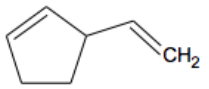
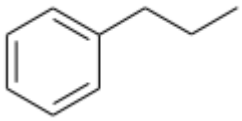
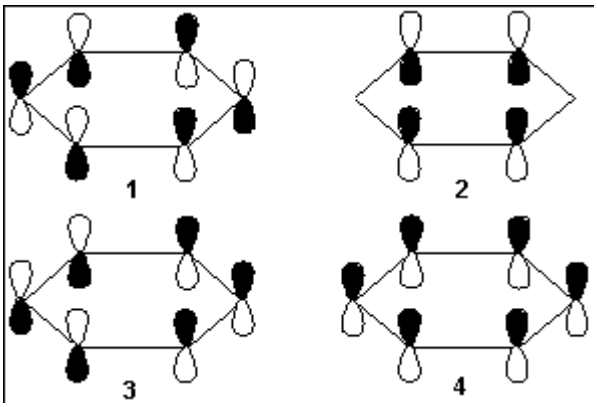
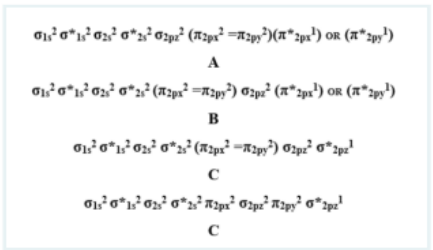
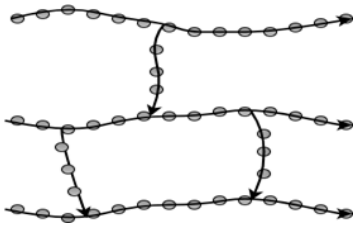
Question bank

Q1.	Which of the following compounds are aromatic?
Option A:	
Option B:	
Option C:	
Option D:	
Q2.	What is the approximate length of the carbon-carbon bonds in benzene?
Option A:	110 pm
Option B:	156 pm
Option C:	121 pm
Option D:	139 pm
Q3.	Which of the following represents the lowest energy bonding π molecular orbital of benzene? 
Option A:	3
Option B:	2
Option C:	4
Option D:	1
Q4.	Pyrrole is less basic than pyridine. The orbital having the lone pair of electrons on nitrogen in pyrrole is:
Option A:	s
Option B:	sp^2
Option C:	p

Option D:	sp^3
Q5.	The magnetic quantum number refers to
Option A:	orientation of orbitals around nucleus
Option B:	subshell or shape of the orbital
Option C:	direction of electron spin
Option D:	Energy of the level in which the electron is
Q6.	Which of the following statements is not true about the structure of benzene?
Option A:	The carbon-carbon bonds alternate in length around the ring.
Option B:	There are three bonding π molecular orbitals and three π antibonding molecular orbitals.
Option C:	Six atomic p orbitals overlap to form six π molecular orbitals.
Option D:	The ground state electronic configuration of benzene has six electrons in three π bonding molecular orbitals.
Q7.	Shapes of s, p, d orbitals respectively are
Option A:	Spherical, Double dumbbell, dumbbell
Option B:	Spherical, dumbbell, double dumbbell
Option C:	dumbbell, spherical, double dumbbell
Option D:	None of these
Q8.	The number of electrons that can be accommodated in dxy orbital is
Option A:	10
Option B:	1
Option C:	5
Option D:	2
Q9.	The electronic configuration of Mn can be written as
Option A:	[Ar] 4s2
Option B:	[Ar] 3d5, 4s1
Option C:	[Ar] 3d6,4s2
Option D:	[Ar] 3d5,4s2
Q10.	Natural rubber is vulcanized with S. Change in Tg is---
Option A:	Tg of vulcanised rubber is equal to natural rubber
Option B:	Tg of natural rubber is higher than vulcanised rubber
Option C:	Vulcanization does not affect Tg of rubber
Option D:	Tg of vulcanised rubber is higher than natural rubber
11	Which d-orbital does not have four lobes
Option A:	dx2-y2
Option B:	dyz
Option C:	dxy
Option D:	dz2
12	The maximum number of electrons in a subshell for which l=3 is?
Option A:	14
Option B:	2
Option C:	10
Option D:	6

13	Select the incorrect option:
Option A:	The aromatic hydrocarbon has a pleasant aroma (smell)
Option B:	Aromatic hydrocarbon can be either mono or polycyclic
Option C:	Some of the aromatic compounds are ring-shaped
Option D:	Benzene is aromatic hydrocarbon
14	An electron can enter into the orbital when
Option A:	value of n is minimum
Option B:	value of (n+l) is minimum
Option C:	value of l is minimum
Option D:	value of (n+m) is minimum
15	Bond order of CO is
Option A:	1
Option B:	2
Option C:	3
Option D:	4
16	Anti-bonding Molecular Orbitals get formed by _____ of electron waves & are _____ in energy that than of atomic orbitals.
Option A:	Subtraction & lower
Option B:	Addition & lower
Option C:	Subtraction & higher
Option D:	Addition & higher
17	Bond order of molecules does not signify
Option A:	Number of bonds in the molecule
Option B:	Stability of molecule
Option C:	Magnetic behavior of molecule
Option D:	Type/nature of bonds
18	A polymer sample has population as: 100 molecule of molecular mass = 220 300 molecules of molecular mass =55 20 molecules of molecular mass =635 15 molecule of molecular mass =946 27 molecules of molecular mass =415 Calculate it's PDI
Option A:	1.51
Option B:	0.398
Option C:	2.51
Option D:	1.00
19	Polymer used in artificial eye parts, signal light lens and Television screens is
Option A:	PMMA
Option B:	Buna-S
Option C:	Polycarbonate
Option D:	Polyurethane
20	When you compare Nylon 6,6 and Kevlar, which of the following statement holds true
Option A:	Kevlar is stronger than Nylon 6,6
Option B:	Kevlar is more crystalline than Nylon 6,6
Option C:	Both have CONH linkage

Option D:	All options are true
21	Which of the following are characteristics of thermosetting polymers? (i) Heavily branched cross-linked polymers (ii) Become infusible on moulding so cannot be reused (iii) Linear slightly branched long chain molecules (iv) Soften on heating and harden on cooling, can be reused
Option A:	Only (i)
Option B:	(i) & (ii)
Option C:	Only (iii)
Option D:	Only (ii)
22	Describe the orbital with following quantum numbers (i) n=3, l=2 (ii) n=4, l=3
Option A:	(i) 3p (ii) 4f
Option B:	(i) 3f (ii) 4f
Option C:	(i) 3d (ii) 4d
Option D:	(i) 3d (ii) 4d
23	Which of the following moulding method is used for manufacturing articles having uniform cross-sectional area?
Option A:	Transfer moulding
Option B:	Injection moulding
Option C:	Compression moulding
Option D:	Extrusion moulding
24	Oxidative doping of polymers is
Option A:	p-doping
Option B:	n-doping
Option C:	Both i) and ii)
Option D:	None of the above
25	Which of the following is the correct electron configuration for NO?  $\sigma_{1s}^2\,\sigma^*_{1s}^2\,\sigma_{2s}^2\,\sigma^*_{2s}^2\,\sigma_{2pz}^2\,(\pi_{2px}^2=\pi_{2py}^2)(\pi^*_{2px}^1)$ OR $(\pi^*_{2py}^1)$ A $\sigma_{1s}^2\,\sigma^*_{1s}^2\,\sigma_{2s}^2\,\sigma^*_{2s}^2\,(\pi_{2px}^2=\pi_{2py}^2)\,\sigma_{2pz}^2\,(\pi^*_{2px}^1)$ OR $(\pi^*_{2py}^1)$ B $\sigma_{1s}^2\,\sigma^*_{1s}^2\,\sigma_{2s}^2\,\sigma^*_{2s}^2\,(\pi_{2px}^2=\pi_{2py}^2)\,\sigma_{2pz}^2\,\sigma^*_{2pz}^1$ C $\sigma_{1s}^2\,\sigma^*_{1s}^2\,\sigma_{2s}^2\,\sigma^*_{2s}^2\,\pi_{2px}^2\,\sigma_{2pz}^2\,\pi_{2py}^2\,\sigma^*_{2pz}^1$ C
Option A:	A
Option B:	B
Option C:	C
Option D:	D
26	Identify the false statement in the following:- A sigma molecular orbital may
Option A:	form from overlap of p atomic orbitals perpendicular to the molecular axis.(Side On)

Option B:	be either bonding or antibonding MO
Option C:	form from overlap of p atomic orbitals along the molecular axis. (Head On)
Option D:	result from overlap of two s atomic orbitals.
27	Which statement is false about polydispersity.
Option A:	A monodispersed polymer contains similar chains.
Option B:	A polydispersed polymer contains different chains
Option C:	Polydispersity means polymer chains are very different in size.
Option D:	Polydispersity is always lower than 1
28	Which polymer additives are added to improve flexibility?
Option A:	Lubricants
Option B:	Stabilizers
Option C:	Plasticizers
Option D:	Reinforcements
29	Which molecular structure does the below figure represent? 
Option A:	Linear
Option B:	Cross-linked
Option C:	Branched
Option D:	Network
30	The number of repeating units in a polymer is known as _____
Option A:	monomer
Option B:	molecule
Option C:	degree of polymerization
Option D:	chain