St. Philomena's College (Autonomous), Mysore

PG Department of Biochemistry

Question Bank (Revised Curriculum 2018 onwards)

First Year- Second Semester (2019-20 Batch)

Course Title (Paper Title): Pharmacology of Plant Products. QP Code -96503

Unit	Sl. No	Questions	Marks
1	1.	What is a crude drug? Give an example	2
1	2.	Define pharmacognasy.	2
1	3.	Name any two systems of classification of crude drug	2
1	4.	What is a pro drug? Give an example	2
1	5.	Define crude drug and pro drug	2
1	6.	Distinguish between pro drug and crude drug.	2
1	7.	Name any two systems of classification of crude drug	2
1	8.	Name any two seeds with the main active principle in it	2
1	9.	Name any two barks with the main active principle in it	2
1	10.	Define therapeutic index	2
1	11.	Mention any two sources of drugs with an example	2
1	12.	Name a drug with chemical , propioratory and brand name	2
2	13.	What is herbal tincture?	2
2	14.	Give examples for any two Ayurvedic plants with an application for each.	2
2	15.	Mention any two historical references for usage of plants as drugs.	2
3	16.	Write the resonating structure of ferulic acid radical.	2
3	17.	What are polyphenols? Give the natural sources of Polyphenols.	2
3	18.	Write the structure and sources of Gallic acid.	2
3	19.	List factors responsible for an efficient antioxidant activity of the Gallic acid molecule?	2
3	20.	What are tannins? Give examples.	2
3	21.	What are the natural sources of Ellargic acid	2
3	22.	What are Alkaloids? Give examples.	2
3	23.	Report structure and sources of Ellargic Acid.	2
3	24.	Report structure and sources of Ferulic Acid.	2
3	25.	Report structure and sources of Nicotine.	2
3	26.	Report structure and sources of Caffeic Acid.	2
3	27.	What are Flavonoids? Give examples.	2
3	28.	Report structure and sources of cannabidiol.	2
3	29.	Illustrate Sesqiterpenes with examples.	2
3	30.	Illustrate diterpenes with examples.	2
4	31.	What are bioactive compounds? Give their biological significance.	2
4	32.	What are bioactive compounds? Give its classification	2

4	33.	What is chromatography? How can it be used in extraction or purification of bioactive compounds?	2
4	34.	What is paper chromatography? How can it be used in extraction or purification of bioactive compounds?	2
4	35.	What is HPLC? How can it be used in extraction or purification of bioactive compounds?	2
4	36.	What is ion exchange chromatography? How can it be used in extraction or purification of bioactive compounds?	2
4	37.	What is thin layer chromatography? How can it be used in purification of bioactive compounds?	2
4	38.	What is gas chromatography? How can it be used in identification of bioactive compounds?	2
4	39.	What is column chromatography? How can it be used in extraction or purification of bioactive compounds?	2
4	40.	What is flash column chromatography? How can it be used in extraction or purification of bioactive compounds?	2
4	41.	What is molecular exclusion chromatography? How can it be used in extraction or purification of bioactive compounds?	2
4	42.	What is affinity chromatography? How can it be used in extraction or purification of bioactive compounds?	2
4	43.	What is spectroscopy? What are the different types? How can it be used in identification of bioactive compounds?	2
4	44.	What is UV-spectroscopy? What are the different types? How can it be used in identification of bioactive compounds?	2
4	45.	What is infrared spectroscopy? What are the different types? How can it be used in identification of bioactive compounds?	2
4	46.	What is NMR? How can it be used in identification of bioactive compounds?	2
4	47.	What is mass spectroscopy? How can it be used in identification of bioactive compounds?	2
4	48.	Which are the factors that affect extraction and purification protocols of bioactive compounds?	2
4	49.	How Phenolic Compounds are extracted Using Solvents?	2
4	50.	What is MAE? Give its significance	2
4	51.	What is Ultrasonic-Assisted Extraction? Give its significance	2
4	52.	How is Fractional Crystallization used in extraction of bioactive compounds? Give its significance	2
4	53.	What is Fractional Distillation ? Give its significance	2
4	54.	What is fractional liberation? Give its significance	2
4	55.	What is sublimation? Give its significance	2
4	56.	What is maceration? Give its significance	2
4	57.	What is percolation? Give its significance	2

4	58.	What is reserve percolate method? Give its significance	2
4	59.	What is Soxhlet extraction? Give its significance	2
4	60.	What Is large scale extraction? Give its significance	2
4	61.	What is supercritical fluid extraction? Give its significance	2
4	62.	What are the different types of extracts?	2
4	63.	What is Quercetin? Give its structure	2
4	64.	What is Ellargic acid? Give its structure	2
4	65.	What is Curcumin? Give its structure	2
4	66.	What is diabetes mellitus? What are its types?	2
4	67.	What are the complications associated with diabetes mellitus?	2
4	68.	What are CVD's? Which are the different types?	2
4	69.	What are the complications associated with CVD's? give its symptoms	2
4	70.	What is Alzheimer's disease? What are the complications associated with it?	2
4	71.	What is cancer? What are the different types of cancers?	2
4	72.	What are the complications associated with cancer?	2
5	73.	Mention the different drug delivery systems.	2
5	74.	Give the significance of sustain release dosage form.	2
5	75.	What is enteric coated drug delivery system? Give an example	2
5	76.	How does sustain release is different from that of enteric coated drug release?	2
5	77.	Give the significance of enteric coated release dosage form.	2
5	78.	Define dosage form.	2
5	79.	Give the merits of sustain release dosage form.	2
5	80.	Give the demerits of sustain release dosage form.	2
5	81.	Mention the merits of enteric coated release dosage form.	2
5	82.	Mention the demerits of enteric coated release dosage form.	2
5	83.	What is sustained release drug delivery system? Give an example	2
5	84.	Differentiate between controlled release & sustain release.	2
5	85.	What is the purpose of an enteric coating on a tablet?	2
5	86.	What is liposome mediated drug delivery system?	2
5	87.	What is nanoparticle mediated drug delivery system?	2
6	88.	Define a. Pharmacokinetics b. Therapeutic Index	2
6	89.	Define Pharmacokinetics and Pharmacodynamics.	2
6	90.	Define Zero order process. Give example.	2
6	91.	Distinguish onset of action from onset time?	2
6	92.	What is PK/PD Modeling?	2
6	93.	Compare Pharmacokinetics with Pharmacodynamics.	2
6	94.	Formulate equation to determine **t1/2** of Zero order kinetics	2
6	95.	Formulate equation to determine t1/2 of First order kinetics	2
6	96.	Explain Peak Plasma Concentration.	2

6	97.	Explain Pharmacokinetic models.	2
6	98.	List the different approaches to pharmacokinetic analysis.	2
6	99.	Distinguish rate and order of reaction.	2
6	100.	List the rate processes encountered in physiologic system.	2
6	101.	Explain Mixed order Kinetics.	2
6	102.	Report equation for elimination half-life	2
7	103.	Prepare pictorial representation of One-Compartment Open Model IV Bolus	2
7	104.	Draw diagram representing One-Compartment Open Model -intravenous Infusion	2
7	105.	What is partial agonist? Give example.	2
7	106.	Define receptors.	2
7	107.	What are agonists? Give example	2
7	108.	Define Pharmacodynamics.	2
7	109.	Mention the principles of drug action	2
7	110.	Describe Stimulation.	2
7	111.	What are depressants?	2
7	112.	Give examples of replacement drugs.	2
7	113.	Differentiate Affinity from Intrinsic Activity	2
7	114.	Differentiate Partial agonists from Agonist.	2
7	115.	What are the categories of body tissues in two compartment model?	2
7	116.	List the categories of two compartment models.	2
8	117.	What is a clinical trial? Give its significance	2
8	118.	What is a patent? How it is important?	2
9	119.	What Is AYUSH? What is its importance?	2
9	120.	What is Ayurveda? What is its importance?	2
9	121.	Enlist 4 important Ayurvedic drugs and its application	2
10	122.	What are Pre-clinical pharmacokinetic studies? Give its significance	2
10	123.	What are Pre-clinical pharmacodynamic studies? Give its significance	2
10	124.	What is Lipinski's rule? Give its significance	2
10	125.	What is high throughput screening? Give its significance	2
10	126.	What are the goals and applications of high throughput screening?	2
10	127.	Which is the biochemical techniques used in HTS? What is their significance?	2
10	128.	What are a lead and a hit?	2
10	129.	What are the different approaches of HTS?	2
10	130.	What is vascular mapping? What is its significance?	2
10	131.	What is tissue perfusion? What is its significance?	2
10	132.	What is thermal shift analysis? What is its significance?	2
10	133.	How is combinatorial chemistry used in HTS?	2
1	1.	Discuss on therapeutic drug monitoring system.	5

1	2.	Write a note on history and scope of pharmacognasy.	5
1	3.	Write a note on different sources of drugs.	5
1	4.	Explain the different routes of drug administration .	5
2	5.	Discuss briefly the history of plants usage as drugs.	5
2	6.	Write short note on history of usage of plants as drugs.	5
2	7.	Explain the historical aspect of usage of whole plants as drugs.	5
2	8.	Explain the historical aspect of usage of plant extracts as drugs.	5
2	9.	What are alternative medicines? Write a note on their pros and cons.	5
3	10.	Discuss about Ellargic acid as alternative Medicine.	5
3	11.	What is the role of Secondary metabolites in plant physiology?	5
3	12.	Explain the therapeutic importance of ferulic acid.	5
3	13.	What are Terpenes? Write the classification of terpenes with examples.	5
3	14.	Explain the role of qucertin in plant physiology and as alternative medicine.	5
3	15.	What is isoprene rule? Write the classification of terpenes with example	5
3	16.	Discuss the role of Quercetin as an alternative medicine.	5
3	17.	Discuss the therapeutic importance of Ellargic acid.	5
3	18.	Explain the role of CBD's in neural disorders.	5
3	19.	Explain the therapeutic importance of ferulic acid.	5
3	20.	Discuss the role of Nicotine as an alternative medicine.	5
3	21.	Discuss the role of Gallic acid as an alternative medicine.	5
3	22.	Summarize the role of secondary metabolites in plant physiology	5
3	23.	Discuss the structure and plant physiological functions of Gallic acid.	5
3	24.	Discuss the structure and plant physiological functions of ferulic acid.	5
3	25.	Discuss the structure and plant physiological functions of Ellargic acid.	5
3	26.	Explain the therapeutic importance of terpenes.	5
3	27.	Summarize the classification of alkaloids.	5
3	28.	Explain therapeutic importance of caffeine.	5
4	29.	Give a detailed account on the different types of biochemical techniques used in isolation purification and characterization of bioactive compounds	5
4	30.	Give a detailed account on the different types of extraction protocols used to extract bioactive components from plant sources	5
4	31.	Give the structure and biological significance of Quercetin	5
4	32.	Give the structure and biological significance of Ellargic acid	5
4	33.	Give the structure and biological significance of curcumin	5
4	34.	Give a detailed account on the medicinal plants used to treat diabetes mellitus	5
4	35.	Comment on the usage of medicinal plants in CVDS	5
4	36.	Discuss the usage of medicinal plants in treating Alzheimer's disease	5
4	37.	Briefly explain the MOA of podophyllum, taxanes and vinca.	5
4	38.	Add a lime light on the MOA of camptothecin and curcumin in cancer cells	5

4	39.	What is the pathophysiology of cancer? Explain the MOA of any one of the medicinal plant used to treat cancer	5
5	40.	Explain the characteristics of drug for formulation as sustained release dosage form	5
5	41.	Write a note on liposome mediated drug delivery system.	5
5	42.	What are sustained release and controlled release drug delivery systems? Explain on their pros & cons	5
5	43.	Write short note on nanoparticle mediated drug delivery system.	5
5	44.	Explain the characteristics of drug for formulation as enteric coated drug release.	5
6	45.	Explain the following terms: a. MEC, b. MSC, c. Therapeutic Index d.Peak Plasma Concentration. e. Onset time	5
6	46.	Write the advantages of Compartment modeling approach.	5
6	47.	What is compartment model? Explain one compartment open model.	5
6	48.	The half life for the 1^{st} order photolysis of cefotaxime solution containing 150 mg drug is 50 minutes. How long it will take for drug to decompose to 20% of its original amount?	5
6	49.	What is PK/PD Modeling? Elaborate on Linear model approach to explain PK/PD model.	5
6	50.	The half-life for first-order photolysis of cefotaxime solution containing 150 mg drug is 50 minutes. a. How long will it take for the drug to decompose to 20% of its original amount?	5
6	51.	Deduce mathematically rate constant for Zero Order Kinetics.	5
6	52.	Deduce mathematically rate constant for First Order Kinetics.	5
6	53.	A Penicillin solution containing 300 units/ml has Half-life of 8 days in Plasma. What will be the concentration in 7 days?	5
6	54.	A Penicillin solution has a Half-life of 6 days. How long it will take for the concentration to drop to 70% of the initial concentration?	5
6	55.	A Penicillin solution has an initial potentency of 90mg/ 6ml. After one month in a cold room, the concentration is found to be 80mg/6ml. What is the half-life of Penicillin solution under the storage conditions?	5
6	56.	Construct Plasma Drug concentration- Time profile and Label all terms involved.	5
6	57.	Summarize Clearance.	5
7	58.	Mathematically devise one compartment open model Intravenous infusion	5
7	59.	Mathematically devise one compartment open model Intravenous Bolus	5
7	60.	Describe briefly about principles of drug action.	5
7	61.	Explain action of Agonist with suitable example.	5
7	62.	Summarize principles of drug action.	5
7	63.	Illustrate Antagonist with suitable example.	5
7	64.	Explain partial agonist with suitable example.	5
7	65.	Describe the following Terms: I. Affinity ii. Intrinsic Activity iii. Partial	5

		Agonist	
8	66.	Explain in detail the evaluation of crude drug.	5
8	67.	Explain the various phases of clinical trial.	5
8	68.	Write a note on new drug development process.	5
8	69.	Briefly discuss on drug registration.	5
8	70.	Explain the process of clinical evaluation of drugs.	5
9	71.	What is AYUSH? Explain the applications of Ayurvedic drugs in treating diseases.	5
10	72.	Explain the general steps involved in HTS.	5
10	73.	Explain the biochemical screen approach of HTS	5
10	74.	Explain the cell based and organism based screen approach of HTS	5

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Question Paper Pattern- Model Question Paper

Q.P Code: 96503

19.3.20

St. Philomena's College (Autonomous) Mysore

II Semester M.Sc. Makeup Examination August - 2019

Interdisciplinary

Subject: BIOCHEMISTRY

Title: PHARMACOLOGY OF PLANT PRODUCTS (SC)

:: 3 Hours | Max Marks: 70

PART –A

Answer any TEN of the following: 10×2=20

a. Name any two plant sources of drugs with an example.

b. Give the pharmacological applications of Turmeric.

c. What are secondary metabolites? Give an example.

d. Mention the application of Quercetin as a drug.

e. What is sustained release? Give its significance.

f. Differentiate between antagonist and partial agonist.

g. State Lipinski's rule for drug-like molecule.

h. What is an alternative medicine? Give its advantages.

i. Define a drug. Give an example with its propiatry name.

j. Mention any two ethics to be followed in drug development.

k. What is pK and pD? Why do we need to study them?

l. What is herbal tincture? Give its composition.

PART –B

Answer any FIVE of the following: 5×10=50

2. a. What is therapeutic index? Explain the basic principles of therapeutic drug Monitoring system.

   b. Give an account on routes of drug administration. 5+5

3. a. Comment on historical record of usage of plant products as drugs.

   b. Explain how flavanoids and alkaloids can be used as alternative medicine? 5+5

4. a. Discuss the use of plant and its components in treatment of Alzheimer's disease

   b. Explain different drug delivery systems with suitable examples. 5+5

5. a. Explain one compartment model for pharmacokinetic study.

   b. Explain the mechanism of drug action with reference to drug receptor interaction. 5+5

PTO

6. a. Give on account on phases of clinical trial.

   b. Explain the process of new drug development.

7. a. Write short note on AYUSH.

   b. Explain the process of preparation of phytochemical extract.

8. **Write short notes on any two of the following:**

   a. Pre-clinical studies

   b. Biological action of curcumin and Ellargic acid

   c. Concept of prodrug

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