

Master Math for JEE Main & JEE Advanced

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For JEE Main 2020 April



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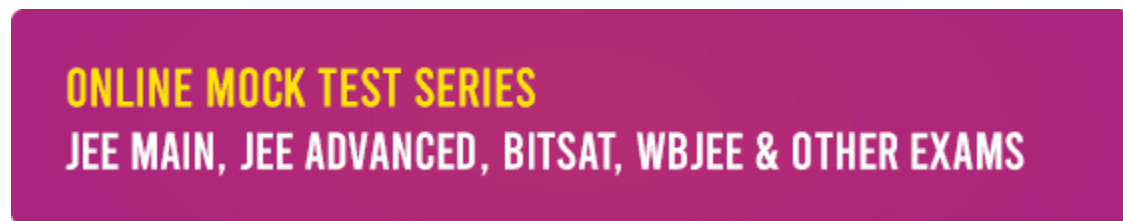
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JEE Mains 2020 Jan Chapter wise Question Bank

Chemical Bonding

Q1

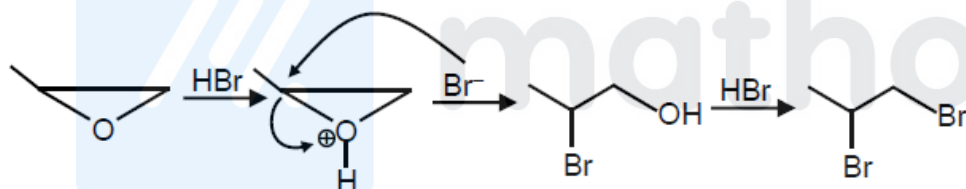
1-Methylethylene oxide $\xrightarrow[\text{HBr}]{\text{excess}}$ X, Product 'X' will be –

1-मेथिलऐथिलीन ऑक्साइड आधिक्य $\xrightarrow{\text{HBr आधिक्य}}$ X, उत्पाद 'X' होगा –

7th Jan Morning

Sol

(2)



Q2

Decreasing order of dipole moment in CHCl_3 , CCl_4 & CH_4 is –

CHCl_3 , CCl_4 तथा CH_4 में द्विध्रुव आघूर्ण का घटता हुआ क्रम है –

- (1) $\text{CHCl}_3 > \text{CCl}_4 = \text{CH}_4$ (2) $\text{CHCl}_3 > \text{CCl}_4 > \text{CH}_4$
 (3) $\text{CCl}_4 > \text{CHCl}_3 > \text{CH}_4$ (4) $\text{CCl}_4 = \text{CH}_4 > \text{CHCl}_3$

7th Jan Morning

Sol

(1)

$$\mu_{\text{CCl}_4} = \mu_{\text{CH}_4} = 0 \text{ but } \mu_{\text{CHCl}_3} \neq 0$$

Q3

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Bond order and magnetic nature of CN^- are respectively

- (1) 3, diamagnetic (2) 3, paramagnetic
(3) 2.5, paramagnetic (4) 2.5, diamagnetic

7th Jan Evening

Sol

- (1)
 CN^- is a 14 electron system.

Q4

Following vanderwaal forces are present in ethyl acetate liquid

- (1) H-bond, london forces.
(2) dipole-dipole interaction, H-bond
(3) dipole –dipole interaction, London forces
(4) H-bond, dipole-dipole interaction, London forces

8th Jan Morning

Sol

- (3)
Ethyl acetate is polar molecule so dipole-dipole interaction will be present there.

Q5

Correct bond energy order of following is-

निम्न का सही बन्ध ऊर्जा क्रम है –

- (1) $\text{C-Cl} > \text{C-Br} > \text{C-I} > \text{C-F}$ (2) $\text{C-F} < \text{C-Cl} < \text{C-Br} < \text{C-I}$
(3) $\text{C-F} > \text{C-Cl} > \text{C-Br} > \text{C-I}$ (4) $\text{C-I} < \text{C-Br} < \text{C-F} < \text{C-Cl}$

8th Jan Evening

Sol

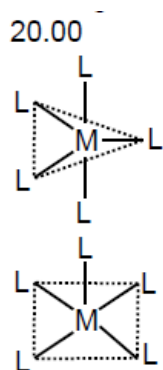
- (3)
Bond energy $\propto \frac{1}{\text{Bond length}}$

$$\text{बन्ध ऊर्जा} \propto \frac{1}{\text{बन्ध लम्बाई}}$$

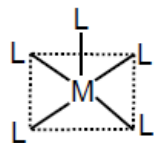
Q6

Complex $[\text{ML}_5]$ can exhibit trigonal bipyramidal and square pyramidal geometry. Determine total number of 180° , 90° & 120° L-M-L bond angles.

Sol



$$\angle 120^\circ = 3; \angle 90^\circ = 6; \angle 180^\circ = 1 \Rightarrow \text{Total} = 10$$



$$\angle 90^\circ = 8; \angle 180^\circ = 2 \Rightarrow \text{Total} = 10$$

Q7

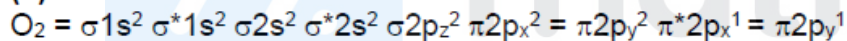
Which of the following species have one unpaired electron each?

निम्न में से कौनसी स्पीशीज (प्रत्येक में) एक अयुग्मित इलेक्ट्रॉन रखती हैं?

(1) O_2, O_2^- (2) O_2, O_2^+ (3) $\text{O}_2^+, \text{O}_2^-$ (4) $\text{O}_2, \text{O}_2^{2-}$ 9th Jan Morning

Sol

(3)



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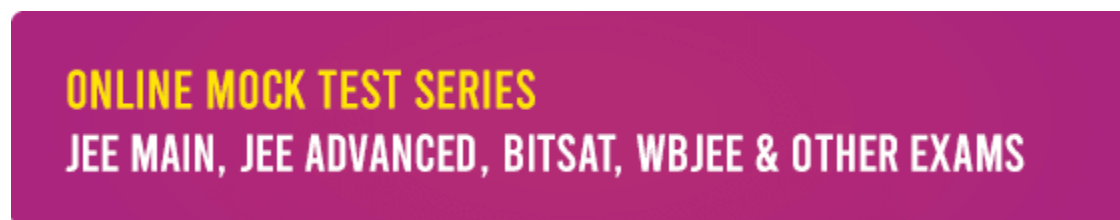
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