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**M. Sc. (Fourth Semester) (Main/ATKT)**

**EXAMINATION, May-June, 2020**

CHEMISTRY

Paper No. CH-20

**(Natural Product and Medicinal Chemistry)**

*Time : Three Hours ]*

*[ Maximum Marks : 80*

**Note :** Attempt all Sections as directed.

**Section—A**

1 each

**(Objective/Multiple Choice Questions)**

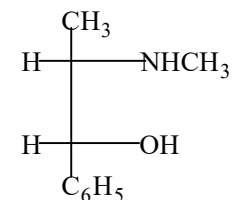
**Note :** Attempt all questions.

Choose the correct answer :

1. Which one of the following is not a terpenoids ?

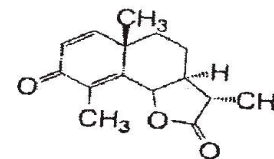
- (a) Abiotic acid
- (b) Farnesol
- (c) Atropine
- (d) Zingiberene

2. The given compound is :



- (a) D(-) Ephedrin
- (b) D(+) Ephedrin
- (c) Nicotine
- (d) Coline

3. The given structure is :



- (a) Santonin
- (b) Phytol
- (c) Morphine
- (d) Zingiberene

4. Which one of the following is a alkaloid ?

- (a) Bile acid
- (b) Quinine
- (c) Citral
- (d) Luteolin

5. Which combination is true for terpenoids and alkaloids respectively ?

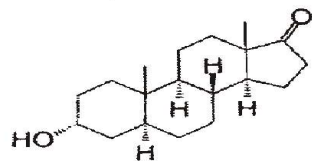
- (a) Citral and Phytol

**P. T. O.**

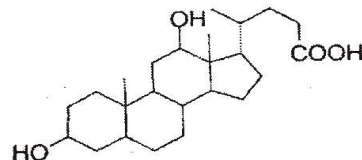
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- (b) Morphine and Zingiberene
  - (c) Atropine and Coline
  - (d) Geraniol and Morphine
6. The given structure is :



- (a) Aldosterone
  - (b) Testosterone
  - (c) Progesterone
  - (d) Androsterone
7. The given structure is :



- (a) Cholesterol
  - (b) Bile acid
  - (c) Esterone
  - (d) Testosterone
8. Which one of the following is plant pigment ?
- (a) Butein
  - (b) Bile acid
  - (c) Vitexin
  - (d) Azacrin

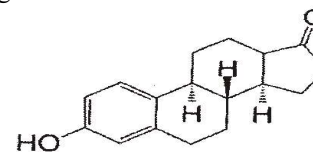
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9. Which one of the following is not a steroid ?
- (a) Bile acid
  - (b) Cholesterol
  - (c) Progesterone
  - (d) Diadzine

10. The given structure is :



- (a) Cholesterol
  - (b) Progesterone
  - (c) Estrone
  - (d) Testosterone
11. What does the symbol P present in a QSAR equation ?
- (a) pH
  - (b) Plasma concentration
  - (c) Partition coefficient
  - (d) Prodrug
12. Which one of the following statement is true ?
- (a) Drug and drug targets have similar molecules weights.
  - (b) Drugs are generally smaller than drug targets.
  - (c) Drugs are generally larger than drug targets.
  - (d) There is no general rule regarding the relative size of drugs and their targets.

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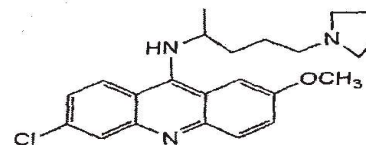
13. What is meant by the lead compound in medicinal chemistry ?
- A drug containing the element lead.
  - A leading drug in a particular area of medicine.
  - A compound that act as the starting point for drug design and development.
  - A drug which is normally the first to be prescribed for a particular element.
14. Which of the following needs to be established before the, search for a lead compound takes place ?
- The pharmacophore
  - Structural-activity relationship
  - A bioassay
  - Patents
15. The reasons for determining bioavailability are :
- A rheological parameter of blood
  - Amount of substance obtain orally and quantity of intake
  - The extent of absorption and hepatic first-pass effect
  - Glomerular filtration effect
16. Pyrimidine and Biguanid derivatives is :
- Paludrine
  - Pamaquine
  - Primaquine
  - Pentaquine

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17. 8-amino quinolone derivatives is :
- Santonin
  - Paludrine
  - Pyremethamine
  - Isopentaquine
18. 4-amino quinolone derivatives is :
- Pyrementsamine
  - Camaquine
  - Mepacrine
  - Azacrine
19. The given structure is :



- Azacrine
  - Mepacrine
  - Camaquine
  - Pyremethamine
20. Which one of the following is not a antibiotic ?
- Streptomocine
  - Tetramycine
  - Chloramphenicol
  - Pamaquine

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Section—B

2 each

(Very Short Answer Type Questions)

Note : Attempt all questions.

1. Draw the structure of beta carotene.
2. What is morphine ?
3. Draw the structure of testosterone.
4. What is hirsutidin ?
5. What are soft drugs ?
6. Define pharmacophore.
7. Draw the structure of streptomycin.
8. Draw the structure of pyrimethamine.

Section—C

3 each

(Short Answer Type Questions)

Note : Attempt all questions.

1. Write the synthesis and mechanism of citral.
2. Write the synthesis and mechanism of quinine.
3. Discuss the structural feature of bile acid.
4. What are plant pigment. Draw the structure of Apigenin, Mycetin and Butein.
5. Discuss the factor affecting the development of a new drug.
6. Explain the significance of drug metabolism in medicinal chemistry.
7. What are alkylating agents ?
8. Discuss the synthesis and process of chloramphenicol.

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Section—D

3 each

(Long Answer Type Questions)

Note : Attempt all questions.

1. What are terpenoids ? Discuss the synthesis and application of menthol.

*Or*

What are alkaloids ? Discuss the synthesis and application of nicotine.

2. What are Steroids ? Discuss the biosynthesis of cholesterol.

*Or*

Discuss the synthesis steps in Quercetin-3-glucoside and cyaniding.

3. What do you mean by pharmacokinetic and pharmacodynamic ? Explain.

*Or*

Write a short note on induced fit theory and QSAR.

4. What are Antibiotics ? Discuss the synthesis of penicillin.

*Or*

What are the antimalaria agents ? Discuss the synthesis and applications of isopentaquine.

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