydrolysable tannins
 - (b) Pseudotannin
 - (c) Non hydrolysable tannin
 - (d) Proto tannin
- (xv) Chemical test for identification of carbohydrates :
- (a) Ninhydrin
 - (b) Molisch
 - (c) Borntager
 - (d) Baljet
- (xvi) Acid value is defined as :
- (a) No. of milligram of potassium hydroxide required to neutralize one gram of fat or oil.
 - (b) No. of gram of potassium hydroxide required to neutralize one gram of fat or oil.
 - (c) No. of kilogram of potassium hydroxide required to neutralize one gram of fat or oil.

- (d) No. of ml of potassium hydroxide (SN) required to neutralize one gram of fat or oil.
- (xvii) Ash value of crude drug determines the :
- (a) Organic constituents
 - (b) In-organic constituents
 - (c) Cell constituents
 - (d) Chemical constituents
- (xviii) Swelling index is used to determine the amount of following in crude drug :
- (a) Moisture
 - (b) Volatile oil
 - (c) Crude fibres
 - (d) Mucilage
- (xix) Saffron is admixed with dried flowers of :
- (a) Carthamus tinctorius
 - (b) Exhausted saffron
 - (c) Scented bdellium
 - (d) Clove flower bud

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(xx) Which drug is not from mineral origin :

- (a) Asbestos
- (b) Calamine
- (c) Paraffin
- (d) Urokinase

Part-B

(Long Answer Type Questions) 2×10=20

2. Write in detail about factors influencing cultivation of medicinal plants?
3. What is plant tissue culture? Define and classify and give a brief description of application of plant tissue culture?
4. Describe basic principles of Ayurveda, Unani, Siddha and Homeopathy?

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Part-C

(Short Answer Type Questions) 7×5=35

5. Give definition & scope of pharmacognosy?
6. Explain chemo and sero taxonomical classification of drugs?
7. What are plant hormones? What is their role and application?
8. Define and describe adulteration of drugs of natural origin?
9. Write short notes on edible vaccines and natural allergens?
10. Give the biological source, chemical nature & uses of papain, castor oil, beeswax & honey?
11. Give the definition of alkaloids; And write down tests & classification of it?

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12. Write exhaustively about novel medicinal agents from marine sources?

13. Define & describe polyploidy & mutation with reference to medicinal plants?