

KATHMANDU UNIVERSITY  
End Semester Examination  
January/February 2024

Marks Scored:

Level : B.Pharm.  
Year : II

01 FEB 2024

Course : PHAR 204  
Semester : I

Exam Roll No. :

Time: 30 mins.

F. M. : 20

Registration No.:

Date :

SECTION "A"

[20Q. × 1 = 20 marks]

Choose and encircle the most appropriate option from each set of choices

- Which one is **NOT** secondary metabolite?  
a. Alkaloid      b. Flavonoid      c. Glycoside      d. Glucose
- Kolbe-Schmitt reaction is used for large scale/industrial production of  
a. Salicylic acid      b. Taxol      c. Quinine      d. Reserpine
- Which one is **NOT** the underground stem?  
a. Tuber      b. Bulb      c. Corm      d. Stolon
- Potency of the drug is determined by the number of dilutions. It is the principle of  
a. Homeopathy      b. Siddha      c. Unani      d. Ayurveda
- Select a plant which leaves are mainly used in herbal medications:  
a. Rauwolfia      b. Liquorice      c. Clove      d. Digitalis
- Select the phytochemical which is not alkaloid  
a. Morphine      b. Quinine      c. Digitoxin      d. Ephedrine
- Which one is **wrong** information about **Herbal Pharmacopoeia**?  
a. Official book which is published by a government body, international organization, pharmaceutical society, or a regional body  
b. It is prepared through a network (national and international) of experts, including botanists, chemists, herbalists, medical doctors, pharmacists, and pharmacologists.  
c. It includes monographs of medicinal plants  
d. It doesn't include information about traditional herbal formulations.
- Flowers are collected before they expand fully,  
a. When the petals start to fall down      b. Just before they expand fully  
c. When they dry up      d. When they expand fully
- Diggers or lifters are used to harvest  
a. Leaves      b. Underground parts  
b. Flowers      d. Seed
- Apical dominance is the condition in which the growth of lateral buds is inhibited. It is caused by  
a. Cytokines      b. Gibberellins      c. Auxin      d. Abscisic acid

11. Which is **NOT** the biological source of natural drugs?  
 a. Gelatin                      b. Kaolin                      c. Wax                      d. Agar
12. "Explant is surface sterilized and transferred into nutrient medium." Which step of tissue culture is this?  
 a. Multiplication      b. Rooting                      c. Initiation                      d. Shooting
13. Which one is **WRONG** about Elicitors?  
 a. The most frequently used elicitors are fungal carbohydrates, yeast extract, etc.  
 b. Elicitation ultimately affects the transcription rates of genes encoding enzymes involved in plant defence pathways.  
 c. Anthraquinone production in *Rubia akane* cell culture was increased by **chitosan**, an abiotic elicitor.  
 d. It is a process of stimulation of synthesis of secondary metabolites using external chemicals
14. Which one is **CORRECT** statement about essential oil?  
 a. Density of essential oil is usually higher than water.  
 b. Essential oils are highly soluble in water.  
 c. Menthol is chemically a ketone.  
 d. Citral is an acyclic compound present in lemon oils.
15. Which technique does not use heating during extraction of essential oil?  
 a. Solvent extraction                      b. Expression  
 c. Hydrodistillation                      d. CO<sub>2</sub> extraction
16. Which one is **WRONG** about resin?  
 a. They are organic sticky compounds that ooze out from plants.  
 b. They consist of a mixture of terpenoids, phenolic compounds and polymeric structures.  
 c. Gums and mucilage are special type of resins.  
 d. They are not soluble in water
17. Which part of the plant *Cannabis sp.* produce resin?  
 a. Stem                      b. Schizolysigenous duct  
 c. Flower bud                      d. Leaves
18. Which one is **CORRECT** about fats and fixed oils?  
 a. In fats, the triglycerides contain more proportion of saturated fatty acids.  
 b. Fixed oils are mostly obtained from animals.  
 c. Fats are mostly obtained from plants.  
 d. In fixed oils, the triglycerides contain more proportion of saturated fatty acids.
19. Which one is saturated fatty acid?  
 a. Oleic acid                      b. Linoleic acid                      c. Palmitoleic acid                      d. Palmitic acid
20. Which one is the **WRONG** statement?  
 a. Cocoa butter is liquid vegetable oil.  
 b. The unit of acid number is milligram.  
 c. Constant reuse of oil increases the conversion of *cis* bonds to *trans* bonds in fatty acids.  
 d. Cod liver oil is liquid animal fat.

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F. M. : 55

01 FEB 2024

SECTION "B"

[5 Q. × 3 = 15 marks]

Attempt *ANY FIVE* questions.

1. Define pharmacognosy and write about its scope.
2. Write about **target identification** step of Reverse Pharmacognosy.
3. What is cultivation of medicinal plants. Write four major advantages of cultivation of medicinal plants. [1+2]
4. Explain how tissue culture can be used to produce phytochemicals (secondary metabolites)?
5. Explain the three biological sources of drugs.
6. Mention three characteristics of resin. Mention three examples of resin with their plant source. [1.5+1.5 = 3]
7. Explain Hydrodistillation technique for extraction of essential oil.

SECTION "C"

[5 Q. × 5 = 25 marks]

Attempt *ANY FIVE* questions.

8. Write the two principles of homeopathy. What do you mean by 2D and 2C written in the homeopathic formulation. [3+2=5]
9. Explain pharmacological classification of crude drug with its advantages and drawbacks.
10. Write the four factors influencing cultivation of medicinal plants. Write about plant-based pesticides with some examples.
11. Write the four roles of Auxin as a plant growth regulator. Write the structure of IAA. [4+1=5]
12. Define essential oil. Give following information regarding lemongrass: Scientific Name, Macroscopic Character, Major Constituent, Uses. [1+4=5]
13. Write source, extraction process and uses of peru balsam resin.
14. Give structural formula for representing fat and waxes. Give three major differences of fat and fixed oil. [2+3=5]

SECTION "D"  
[2 Q. × 7.5 = 15 marks]

Attempt *ANY TWO* questions:

15. What do you mean by underground stem? Why are they called stem? Give three types of underground stem with an example for each. Define adventitious root and write its two major functions.
16. Define herbarium sheet. Explain the steps of preparation of an herbarium sheet.
17. Explain the steps of tissue culture of medicinal plants.