(7 pages) **Reg. No. :** .....

Code No. : 7157 **Sub. Code : PCHM 21**

M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2019.

Second Semester

Chemistry – Core

ORGANIC CHEMISTRY – II

(For those who joined in July 2017 onwards)

Time : Three hours Maximum : 75 marks

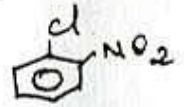
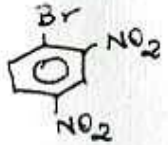
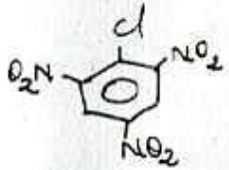
PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer.

1. The spectra of condensed ring systems are useful as ————————.
   (a) reference
   (b) finger print
   (c) model
   (d) both reference and model

2. Mesityl oxide absorbs at ———————— nm.
   (a) 299 (b) 289
   (c) 279 (d) 239

3. Which among the following compound will give ArS_M2 reaction
   (a) 
   (b) 
   (c) 
   (d) all of these

4. ArS_N1 reaction is mainly given by ————————.
   (a) alkyl diazonium cation
   (b) aryl diazonium cation
   (c) alkyl anion
   (d) aryl anion

5. Carbenes are highly reactive intermediates possessing a ————————.

(a) mono coordinate carbon atom

(b) dicoordinate carbon atom

(c) tricoordinate carbon atom

(d) tetracoordinate carbon atom

6. Triplet carbene is a bent molecule with an angle of about

(a) 103° (b) 136°

(c) 120° (d) 190°28′

7. Quinine is a

(a) Opium alkaloid

(b) Cinchona alkaloid

(c) Coca alkaloid

(d) Solanaceous alkaloid

8. Hydrolysis of cephalosporin C with acid gave

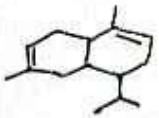
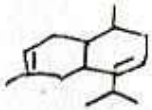
(a) one molecule of CO_2

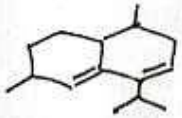
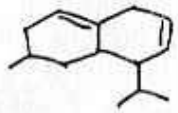
(b) one molecule of D – α –aminoadipic acid

(c) two molecules of NH_3

(d) all of above

9. Identify α - Cadinene from the following

(a)  (b) 

(c)  (d) 

10. Vitamin E is also called

(a) Phylloquinone

(b) Tocopherol

(c) Cyanocobalamin

(d) Nicotinic acid

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) How will you distinguish ortho nitrophenol from para nitrophenol by infra-red studies?

Or

(b) Discuss the effect of solvent polarity on $n \rightarrow \pi^*$ and $\pi \rightarrow \pi^*$ transitions of α, β -unsaturated carbonyl compounds.

12. (a) Give an account of the synthetic applications of Wittig reaction.

Or

(b) Write a brief account on benzyne mechanism.

13. (a) Discuss the synthetic applications of Wolff rearrangement of acyl carbenes.

Or

(b) Explain the structure and stability of aryne.

14. (a) Describe a synthesis of (–) chloramphenicol.

Or

(b) Briefly discuss the biosynthesis of tyrosine.

15. (a) Outline the synthesis of α-Santonin.

Or

(b) How will you synthesize the following

(i) Vitamin-C

(ii) Squalene.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) (i) Discuss the effect of steric hindrance to coplanarity with respect to UV-vis absorption.

(ii) Describe the IR absorption of carbonyl group in p-nitro acetophenone and p-methyl acetophenone.

Or

(b) (i) Predict the sign of the cotton effect for Cholestan-3-one based on octant rule

(ii) Write an explanatory note on ORD curves.

17. (a) (i) Write any four application of $NaBH_4$.

(ii) Write an account of Smiles rearrangement.

Or

(b) Discuss the following :

(i) Dieckmann condensation

(ii) Michael addition.

18. (a) Explain the mechanism of :

(i) Schmidt rearrangement

(ii) Sommelet-Hauser rearrangement.

Or

(b) Narrate the generation, stability and reactions of carbenes.

19. (a) Discuss the structural elucidation of bysergic acid.

Or

(b) Outline the synthesis of

(i) Streptomycin

(ii) Papeverine

(iii) Atropine.

20. (a) (i) Give a short synthesis of Vitamin B_1.

(ii) Describe the total synthesis of Vitamin D. (4+4)

Or

(b) How has the structure of Camphor been established?
