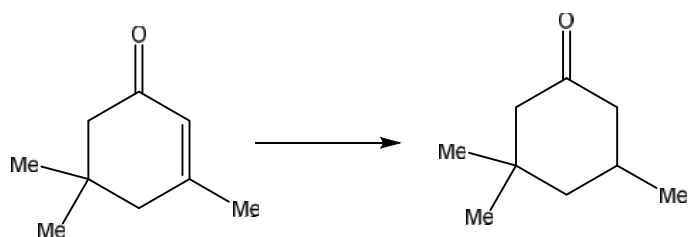


Q. No.	Question Text	Option A	Option B	Option C	Option D
1	Which of the following represents the term symbol for ground state of Nitrogen atom?	3P_0	$^4P_{3/2}$	1P_1	$^4S_{3/2}$
2	The geometry of SF ₄ molecule is	Octahedral	Trigonal bipyramid with no lone pair of electrons	Trigonal bipyramid with lone pair in axial positions	TBP with lone pair in equatorial position
3	Which of the following is true for Fe center in Oxy-haemoglobin?	High spin Fe (III)	Low spin Fe (II)	High spin Fe(II)	Low spin Fe (III)
4	Which of the following species is isolobal with [Co(CO) ₄]	CH ₄	CH ₃	CH ₂	CH
5	The IR spectrum of which of the following compound will show lowest energy CO stretching frequency	[Mn (CO) ₆] ⁺	[V(CO) ₆]	[Cr (CO) ₆]	[Fe(CO) ₄] ²⁻
6	Which of the following will show normal spinel structure?	Fe ₃ O ₄	Mn ₃ O ₄	ZnO	Fe(CO) ₅
7	Which of the following will have highest crystal field stabilization energy (CFSE)?	Zn(NH ₃) ₄ ²⁺	CoF ₆ ³⁻	CO(NH ₃) ₆ ³⁺	Mn(H ₂ O) ₄ ²⁺
8	Which of the following lanthanide pair will show +4 oxidation state?	Sm and La	La and Eu	Ce and Pr	La and Tm
9	Styx code of B ₄ H ₁₀ is	4120	3220	4012	3202
10	Which of the following is an example of Silicates with continuous 3D frame works are	Neo -silicates	Soro-Silicates	Phyllo -silicates	Tecto-silicates
11	Which of the following is softest acid?	Bi ³⁺	Li ⁺	Cl ⁻	Cd ²⁺
12	In ¹⁹ F spectrum of PF ₅ obtained at room temperature, the number of signals and multiplicity will be	singlet	Doublet and doublets of doublets	Quintet with triplet of triplets	Quintet and doublets
13	The ¹⁴ C emits which of the following radiations when used for carbon-dating	-particles	-particles	-radiations	⁺ -particles
14	The energy for a single electron excitation in cyclopropenium cation in Huckel theory is		2	3	4
15	The wave function sin ⁻¹ x is not acceptable because it is	Not continuous	Not differentiable	Not an eigen function of kinetic energy operator	Not a single valued function
16	A first order reaction is 50% completed in 20 minutes at 27°C and in 5 minutes at 47°C . The activation energy of the reaction is	43.85kJ/mol	55.14kJ/mol	11.97kJ/mol	6.65kJ/mol
17	The pH of a buffer solution containing 4x10 ⁻³ and 0.4 moles of acetic acid (pKa=4.76) and sodium acetate respectively will be	6.76	4.76	2.76	0.76
18	The diffusion current in a polarogram is proportional to	Residual current	Migration current	Wave height	Concentration of supporting electrolyte
19	Kohlrausch's law is applicable to a dilute solution of	KCl in hexane	CH ₃ COOH in water	HCl in water	Benzoic acid in benzene
20	The packing fraction for a hexagonal close packed arrangement is	0.633	0.74	0.414	0.92
21	Phenol associates in benzene to form dimers. The Van't Hoff's factor is 0.54. The degree of association of phenol will be	0.44	0.58	0.98	0.74
22	The unit of molar partition function are	cm ⁻¹	s ⁻¹	JK ⁻¹ mol ⁻¹	none of these
23	Which of the following metal is used as indicator electrode	Cr	Mo	Cd	Co
24	The number 0.0008 has significant figures	3	8	4	1
25	The point group symmetry for CH ₂ Cl ₂ is	C _{2h}	C _{2v}	D _{2h}	D _{2d}
26	The 1H-NMR spectrum of toluene, the resonance due to CH ₃ group is expected at	delta 0.5	delta 1.25	delta 2.5	delta 3.5
27	The most suitable reagent for the following transformation is #imgQ.27.png	LiAlH ₄	NH ₂ NH ₂ /KOH	NaBH ₄ /CeCl ₃	Li/liq.NH ₃
28	The reaction given below is an example of #imgQ.28.png	1,3 sigmatropic hydrogen shift	1,3 sigmatropic methyl shift	1,5 sigmatropic hydrogen shift	1,5 sigmatropic methyl shift
29	Which one of the following is aromatic?	#imgQ.29A.png	#img.Q29B.png	#img.Q29C.png	#img.Q29D.png
30	The major product formed in the following reaction is #imgQ.30.png	#imgQ.30A.png	#imgQ.30B.png	#imgQ.30C.png	#imgQ.30D.png
31	Which of the following is most basic compound	#imgQ.31A.png	#imgQ.31B.png	#imgQ.31C.png	#imgQ.31D.png

32	In the mass spectrum of dichlorobenzene, the ratio of peaks at m/z 146,148 and 150 is	1:1:1	1:1:3	2:1:1	9:6:1
33	In the IR spectrum of p-Nitro phenyl acetate , the carbonyl absorption band appears at	1670cm ⁻¹	1700cm ⁻¹	1730cm ⁻¹	1760 cm ⁻¹
34	L-DOPA is used for treatment of	Tuberculosis	Parkinson's	Diabetes	Cancer
35	Which of the following is correct statement about mercury as an environmental pollutant?	Mercury get converted into MeHg ⁺	Lysine forms stable insoluble complex	Glycine forms stable soluble complex	interferes with activity of carbonic anhydrase
36	Which of the following is correct statement about nucleic acids?	Uracil is present in DNA	Uracil is present in RNA	A-T base pair is stabilized by three hydrogen bonds	Phosphorylation in RNA occurs at 2' and 5' position
37	Which of the following is a pyrimidine base?	Imidazole	Guanine	Cytosine	Adenine
38	For the compound , the stereochemical notations are # imgQ.38.png	2Z,4R	2E,4S	2Z, 4S	2E, 4R
39	A disaccharide that does not form osazone and does not give Benedict's test is	maltose	sucrose	cellibose	lactose
40	How many hyperfine lines in ESR spectrum are shown by Mn ²⁺ ?	6	3	4	2

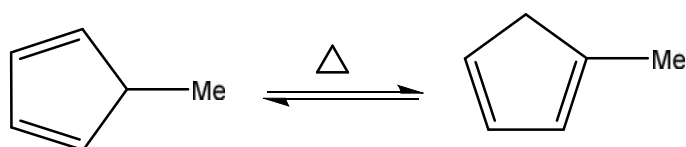
Images for structure

Q. No. 27



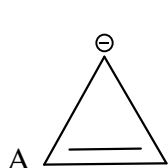
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Q. No. 28

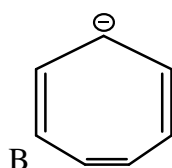


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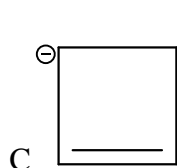
Q. No. 29 Answer option



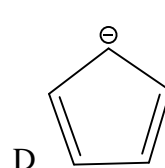
#imgQ.29A.png



#imgQ.29B.png

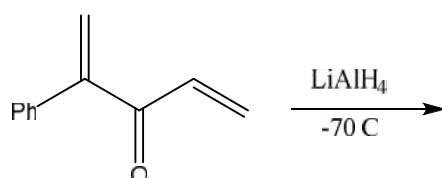


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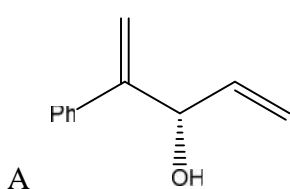
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Q. No. 30

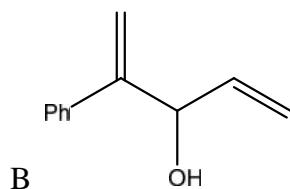


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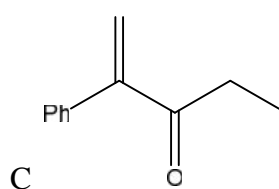
Q. No. 30 Answer option



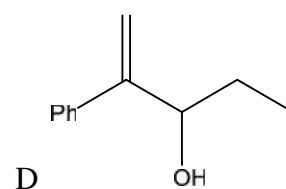
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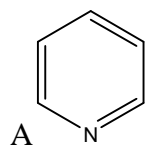


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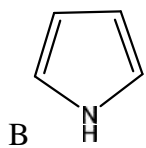


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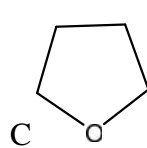
Q. No. 31 Answer option



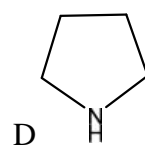
#imgQ.31A.png



#imgQ.31B.png

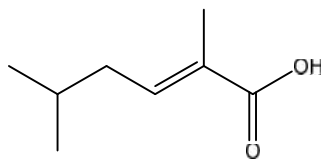


#imgQ.31C.png



#imgQ.31D.png

Q. No. 38



#imgQ.38.png

Chemistry

Key Answer

- | | |
|-----|---|
| 1. | D |
| 2. | D |
| 3. | B |
| 4. | B |
| 5. | D |
| 6. | B |
| 7. | C |
| 8. | C |
| 9. | C |
| 10. | D |
| 11. | D |
| 12. | C |
| 13. | A |
| 14. | C |
| 15. | D |
| 16. | B |
| 17. | B |
| 18. | C |
| 19. | C |
| 20. | B |
| 21. | D |
| 22. | D |
| 23. | C |
| 24. | D |
| 25. | B |
| 26. | C |
| 27. | D |
| 28. | C |
| 29. | D |
| 30. | A |
| 31. | D |
| 32. | D |
| 33. | D |
| 34. | B |
| 35. | A |
| 36. | B |
| 37. | C |
| 38. | B |
| 39. | B |
| 40. | A |