

KATHMANDU UNIVERSITY  
End Semester Examination  
May/June, 2022

Marks Scored:

Level : B. Pharm.

Course : PHAR 214

Year : II

Semester: II

Exam Roll No. :

Time: 30 mins.

F. M. : 20

Registration No.:

Date :

SECTION "A"  
[15Q. × 1 = 15 marks]

Encircle the most appropriate answer.

- The first semisynthetic drug based on a natural product is aspirin, developed by combination of .....and .....
  - Acetic acid and Salicylic acid
  - Acetic anhydride and Acetoxysulfonic acid
  - Formic acid and Salicylic acid
  - Salicylic acid and Acetic anhydride
- The compounds working for Anti-hypertensive and Anti-cancer are, ..... and ..... respectively.
  - Pilocarpine and Atropine
  - Colchicine and berberine
  - Reserpine and vincristine
  - Heroin and Quinine
- Alkaloids and Terpenoids are mainly biosynthesized from, ..... pathway and ..... pathway respectively.
  - Shikimate pathway and Acetate pathway
  - Shikimate pathway and Mevalonate pathway
  - Acetate pathway and Pentose phosphate pathway
  - Mevalonate pathway and Shikimate pathway
- Example of O-Glycoside and S-Glycosides are, ..... and ..... respectively
  - Rhein-8-Glycoside and Sinigrin
  - Aloin and Sennoside
  - K-Strophanthidin and Quabain
  - Rhein and Cascarisid A
- Choose a group of metabolites having potential vaso-protective property
  - Nobelitein and Tangeratin
  - Salicylic acid and Rutin
  - Rutin and Hidrosmin
  - Resveratrol and Taxol
- The highest percentage of alkaloids are found among the following crude drugs
  - Coca leaves
  - Nuxvomica seed
  - Ipecac root
  - Ergot sclerotia
- Find a class of plant metabolite which are completely insoluble in water
  - Tannins
  - Flavanoids
  - Carotens
  - Carbohydrates
- Choose a Digitalis glycoside having highest number of -OH group in structure
  - Digitoxigenin
  - Gitaligenin
  - Digtenin
  - Gitoxigenin

9. Liquorice is mainly used in the treatment of
- Conjunctivitis and demulcent
  - Peptic ulcer and expectorant
  - Allergy and diarrhea
  - Skin and heart diseases
10. Thick epiblema, thin walled polygonal and tubular cork cells are key microscopic features of
- Cassia acutifolia*
  - Podophyllum hexandrum*
  - Catharanthus roseus*
  - Aloe vera*
11. Choose the correct medicinal properties of phytochemicals from *Catharanthus roseus*
- Vincristine - arrests mitosis in metaphase
  - Yohimbine- stimulant and aphrodisiac.
  - Ajmalicine- Antihypertensive
  - All of the above
12. Psychoactive component is mainly present in the
- Myristica fragrans*
  - Citrullus colocynthis*
  - Amanita muscaria*
  - Acacia catechu*
13. Find the correct statement about the extraction method
- Best condition for super critical CO<sub>2</sub> extraction method is at 73 atm and 31.1 °C temperature
  - In case of hot extraction, higher than required temperature should be applied to obtained high yield of active compound
  - Fixed oil extraction can be conducted by Clavengers type of apparatus
  - ultrasound with frequencies ranging from 20 kHz to 2000 kHz is suitable for extraction of proteins and peptides of medicinal plants.
14. Agarpectin is main component of *Gelidium* and *Gracilaria* which is composed of
- D-Galactose , Agarose, D-Glucuronic acid, and Pyruvic acid
  - Arabinose, Galactose, and Geddic acid.
  - Tragacanthose, Xylose, and Bassoric acid
  - Sulfated polysaccharide, D-Glucuronic acid, and Pyruvic acid
15. Select an important demulcent type of herbal medicine that is also used for emulsification and thickening agent
- Acacia catechu*
  - Plantago psyllium*
  - Glycyrrhiza glabra*
  - Acacia Senegal*

SECTION "B"  
[1Q. × 5 = 5 marks]

16. Match the best answer among the following

|                            |                 |
|----------------------------|-----------------|
| Atropine                   | Psychedelic     |
| Resveratrol                | Pupil dilation  |
| Lysergic acid diethylamide | Prostate cancer |
| Laryngeal Cancer           | Vindesine       |
| Blood Cancer               | Cucurbitacin B  |

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Time : 2 hrs. 30 mins.

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Semester: II  
F. M. : 55

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SECTION "C"  
[5Q. × 3 = 15 marks]

Attempt *ANY FIVE* questions.

1. Diagram showing microscopic features of Rauwolfia rhizome.
2. Write down the basic skeleton of Tropane alkaloid and write down some medicinal plants of the same class. Also explain the phytochemical detection method of the same Tropane alkaloids.
3. List out few of the anticancer medicinal plants, their family and name of bio-active compound present in the plant.
4. Briefly explain the mycotoxins of Fusarium.
5. Compare the similarities and differences between flavonoids and tannins.
6. Write down the procedure for isolation of Strychine.
7. Give the application of Thin Layer Chromatography (TLC) in pharmacognosy and drug discovery.

SECTION "D"  
[5Q. × 5 = 25 marks]

Attempt *ANY FIVE* questions.

8. Draw an outline of the biosynthetic pathways of plant secondary metabolites.
9. Compare the microscopic character of Aloe and Senna leaves.
10. Write down the chemical classification of alkaloids with suitable examples.
11. Write down the chemistry and medicinal properties of some Anthraquinone glycoside related plants.
12. Explain some herbs that are used as natural pharmaceutical aids. Also, write down their applications.
13. Explain the pharmacognostical detail of *Citrullus colocynthis*.

14. Write short note on:  
a. Gambir  
b. Colchicum

SECTION "E"  
[2Q. × 7.5 = 15 marks]

Attempt *ANY TWO* questions.

15. Explain the methodologies of the isolation, characterization and evaluation of bioactive compounds from methanolic extract of medicinal plant.
16. Classify and explain the terpenoids with their major bioactive compounds.
17. Write down the biological sources of some non-medicinal toxic plants. Explain the detailed chemistry and medicinal properties.