

Roll No.

E-989**M. Sc. (Fourth Semester) (Main/ATKT)****EXAMINATION, May-June, 2021**

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 terpenoid ?

- (a) Menthol
- (b) Farnesol
- (c) Phytol
- (d) Morphene

2. The molecular formula of ephedrin is :

- (a) $C_{10}H_{15}NO$
- (b) $C_{10}H_{10}O$
- (c) $C_{10}H_{15}O$
- (d) $C_{10}H_{15}N$

3. Morphine is used for :

- (a) Treatment of shortness of breath
- (b) Reducing the acute pain
- (c) Reducing the chronic pain
- (d) All of the above

4. Monoterpenoids consist of :

- (a) 1 carbon
- (b) 5 carbon
- (c) 10 carbon
- (d) 20 carbon

5. What is the isoprene rule ?

- (a) Terpenes contain tail-to-tail connected isoprenes
- (b) Terpenes contain head-to-tail connected isoprenes
- (c) Terpenes contain head-to-head connected isoprenes
- (d) Terpenes contain $5n$ atoms

6. Example of flavonones is :

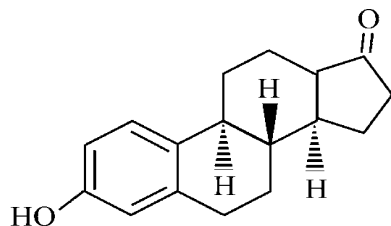
- (a) Hesperetin
- (b) Taxifolin
- (c) Luteolin
- (d) Quercetin

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7. Which of the following is right about flavonoids ?
- Daily use of flavonoids reduce the risk of cancer.
 - They are good antioxidant.
 - They have anti-inflammatory activity.
 - All of the above
8. The given structure is :



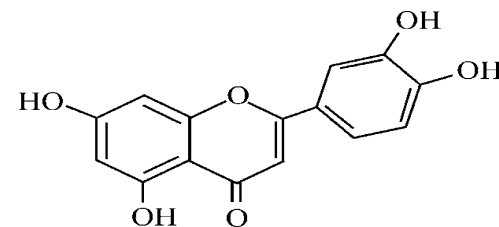
- Androsterone
 - Testosterone
 - Esterone
 - Aldosterone
9. The molecular formula of progesterone is :
- $C_{21}H_{30}O_3$
 - $C_{21}H_{30}N_2$
 - $C_{21}H_{30}O$
 - $C_{21}H_{30}O_2$

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10. The given structure is :



- Apigenin
 - Luteolin
 - Vitexin
 - Butein
11. What is meant by a drugs specification ?
- The molecular dimentions of a molecules.
 - The physical properties of a drug.
 - The purity tests and purity standards required of a drug.
 - The functional groups on a drug that are important to its activity.
12. Aspirin is converted into salicylic acid in your body by which of the following reactions ?
- Hydrolysis
 - Oxidation
 - Reduction
 - Substitution

13. You can usually tell if a drug is a natural product because :
- (a) Its structure is very simple.
 - (b) Its structure contains lots of chiral centres and is very complex.
 - (c) You can't tell just by looking at its structure.
 - (d) None of the above
14. What is a semi-synthetic drug ?
- (a) A drug isolated from nature and used without any further modification
 - (b) A drug made entirely in a lab from scratch
 - (c) The structure of a drug half-way through its preparation
 - (d) A drug which has been part-made by nature and part-made in a lab
15. Which of the following drugs was inspired by nature ?
- (a) Morphine
 - (b) Salbutamol
 - (c) Citalopram
 - (d) Erythromycin
16. Which of the following species is used for producing Streptomycin ?
- (a) *S. ramosus*
 - (b) *S. griseus*
 - (c) *S. aureofaciens*
 - (d) *S. griseoflavus*

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17. Which statement about penicillins is true ?
- (a) Penicillins on high dose cause convulsions.
 - (b) Benzyl penicillin is not effective for infections due to normal strains of *Neisseria meningitidis*.
 - (c) Phenoxymethyl penicillin is not resistant to gastric acid.
 - (d) Penicillins are not effective against normal strains of Gram positive bacteria.
18. The penicillins act by :
- (a) Inhibition of protein synthesis
 - (b) Interfering with bacterial cell wall synthesis
 - (c) Inhibition of nucleic acid synthesis
 - (d) Phagocytic action
19. All of the following antimalarial drugs influence blood schizonts, except :
- (a) Mefloquine
 - (b) Chloroquine
 - (c) Primaquine
 - (d) Quinidine
20. The group of antibiotics having an antimalarial effect :
- (a) Aminoglycosides
 - (b) Tetracyclines
 - (c) Carbapenems
 - (d) Penicillins

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Section—B

2 each

(Very Short Answer Type Questions)

Note : Attempt all questions.

1. What is Zingiberene ?
2. Write the role of quinine.
3. Draw the structure of Aldosterone.
4. What is butein ?
5. Write any *two* characteristics about soft drug.
6. What do you mean by drug receptor ?
7. What do you mean by alkylating agent ?
8. Draw the structure of Streptomycin.

Section—C

3 each

(Short Answer Type Questions)

Note : Attempt all questions.

1. Write the synthesis of beta carotene.
2. Write the synthesis of atropine.
3. Discuss the structural feature of cholesterol.
4. What do you mean by plant pigments ? Discuss the synthesis of Vitexin.
5. What do you mean by structure-activity relationship ?
6. Discuss about pharmacophore.
7. What do you mean by mitotic inhibitor ?
8. Discuss the synthesis process of pamaquine.

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Section—D

5 each

(Long Answer Type Questions)

Note : Attempt all questions.

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

Or

What are alkaloids ? Discuss the nomenclature, physiological action and synthesis of ephedrine.

2. What are steroids ? Discuss the biosynthesis of testosterone.

Or

Discuss the synthesis steps of Myrcetin and Cyanidin.

3. Discuss the theories of drug activity.

Or

Write a short note on Pharmacodynamic and QSAR.

4. What are antibiotics ? Discuss the synthesis of chloramphenicol.

Or

What are the antimalarial agents ? Discuss the synthesis and applications of santoquine and pentaquine.

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