

DPP - Daily Practice Problems

Chapter-wise Sheets

Date :

Start Time :

End Time :

CHEMISTRY

CC12

SYLLABUS : Organic Chemistry : Some Basic Principles & Techniques

Max. Marks : 120

Marking Scheme : + 4 for correct & (-1) for incorrect

Time : 60 min.

INSTRUCTIONS : This Daily Practice Problem Sheet contains 30 MCQ's. For each question only one option is correct. Darken the correct circle/ bubble in the Response Grid provided on each page.

- In crystallisation process impurities which impart colour to the solution are removed by which of the following ?
 - Repeated crystallisation
 - Activated charcoal
 - Bleaching agent
 - Both (a) and (b)
- The IUPAC name of

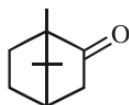
$$\text{CH}_3-\underset{\text{CH}_3}{\underset{|}{\text{CH}}}-\overset{\text{O}}{\parallel}{\text{C}}-\text{CH}_2-\text{CH}_2\text{OH}$$
 is
 - 1-hydroxy-4-methyl-3-pentanone
 - 2-methyl-5-hydroxy-3-pentanone
 - 4-methyl-3-oxo-1-pentanol
 - Hexanol-1-one-3
- The prussian blue colour obtained in the Lassaigne's test for nitrogen is due to the formation of
 - Iron (II) hexacyanoferrate (III)
 - Iron (III) hexacyanoferrate (II)
 - Iron (III) hexacyanoferrate (III)
 - Iron (II) hexacyanoferrate (II)
- Which one of the following orders is correct regarding the -I effect of the substituents ?
 - $-\text{NR}_2 < -\text{OR} > -\text{F}$
 - $-\text{NR}_2 > -\text{OR} > -\text{F}$
 - $-\text{NR}_2 < -\text{OR} < -\text{F}$
 - $-\text{NR}_2 > -\text{OR} < -\text{F}$

RESPONSE GRID

1. (a) (b) (c) (d) 2. (a) (b) (c) (d) 3. (a) (b) (c) (d) 4. (a) (b) (c) (d)

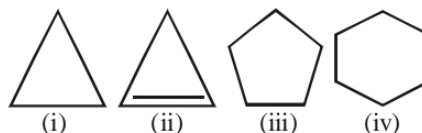
Space for Rough Work

5. Aniline is purified by
 (a) steam distillation (b) simple distillation
 (c) vacuum distillation (d) extraction with a solvent
6. Vinylcarbinol is
 (a) $\text{HO}-\text{CH}_2-\text{CH}=\text{CH}_2$ (b) $\text{CH}_3\text{C}(\text{OH})=\text{CH}_2$
 (c) $\text{CH}_3-\text{CH}=\text{CH}-\text{OH}$ (d) $\text{CH}_3-\text{C}(\text{CH}_2\text{OH})=\text{CH}_2$
7. Which of the following is true regarding hyperconjugation, also known as no-bond resonance?
 (i) Like inductive effect it involves donation of electrons through s bonds
 (ii) Hyperconjugation involves overlapping of filled orbitals with the empty p orbital of the carbocation
 (iii) Like resonance, it involves displacement of π or lone pair of electrons to the carbon bearing positive charge
 (iv) It involves delocalisation of s and π - electrons
 (a) (ii) and (iv) (b) (ii)
 (c) (iii) (d) none
8. The accepted IUPAC name of the camphor is



- (a) 1, 7, 7 - trimethyl bicyclo [2. 2. 1] heptan - 2 - one
 (b) 1, 7, 7, - trimethyl bicyclo [2. 1. 2] heptan - 2 - one
 (c) 1, 2, 2 - trimethyl bicyclo [2. 2. 1] heptan - 6 - one
 (d) None of these
9. Fractional distillation is used when
 (a) there is a large difference in the boiling point of liquids
 (b) there is a small difference in the boiling points of liquids
 (c) boiling points of liquids are same
 (d) liquids form a constant boiling mixture

10. The stability of the compounds



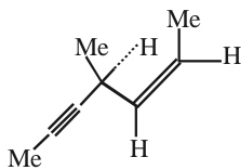
- (a) (iv) > (iii) > (i) > (ii) (b) (i) > (iii) > (ii) > (iv)
 (c) (ii) > (iii) > (i) > (iv) (d) (iv) > (i) > (iii) > (ii)
11. The reason for the loss of optical activity of lactic acid when OH group is changed by H is that :
 (a) Chiral centre of the molecule is destroyed
 (b) Molecule acquires asymmetry
 (c) Due to change in configuration
 (d) Structural change occurs
12. In Duma's method for estimation of nitrogen, 0.25 g of an organic compound gave 40 mL of nitrogen collected at 300 K temperature and 725 mm pressure. If the aqueous tension at 300 K is 25 mm, the percentage of nitrogen in the compound is :
 (a) 18.20 (b) 16.76
 (c) 15.76 (d) 17.36
13. Sodium nitroprusside, when added to an alkaline solution of sulphide ions, produces purple colour ion due to the formation of
 (a) $\text{Na}[\text{Fe}(\text{H}_2\text{O})_5 \text{NOS}]$ (b) $\text{Na}_2[\text{Fe}(\text{H}_2\text{O})_5 \text{NOS}]$
 (c) $\text{Na}_3[\text{Fe}(\text{CN})_5 \text{NOS}]$ (d) $\text{Na}_4[\text{Fe}(\text{CN})_5 \text{NOS}]$
14. The most satisfactory method to separate mixture of sugars is
 (a) fractional crystallisation
 (b) sublimation
 (c) chromatography
 (d) benedict reagent

RESPONSE
GRID

5. (a)(b)(c)(d) 6. (a)(b)(c)(d) 7. (a)(b)(c)(d) 8. (a)(b)(c)(d) 9. (a)(b)(c)(d)
 10. (a)(b)(c)(d) 11. (a)(b)(c)(d) 12. (a)(b)(c)(d) 13. (a)(b)(c)(d) 14. (a)(b)(c)(d)

Space for Rough Work

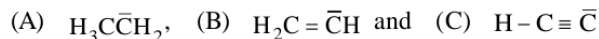
15.



Hydrogenation of the above compound in the presence of poisoned palladium catalyst gives

- (a) optically active compound
 (b) an optically inactive compound
 (c) a racemic mixture
 (d) a diastereomeric mixture

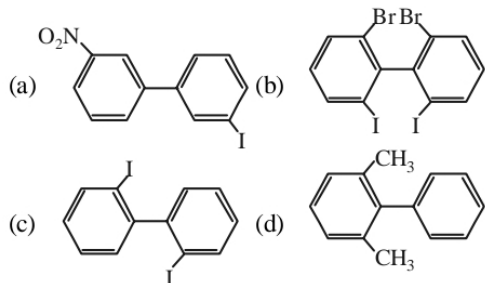
16. Base strength of :



is in the order of :

- (a) (B) > (A) > (C) (b) (C) > (B) > (A)
 (c) (A) > (C) > (B) (d) (A) > (B) > (C)

17. Which of the following biphenyls is optically active ?



18. Which of the following compounds does not show Lassaigne's test for nitrogen ?

- (a) Urea (b) Hydrazine
 (c) Phenylhydrazine (d) Azobenzene

19. The correct statement regarding the comparison of staggered and eclipsed conformation of ethane, is

- (a) The staggered conformation of ethane is less stable than eclipsed conformation, because staggered conformation has torsional strain
 (b) The eclipsed conformation of ethane is more stable than staggered conformation, because eclipsed conformation has no torsional strain
 (c) The eclipsed conformation of ethane is more stable than staggered conformation even though the eclipsed conformation has torsional strain
 (d) The staggered conformation of ethane is more stable than eclipsed conformation, because staggered conformation has no torsional strain.

20. The number of asymmetric C-atom created and number of possible stereoisomers when benzil (PhCOCOPh) is reduced with LiAlH_4 .

- (a) 2, 3 (b) 2, 2 (c) 2, 4 (d) 3, 2

21. The most suitable method of separation of 1 : 1 mixture of ortho and para-nitrophenols is :

- (a) Chromatography
 (b) Crystallisation
 (c) Steam distillation
 (d) Sublimation

22. In Kjeldahl's method nitrogen present is estimated as

- (a) N_2 (b) NH_3
 (c) NO_2 (d) None of these

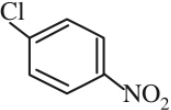
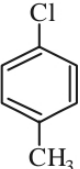
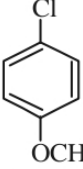
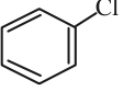
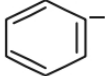
23. Which of the following sequence of T and F is correct for given statements. Here T stands for correct and F stands for false statement

- (i) The more the number of contributing structures, the more is the resonance energy.
 (ii) The resonance structures have different positions of nuclei but same number of unpaired electrons
 (iii) The energy of actual structure of the molecule (the resonance hybrid) is lower than that of any of the canonical structures.
- (a) TTT (b) TFT
 (c) FFF (d) TFF

RESPONSE
GRID

15. (a)(b)(c)(d) 16. (a)(b)(c)(d) 17. (a)(b)(c)(d) 18. (a)(b)(c)(d) 19. (a)(b)(c)(d)
 20. (a)(b)(c)(d) 21. (a)(b)(c)(d) 22. (a)(b)(c)(d) 23. (a)(b)(c)(d)

Space for Rough Work

24. Which of the following compounds undergoes nucleophilic substitution reaction most easily ?
- (a)  (b) 
- (c)  (d) 
25. The stability of carbanions in the following :
- (I) $RC = C^-$ (II) 
- (III) $R_2C = CH^-$ (IV) $R_3C - CH_2^-$
- is in the order of :
- (a) (I) > (II) > (III) > (IV) (b) (II) > (III) > (IV) > (I)
 (c) (IV) > (II) > (III) > (I) (d) (I) > (III) > (II) > (IV)
26. The percentage of sulphur in an organic compound whose 0.32 g produces 0.233 g of $BaSO_4$ [At. wt. Ba = 137, S = 32] is
- (a) 1.0 (b) 10.0
 (c) 23.5 (d) 32.1
27. A similarity between optical and geometrical isomerism is that
- (a) each forms equal number of isomers for a given compound
 (b) if in a compound one is present then so is the other
 (c) both are included in stereoisomerism
 (d) they have no similarity.
28. Arrange the carbanions,
 $(CH_3)_3C^-$, C^-Cl_3 , $(CH_3)_2C^-H$, $C_6H_5C^-H_2$
 in order of their decreasing stability :
- (a) $(CH_3)_2C^-H > C^-Cl_3 > C_6H_5C^-H_2 > (CH_3)_3C^-$
 (b) $C^-Cl_3 > C_6H_5C^-H_2 > (CH_3)_2C^-H > (CH_3)_3C^-$
 (c) $(CH_3)_3C^- > (CH_3)_2C^-H > C_6H_5C^-H_2 > C^-Cl_3$
 (d) $C_6H_5C^-H_2 > C^-Cl_3 > (CH_3)_3C^- > (CH_3)_2C^-H$
29. Chlorine in vinyl chloride is less reactive because
- (a) sp^2 - hybridised carbon has more acidic character than sp^3 - hybridised carbon
 (b) C - Cl bond develops partial double bond character
 (c) of resonance
 (d) All are correct
30. A compound contains 38.8% C, 16% H and 45.2% N. The formula of compound would be :
- (a) CH_3NH_2 (b) CH_3CN
 (c) C_2H_5CN (d) $CH_2(NH_2)_2$

RESPONSE
GRID

24. (a)(b)(c)(d) 25. (a)(b)(c)(d) 26. (a)(b)(c)(d) 27. (a)(b)(c)(d) 28. (a)(b)(c)(d)
 26. (a)(b)(c)(d) 30. (a)(b)(c)(d)

DAILY PRACTICE PROBLEM DPP CHAPTERWISE 12 - CHEMISTRY

Total Questions	30	Total Marks	120
Attempted		Correct	
Incorrect		Net Score	
Cut-off Score	36	Qualifying Score	53
Success Gap = Net Score – Qualifying Score			
Net Score = (Correct × 4) – (Incorrect × 1)			

Space for Rough Work