KATHMANDU UNIVERSITY
End-Semester Examination
February/March, 2019

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

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

Registration No.: | Date : FEB 20 2019

SECTION "A"
[20 Q.× 1 = 20 marks]

1. Alkaloids when treated with HI at 126^0C perform methyl iodide which further treated with silver nitrites to perform silver iodide precipitate is used to detect the ..... of alkaloids.
   (i) Methylenedioxy group (ii) Carboxylic group
   (iii) Methoxy group (iv) Hyxroxy group

2. Select the dimethoxy alkaloidal compound
   (i) Ergotamine (ii) Serpentine (iii) Ajmalicine (iv) Brucine

3. The hydrolytic product of Gitoxin is
   (i) Gigitoxin and 3 Digitoxose (ii) Gitoxigenin and 3 Digitoxose
   (iii) Digitoxigenin and 3 Digitoxose (iv) Gitaligenin and 3 Digitoxose

4. In the structural activity and relationship of glycoside, presence of *alpha-* & *beta-* saturated lactone ring
   (i) Increases the activity of muscular tissue
   (ii) No effect in therapeutic activity
   (iii) Loses its therapeutic activity
   (iv) Increases absorption and distribution

5. Select a group of Glycosides those used as both an anti-arrhythmia and cardiotonic agent
   (i) Cymarin and Digoxin (ii) Quabain and Prunasin
   (iii) Prunasin and Gitalin (iv) Cymarin and Strodival

6. Find a bi-cyclic monoterpenoid compound
   (i) Abscisic acid (ii) Cadinene (iii) Zinziberene (iv) Thujone

7. Select a carotenoid that has a potential effect in maintaining bone health and in preventing osteoporosis
   (i) Luteoxanthin (ii) Astaxanthin
   (iii) beta-Cryptoxanthin (iv) Violoxanthin

8. Presence of double bond in terpenoid located either in tertiary or secondary position is confirmed by
   (i) Hydrogenation or haloform reaction
   (ii) Reaction with hydroxylamine or $KMnO_4$
   (iii) Addition of nitrosyl chloride or passing halogen acid gas
   (iv) Oxidatinon of terpenoid with chromic acid or Kuhn-Roth method

9. In terpenoids, carboxylic acid is formed on oxidation without loss of any carbon atom if carbonyl function is in the form of ....
(i) Aldehyde (ii) Alcohol (iii) Ketone (iv) Carboxyl

10. During the structural elucidation of Citral, acetone obtained after its degradation of Citral on treatment with alkaline $KMnO_4$ followed by chromic acid; exactly confirms the presence of
(i) Position of methyl (ii) Terminal isopropylidine
(iii) Acyclic compound (iv) Aldehyde group

11. Total 18-Carbion steroidal skeleton with its appropriate example is
(i) Estrane, eg. Estradiol (ii) Andrane, eg. Testosterone
(iii) Pregnane, eg. Progesterone (iv) Cholic acids, eg. Estradiol

12. Veracevine, the polyhydroxy steroidal skeleton belongs to class of
(i) Ecdysteroids (ii) Steroidal hormones
(iii) Cardiac Glycosides (iv) Steroidal alkaloids

13. Lanosterol is a compound having the methyl groups on steroidal skeleton at 'C' position of
(i) 28, 29, 30 (ii) 21, 26, 27, 28, 29, 30
(iii) 18, 19, 21, 26, 27, 28, 29, 30 (iv) 18, 19, 28, 29, 30

14. Find a glucocorticoid hormone, synthesized from progesterone in the *zona fasciculata* of the adrenal cortex, involved in stress adaptation, elevates blood pressure and Na^+ uptake.
(i) Cortisol (ii) Estradiol (iii) Pregnenolone (iv) Testosterone

15. A hormone responsible for the collapse of glycogen to glucose in the liver and with this happening to increase blood sugar level is
(i) Cortisol (ii)Vasopressin (iii) Epiandrosterone (iv) Adrenaline

16. Structural differences between flavone and flavonol is
(i) -OH in 3 carbon position of pyrone ring
(ii) Phenyl substitution at position 2 of pyrone ring
(iii) Phenyl substitution at position 3 of pyrone ring
(iv) Absence of ketone functional group in ring C

17. Oligomeric flavonoids of catechin and epicatechin and their gallic acid esters are
(i) Lignins (ii) Coumarins
(iii) Proanthocyanidins (iv) Catechins

18. A lignan which inhibit cholesterol absorption from the intestines, and also able to protect cells from excitotoxicity
(i) Sesamin (ii) Pinoresinol (iii) Lariciresinol (iv) Syringaresinol

19. In the Reformatsky reaction, ------is used as a reactant.
(i) Alpha-halo ester (ii) Beta-hydroxy ester
(iii) Alpha, beta unsaturated compounds (iv) Aromatic aldehydes

20. Which of the following statement is wrong?
(i) Aluminium isopropoxide is used in Oppenauer oxidation.
(ii) Aluminium isopropoxide is used in Meerwein-Ponndorf-Verley reduction.
(iii) Carbonyl compounds react with betaine in Wittig reaction.
(iv) Carbanion is formed in Perkin reaction.

KATHMANDU UNIVERSITY
End-Semester Examination
February/March, 2019

FEB 2 0 2019

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.

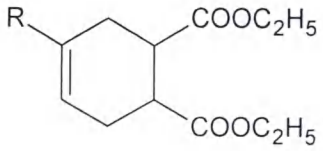
1. Outline the pathway of Pyrrolidine ring formation of Nicotine during biosynthesis.
2. Write down the structural formula and medicinal uses with structural activity relationship (SAR) of Lysergic acid and Ergotamine alkaloids.
3. Briefly explain the Cyanogenic glycosides with suitable example.
4. Classify the monoterpenoid with structural formula.
5. Explain the structural elucidation method of methyl group present in C-14 central portion of the *beta*-Carotene.
6. Write down few of the nomenclature method of steroids.
7. Briefly explain the role of catecholamines in the human body.

SECTION "C"

[5 Q. × 5 = 25 marks]

Attempt *ANY FIVE* questions.

8. Describe the general methods of functional group identification in alkaloid structures.
9. Explain the chemical classification of tetra-terpenoids.
10. Explain the structural elucidation process of menthol.
11. Briefly explain the major classes of steroids.
12. How can you synthesize the following compound applying Diel's Alder reaction? Mention diene and dienophile in your proposed reaction. What will be the role of -$COOC_2H_5$ in the reaction?



13. Classify the plant flavanoids in detail.
14. Differentiate between steroidal and peptide hormones.

SECTION "D"

[2Q. × 7.5 = 15 marks]

Attempt *ANY TWO* questions

15. Explain the biosynthesis of plant lignans and lignins. Also write down some lignans and their medicinal values.
16. Describe the uses of glycosides and their structural patterns with special reference to major glycosides of digitalis, strophanthus and squill.
17. Explain the general consideration regarding the structural elucidation of terpenes.