

Subject: **Chemistry**
Paper name: **Natural Products (option B)**
Paper No: **XII -B**
Semester: **VI**

A. Multiple choice questions [25 (5 from each unit)]

1. The π - π^* transition is found in
 - a) Alkanes
 - b) Alkenes
 - c) Alcohols
 - d) None of the above
2. Which of the following will not give signal in the UV-Vis spectroscopy?
 - a) Ethene
 - b) Benzene
 - c) Acetone
 - d) n-hexane
3. The IR spectrum of an alcohol, presence of -OH group is shown by broad but intense band centred at
 - a) 3350 cm^{-1}
 - b) 1710 cm^{-1}
 - c) 2860 cm^{-1}
 - d) 4500 cm^{-1}
4. According to Woodward Fieser rule for calculating λ_{max} , the basic value for heteroannular conjugated diene is
 - a) 217 nm
 - b) 253 nm
 - c) 215 nm
 - d) 202 nm
5. In NMR spectroscopy, the full form of TMS is
 - a) Tetramethylsilane
 - b) Trimethylsilane
 - c) Tetramethylsulphate
 - d) Trimethylsulphate
6. Wessely moses rearrangement is specifically designed for
 - a) Flavonoids
 - b) Terpenoids
 - c) Morphines
 - d) Phenolic acids
7. In Nametkin arrangement, the final result is racemisation of
 - a) Morphine

- b) Colchicines
 - c) Camphene
 - d) None of the above
8. The most well known rearrangements of morphine is
- a) Enzyme catalysed reaction
 - b) Acid catalysed reaction
 - c) Base catalysed reaction
 - d) None of the above
9. Phenomenon trigger
- a) Same species
 - b) Only itself
 - c) All species
 - d) None of the above
10. Morphine is
- a) $C_{17}H_{19}NF_3$
 - b) $C_{17}H_{19}PO_3$
 - c) $C_{17}H_9NO_3$
 - d) $C_{17}H_{19}NO_3$
11. The first step for the synthesis of reserpine is
- a) Friedel craft reaction
 - b) Diels- alder reaction
 - c) Hoffmann degradation
 - d) None of the above
12. Among lichen metabolites, an important bioactive compound is formed by
- a) Paraconic acids
 - b) Proprionic acid
 - c) Flavanoids
 - d) None of the above
13. Synthesis of a chiral marine natural products is designed for the synthesis of
- (a) Isoflavanoids
 - (b) Morphine
 - (c) Didemnenones
 - (d) None of the above
14. For the formation of daidzein via the corresponding 2- hydroxyisoflavanone, the flavanone processor is
- a) Biochanin

- b) Isoformononetine
 - c) Adenosylmethionine
 - d) liquiritigenin
15. The primary building block for a group of benzyloisoquinoline alkaloids is
- a) L- phenylalanine
 - b) Shikemic acid
 - c) Norcoclaurine
 - d) None of the above
16. Alkaloids are
- a) acid-like
 - b) water-like
 - c) alkali-like
 - d) gas-like
17. The most common tetraterpenoid is
- a) pinene
 - b) carotenoid
 - c) limonene
 - d) α -geraniol
18. An alkaloid used in ophthalmic practice to dilate the pupil of eye is
- a) camphor
 - b) tropine
 - c) pinene
 - d) atropine
19. Menthol is a
- a) diterpenoid
 - b) monoterpenoid
 - c) triterpene
 - d) flavonoid
20. Rotenoids are
- a) complex isoquinolines
 - b) complex flavones
 - c) complex anthocyanidins
 - d) complex isoflavonoids
21. The terpenes form a large group of secondary metabolites, chiefly from
- a) animal origin
 - b) plant origin
 - c) marine flora and fauna
 - d) insects
22. Terpenes which contain 15-carbon atoms are named as
- a) monoterpenes
 - b) sesquiterpenes

- c) diterpenes
d) triterpenes
23. The most well-known rearrangement of morphine is
a) Acid catalyzed
b) base catalyzed
c) Enzyme catalyzed
d) All of the above
24. A group of natural chemical compounds classified as sesquiterpene lactones which are found in a variety of plant sources are called
a) Benzyl isoquinoline alkaloids
b) Menthol
c) Germacranolides
c) Vinblastine.
25. A chemotherapy medication which is typically used with other medications to treat different of types of cancer and are sold under the brand name Velban among others are called as
a) Rotenoids
b) Vinblastine
c) Morphine
d) None of the above.

Fill up

B. Fill up the blanks [15 (3 from each unit)]

1. Reaction of papaverine is also called as _____
2. The chemicals which are components of signal communication in any ecosystem are known as _____
3. Chemical communication between plants and insects in any ecosystem can be both mutually _____ and _____
4. Insect pheromones are semiochemicals which have well defined function within an _____ society
5. Two representative examples of paraconic acids are (+) roccelinic acid and (+) _____
6. The biosynthesis of benzophenanthridine alkaloid, sanguinarine from scularine, the first step is the formation of secondary _____ group by a P450 dependent enzyme.
7. In NMR spectrum, hex-1-ene will give _____ signals.
8. In Mass spectrometer, the sample that has to be analysed is bombarded with _____.
9. _____ is the shift of a peak or signal to longer wavelength.
10. _____ is the most stable isomer among the resin acids

11. The much-studied alkaloid _____ is a constituent of Opium.
12. _____ are formed by combination of isoprene units which are 5 – carbon hydrocarbon moieties.
13. _____ contain 10 carbon atoms and are apparently formed by combination of isoprene units.
14. _____ are also called carotenoids and are formed by two diterpene with 40 carbon atoms.
15. The IUPAC name of menthol is _____

Key answer

A. Multiple choice questions

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|--------|---------|--------|--------|--------|--------|
| 1. b) | 2. d) | 3. a) | 4. c) | 5. a) | 6. a) |
| 7. c) | 8. b) | 9. a) | 10. a) | 11. b) | 12. a) |
| 13. c) | 14. d) | 15. a) | 16. c) | 17. b) | 18.d) |
| 19. a) | 20. d). | 21. b) | 22. b) | 23. a) | 24. c) |
| 25. b) | | | | | |

B. Fill up the blanks [replace x]

1. Molecular yoga
2. Semiochemicals
3. Benign & Antagonistic
4. Insect
5. Methyl enolactocin
6. Methyl enedioxy
7. six
8. electrons
9. Bathochromic shift
10. Abietic acids
11. Morphine
12. Terpenes
13. Monoterpenes
14. Tetraterpenoids
15. 2-isopropyl- 5-methylcyclohexanol