KATHMANDU UNIVERSITY
End-Semester Examination
February/March, 2018

Marks scored:

Level : B. Pharm.
Year : III
Course : PHAR 304
Semester: I

Exam Roll No.:
Time: 30 mins.
F.M. : 20

Registration No.:
Date : MAR 16 2018

SECTION "A"
[20 Q.× 1 = 20 marks]

1. An alkaloidal compound with two heterocycles of Nitrogen and one heterocycle of Oxygen in structure of
a) Brucine b) Lysergic acid c) Reserpine d) Ergotamine

2. Alkaloid/s is biosynthesized from the precursor of both noncyclic and cyclic amoniacids
a) Nicotine and Ephedrine
b) Papaverine and Capsaicin
c) Capsaicin
d) Nicotine

3. Functional nature of Oxygen as a hydroxyl group present in alkaloid can be determined by
a) Solubility analysis in bicarbonate on ammonia and reprecipitation with carbondioxide
b) On heating with hydrochloric acid giving formaldehyde
c) Treatment with acetic anhydride on treatment with benzyl chloride
d) Distillation with soda lime which yields the methyl amine.

4. Choose one structurally a different glycosidal group with other three groups
a) Sennoside, Cascaroside
b) Barbaloin, Rhein
c) Quabain and Scillarin
d) Rhein, Aloin

5. Find the lowest number of –OH group in the structure of following glycoside, which also impact on the solubility
a) G-strophanthin b) Quabagenin c) Scillaren A d) K-Strophanthidin

6. Amygdalin only Kills the Cancer cells not normal cells, because
a) In cancer cell there is an enzyme called Rhodanese.
b) Rhodanese enzyme converts HCN into thycynide in cancer cells.
c) Amygdalin have ability of linking with metals of many healthy cells.
d) In normal cell there is an enzyme called Rhodanese.

7. A hydrocarbon type of Non-cyclic Monoterpenoid is
a. Limonene b. beta-Pinene c. Zingiberene d. alpha-Myrcene

8. A correct statement about tetraterpenoid is
a) Carotenoids are highly lipophobic incorporated within cytoplasm and not associated with lipoproteins.
b) At least 7 conjugated double bonds are needed for a carotenoid to have perceptible color.
c) *Z*- isomers of Tetraterpenoids are rarely soluble, weakly absorbed, and transported than their all-*E* counterparts.
d) Lycopene and Phytoene, with 11 conjugated double bonds in an acyclic structure, is red.

9. Highest number of double bond present in the structural formula of carotenoid
a) Luteoxanthin b) Lutein c) beta-Carotene d) Violoxanthin

10. Presence of Oxygen in terpenoid can be indicated if it is soluble in ammonia and give effervescence (gas bubble) with sodium bicarbonate, there fact reveals the terpenoid contains the
a) Carboxyl group
b) Amine group
c) Hydroxyl group
d) Terminal methyl group

11. During the structural elucidation of Citral, products obtained after its degradation of Citral on treatment with alkaline $KMnO_4$ followed by chromic acid; confirms the presence of
a) *P*-Cymene and Cyclic structure of Citral
b) Citral is acyclic compound
c) Reveals aldehyde group of Citral
d) Terminal isopropylidine present in Citral

12. Lanosterol is a compound having the extra methyl groups on steroidal skeleton at 'C' position of
a) 28, 29, 30 b) 27, 28, 24^1 c) 24^1, 24^2 d) 21, 29, 30

13. Find correct statement/s (may be one or more) on Structure-Activity Relationships of cardiac glycosides.
a) Structures with ring C/D trans fusion in steroids are inactive
b) The unsaturated 17-lactone plays an important role in receptor binding.
c) Saturation of the lactone ring dramatically increased the biological activity.
d) Additional hydroxyl groups do not affect on the duration of action.

14. Choose correct statement about the Estradiol
a) Alpha- and beta- both isomers are equally isomer
b) Alpha-isomer is much potential
c) Estradiol 7-beta was isolated form ovaries of saws
d) Have three hydroxyl group in structure

15. Steroids with 18 and 19 carbon atoms are known systematically as _____ respectively
a) Cholestanes and Pregnanes
b) Estranges and Androstanes
c) Estranges and Cholestanes
d) Androstanes and Estranes

16. Better metabolic stability is observed in plant phenolics for cancer chemopreventive property, if the structure is capped by methylation at the position of
a) 5,7′,4′-trimethoxyflavone
b) 5′,7,4′-trimethoxyflavone
c) 5,7,4′-trimethoxyflavone
d) 5′,7′,4′-trimethoxyflavone

17. The hydrophilic flavonoid glucoside such as quercetin are transported across the small intestine by the intestinal
a) Na+/K+ ATPase pump inhibitors
b) Ca+ -dependent co-transporter
c) By lactase phloridzin hydrolase enzyme
d) Na+-dependent glucose co-transporter

18. Prunus is rich in plant lignin
a) 7-hydroxymatairesinol
b) Lariciresinol
c) Pinoresinol mono-glucopyranoside
d) Syringaresinol Adlay

19. The product formed in Reformstsky reaction is
a) α-Halo ester
b) α -Hydroxy ester
c) β-Hydroxy carboxylic acid
d) β-Hydroxy ester

20. Reaction of an aromatic aldehyde and an anhydride in presence of alkali salt of the acid is called
a) Reformatsky reaction
b) Oppenauer oxidation
c) Wittig reaction
d) Perkin reaction

KATHMANDU UNIVERSITY
End-Semester Examination
February/March, 2018

MAR 16 2018

Level : B. Pharm.
Year : III
Time : 2 hrs. 30 mins.

Course : PHAR 304
Semester: I
F.M. : 55

SECTION "B"
[5 Q.× 3 = 15 marks]

Attempt any *FIVE* questions.

1. Write down the major of alkaloids having Indole type of structure.
2. Mention the Hoffmann's exhaustive methylation procedure for alkaloidal structural determination.
3. Classification of glycosides on the basis of the linkage between glycone and aglycone part.
4. Write down the chemistry and medicinal value of Amygdalin.
5. Write down the process of structural elucidation of the 'position of alcohol as tertiary alcohol' in *alpha*-Terpineol.
6. Briefly classify the structural group of hormones.
7. How the plant lignans are important for human health? Give some examples.

SECTION "C"
[5 Q.× 5 = 25 marks]

Attempt any *FIVE* questions.

8. Describe the biosynthesis of Papavarine.
9. Compare the chemical constituents of Cardenolide and Bufadienolide type of glycosides.
10. Explain the structural elucidation of Citral.
11. Give the chemical classification of tetraterpenoids.
12. Sketch out biosynthetic process of Cholesterol in plants.
13. Write down Meerwein-Ponndorf-Verley reaction with the mechanism.
14. Write short account on chemistry and function of peptide type of hormones.

SECTION "D"
[2Q.× 7.5 = 15 marks]

Attempt any *TWO* questions.

15. Explain the structural elucidation of *beta*-Carotene in detailed.
16. Write down the classes, chemistry and medicinal uses of flavanoids with suitable structures.
17. Write down a detailed account on chemical classes of steroids with suitable example.