KATHMANDU UNIVERSITY
End-Semester Examination [C]
June, 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 : JUN 17 2018

SECTION "A"

[20 Q.× 1 = 20 marks]

1. Structure of Nicotine compound consisting of
   a. A Pyridine and a Pyrrolidine ring
   b. A Putrescine and Pyridine ring
   c. A L-aspartic acid and pyrrolidine ring
   d. A Putrescine and A L-aspartic acid

2. L-Phenylalanine is used as primary precursors in the biosynthesis of following alkaloids **except**
   a. Papaverine b. Capsaicin c. Ephedrine d. Nicotine

3. Distillation of Alkaloid compound with soda lime produces the methylamine, which shows the presence of
   a. Lactum group
   b. Methylenedioxy group
   c. N-methyl group
   d. Methoxyle group

4. The cardenolides and bufadienolides possesses ……..and ….. rings respectively
   a. Butyrolactone and pyrone
   b. Pyrone and butyrolactone
   c. Furan and pyrone
   d. Tropane and butyrolactone

5. Choose a group of Terpenoidal type of Glycosides
   a. Amygdalin, sinalbin
   b. Sennoside, sinigrin
   c. Digoxin, salicin
   d. Glycyrrhizin, ginsenoside

6. The principal mineralocorticoid which is produced in the zona glomerulosa of adrenal cortex, raises blood pressure and fluid volume, increases Na^+ uptake
   a. Testosterone b. Aldosterone c. Progesterone d. Pregnenolone

7. A correct statement about the "iodination of tyrosine"
   a. Thyroglobulin is stimulates the release of the follicle cells
   b. A molecule of thyroglobulin contains 100 tyrosines
   c. All of the tyrosine is used to synthesize T4 and T3
   d. The iodination occurs using thyroid peroxidase enzymes

8. Physiologic Effects of Oxytocin is
   a. Stimulation of uterine smooth muscle relaxation at birth
   b. Biosynthesize the amino acids for protein synthesis
   c. Stimulation of milk ejection
   d. Increases the permeability of water of tubules

9. Oxygenated acyclic monoterpene
   a. Pulegone b. Menthol c. Alpha-Pinine d. Citral

10. A carotenoid that increase the calcium content and useful on bone loss over age
    a. Fucoxanthin b. Lycopene c. β-Cryptoxanthin d. Lutein

11. Presence of 2° nature of alcoholic group in Menthol can be confirmed by
a. Formation of esters readily with acids and oxidized to yield ketone
b. On dehydration followed by dehydrogenation which yields p-Menthol
c. By dehydration with conc sulfuric acid which gives 2-menthene
d. By oxidation with chromic acid which crystallizes the Menthol

12. Number of double bond and methyl group present in *beta*-Carotene
a. 10 and 10 respectively
b. 11 and 11 respectively
c. 1 and 11 respectively
d. 11 and 10 respectively

13. Sitosterol is a compound having the extra methyl group/s on *iso*-octyl side-chain of steroidal skeleton at 'C' position of
a. 28, 29, 30 b. 27, 28, 24^1 c. 24^1, 24^2 d. 21, 29, 30

14. Find a correct statement on Structure-Activity Relationships of cardiac glycosides.
a. Structures with ring C/D trans fusion in steroids are always active
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 methody groups do not affect on the duration of action

15. Flax seed is rich in plant Lignans
a. Lariciresinol, Pinoresinol, Secoisolariciresinol
b. Episesamin, Syringaresinol Adlay, Pinoresinol
c. Pinoresinol glucoside, 7-hydroxymatairesinol
d. Secoisolariciresinol, Syringaresinol Adlay, 7-hydroxymatairesinol

16. 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

17. 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

18. The oxidation of primary and secondary alcohols with ketones in presence of aluminium isopropoxide to the corresponding aldehydes and ketones-is the reverse reaction of
a. Oppenauer oxidation
b. Diels Alder reaction
c. Meerwein-Pondorf-Verley reduction
d. Wittig reaction

19. Which method is applicable for the estimation of C-methyl group?
a. Herzig-Meyer method
b. Zeisel method
c. Emde's method
d. Kuhn-Roth method

20. An ylide is a molecule that can be described as a
a. Carbocation bound to a positively charged heteroatom
b. Carbanion bound to a negatively charged heteroatom
c. Carbocation bound to a carbon radical
d. Carbanion bound to positively charged heteroatom

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SECTION "B"

[5 Q.× 3 = 15 marks]

Attempt ***ANY FIVE*** questions

1. Write down the major alkaloids of Nuxvomica with suitable structure.
2. Explain the hydroxyl group determination method for alkaloidal compounds.
3. Classify the glycosides on the basis of the pharmacological property.
4. Write down the structure of Amygdalin. Also mention the Kreb's pypothesis on Amygdalin.
5. Explain the structural elucidation method of Citral for its acyclic monoterpenoid structure.
6. Write short note on insulin.
7. Why the phenolic hydroxyl groups are considered as an strong antioxidants? Write down the possible bonds formed between protein and plant phenolics.

SECTION "C"

[5Q. x 5 = 25 marks]

Attempt ***ANY FIVE*** questions

8. Describe the biosynthesis of Nicotine.
9. Explain the Stronphatus glycosides in detailed.
10. Explain the structural elucidation of Menthol.
11. Give the chemical classification of lower terpenoids with suitable example.
12. Explain the biosynthesis of cholesterol.
13. Write down Diels Alder reaction with the mechanism.
14. Write short account on chemistry and function of catecholamines.

SECTION "D"

[2Q. x 7.5 = 15 marks]

Attempt ***ANY TWO*** questions

15. Explain the general pattern of structural elucidation of terpenoids.
16. Write down the chemistry and medicinal uses of plant lignans with suitable structures.
17. Give the detailed account on major chemical classes of steroids with suitable example.