

Marks scored:

KATHMANDU UNIVERSITY  
End Semester Examination  
March/April, 2017

Level : B. Pharm.  
Year : III

Course : PHAR 304  
Semester : I

Exam Roll No. :

Time: 30 mins.

F. M. : 20

Registration No.:

Date APR 6 2017

SECTION "A"

[20 Q. × 1 = 20 marks]

1. 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 a positively charged heteroatom.
2. Choose a group of higher terpenoid among the following
  - a. Celastrol, Ursolic acid
  - b. Abietic acid, gibberellic acid
  - c. Avarol, Gossypol
  - d. Abscisic acid, luteoxanthin
3. Lowest number of double bond present in the structural formula of
  - a. Luteoxanthin
  - b. Lutein
  - c.  $\beta$ -Cryptoxanthin
  - d.  $\gamma$ -Carotene
4. Find one correct statement about terpenoids
  - a. Lutein is the most predominant carotenoid in human plasma.
  - b. Phytoene is mostly accumulated in human bone
  - c.  $\gamma$ -Carotene can not be converted into vitamin A
  - d. Zeaxanthin concentrated in the retina and lens
5. Structural elucidation of Citral to determine the presence of oxygen is correct for
  - a. On ozonolysis, it gives acetone, laevulaldehyde and glyoxal.
  - b. When treated with phenylisothiocyanate, yields phenylurethane
  - c. Forms esters readily with acids and oxidized to yield ketone
  - d. On reduction with Sodium and Ethanol gives dihydrocarveol
6. Most common sterol for biosynthetic precursor of bile acids, vitamin D and steroid hormones
  - a. Cholesterol
  - b. Campesterol
  - c. Sitosterol
  - d. Sapogenin
7. Carbon atoms as ethyl group at C-24 position is present in
  - a. Lanosterol
  - b. Sitosterol
  - c. Campesterol
  - d. Androstanetriol
8. Find the significant differences between the steroids
  - a. 17<sup>th</sup> carbon side chain is larger in Cholestanes than Estranges
  - b. Methyl groups are attached at 10<sup>th</sup> and 13<sup>th</sup> carbon of Cholic acids while only at 13<sup>th</sup> carbon of Andranes
  - c. Testosterone belongs to Andranes but Estradiol belongs to Progesterone
  - d. Digitoxigenin is related to sapogenin but Diosgenin is related to alkaloidal glycosides
9. .... are reported to possess cyclooxygenase (COX) inhibitory activities
  - a. Rutin, Menthol
  - b. Catechin, Toxifolin
  - c. Isorhamnetins, 3-O- Methylmyristicins
  - d. Kaempferol, Quercetin

10. Phytochemicals .....are found as insoluble form in cell wall, act as lignifications.  
 a. *p*-Coumaric acid and ferulic acid                      b. Salicylic acid and epicatechin gallate  
 c. Ferulic acid and salicylic acid                              d. *p*-Coumaric acid and epicatechin gallate
11. Which one is most suitable statement for the plant lignans  
 a. Have free scavenger action and water soluble pigments  
 b. Conjugated cyclic dione structure and form strong complexes with proteins  
 c. Provide rigidity, strength, and water impermeability.  
 d. Contribute the colors of flowers and fruits to attract the insects
12. .... is released by nervous stimulation in response to any sudden physical or mental stress.  
 a. Thyrocalcitonin    b. Oxytocin                      c. Gastrin                      d. Adrenaline
13. Find the correct role of vasopressin  
 a. Decreased vasopressin decreased renal sensitivity which leads to increased blood sodium concentration, excess urine production.  
 b. High levels of vasopressin secretion resultant high blood sodium levels occurs to facilitate the respiration.  
 c. Vasopressin lowers blood pressure by inducing moderate vasoconstriction.  
 d. Vasopressin help to conserve the extra glucose into fats
14. Hormone maintaining salt and water balance as well as regulates the concentration of minerals  
 a. Aldosterone              b. Thyroxin                      c. Vasopressin                      d. Oxytocin
15. Amino acids precursors required in the biosynthesis of Nicotine are  
 a. Glyceraldehyde 3-phosphate, Lysine and L-aspartic acid precursors  
 b. Glyceraldehyde 3-phosphate, Ornithine and Methyl putrescine  
 c. Glyceraldehyde 3-phosphate, Pyrrolidine and L-aspartic acid precursors  
 d. Glyceraldehyde 3-phosphate, Ornithine and L-aspartic acid precursors
16. Oxygen presents in alkaloids as -OH group is determined by  
 a. Zeisel determination method                      b. Zerewitinoff method  
 c. Herzig- Mayer's method                              d. Hoffmann degradation method
17. The drug relaxesthe smooth muscle of the larger blood vessels and is used to increase the blood supply to the brain, as in the treatment of angina pectoris.  
 a. Papaverine              b. Ephedrine                      c. Nicotine                      d. Capsaicin
18. Find the correct statement about the plant alkaloids  
 a. *Papaver somniferum* contains hexacyclic derative drug, morphine.  
 b. *Strychnos nux-vomica* seeds contain strychnine, a hexacyclic indole alkaloid for heart diseases.  
 c. *Rauwolfia* species contains antihypertensive drug scopolamine.  
 d. *Claviceps purpurea* plant rich in ergotamine, which is used in migraine, and induce child birth.
19. Hydrolytic products of amygdalin are ....., ....., .....
20. Draw the structure of Quabain. ....

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SECTION "B"

[ 5Q. × 3 = 15 marks]

Attempt *ANY FIVE* questions.

1. Compare and contrast between Adrenaline and Noradrenaline.
2. Write down a brief account on Androgens.
3. Write down the general method of –OH group determination of alkaloid structures.
4. Mention the 'prefixes' used in the steroidal nomenclature.
5. Structurally elucidate the nature of oxygen atom in Camphor.
6. Write short accounts on Scillarin A.
7. Predict the product when  $\text{CH}_3\text{CHO}$  reacts with  $\text{Br-CH}_2\text{-COOEt}$  in presence of  $\text{Zn/diethyl ether}$ .

SECTION "C"

[ 5Q. × 5 = 25 marks]

Attempt *ANY FIVE* questions.

8. Write down the biosynthesis of Capsaicin.
9. Explain the structural elucidation of Menthol.
10. Compare and contrast between sterol and sapogenins.
11. Classify the carotenoids with structures of major compounds.
12. Give the structural elucidation process of Carvone.
13. Give detail chemistry of cardinolyde types of glycoside.
14. Write a note on Diels-Alder reaction.

SECTION "D"  
[ 2Q. × 7.5 = 15 marks]

Attempt *ANY TWO* questions.

15. Explain the medicinal importance of lower terpenoids with specific example.
16. Explain the amygdalin and sketch its synthesis.
17. Write down the classes, chemistry and medicinal uses of flavanoids with suitable structure.