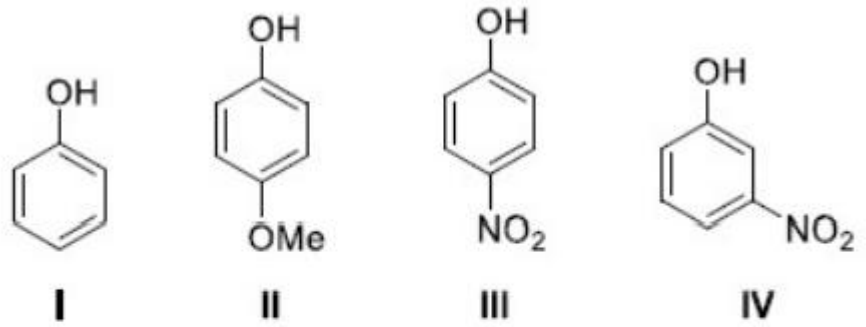
JEE: Mock test

Part-1

Chemistry Affinity

Conceptual, Real world, Happy Learning

1. The acidity of



follows the order

A) **I > II > III > IV**
B) **IV > III > II > I**
C) **III > IV > I > II**
D) **III > II > IV > I**

2. A molecule which has 1°, 2° and 3° carbon atoms is:

A) 2,3,4-trimethylpentane
B) chlorocyclohexane
C) 2,2-dimethylcyclohexane
D) methylcyclohexane

3. The organic compound which can be purified by steam distillation is

A) acetone
B) aniline
C) glucose
D) ethanol

4.

Among the following, the most acidic compound is:

A) 

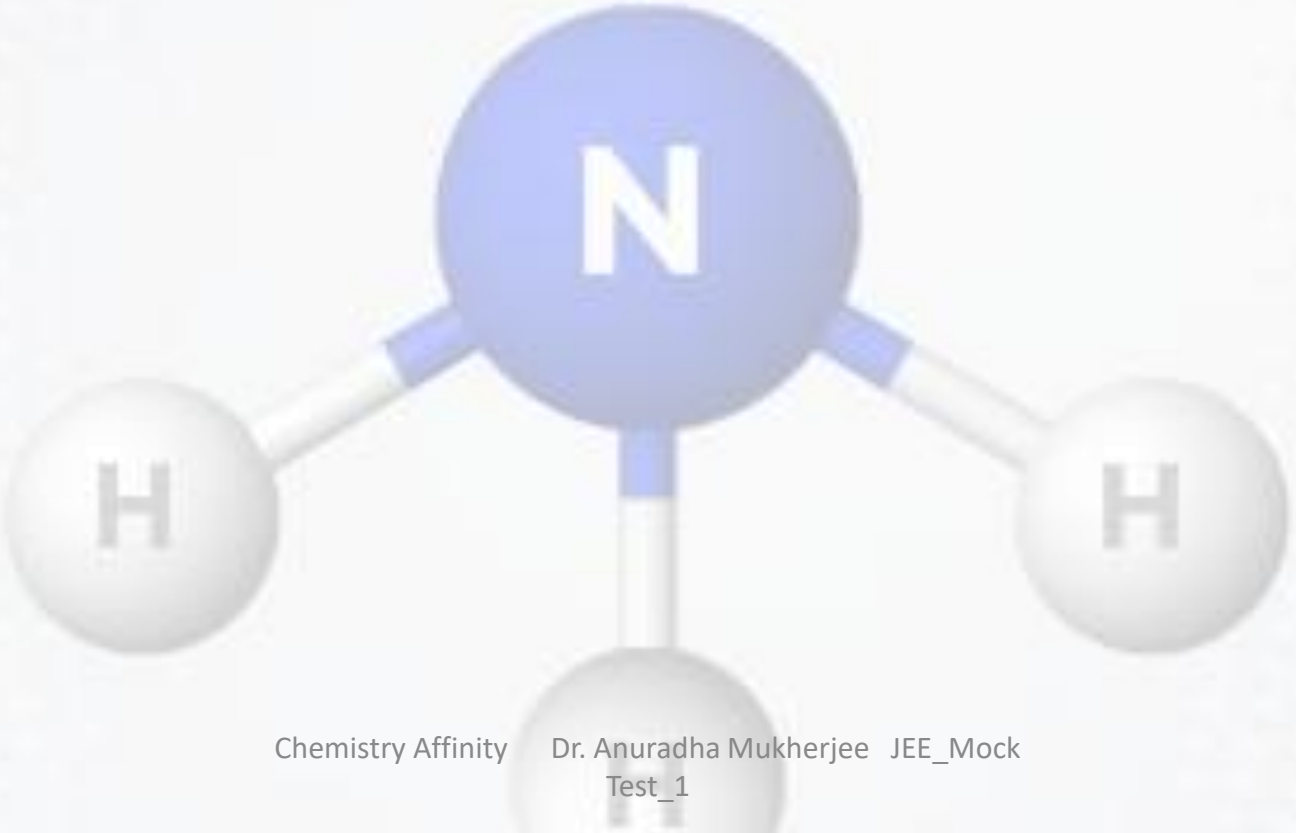
B) 

C) 

D) 

5. Among the following, the correct statement about the chemical equilibrium is:

A) Equilibrium constant is independent of temperature.
B) Equilibrium constant tells us how fast the reaction reaches equilibrium.
C) At equilibrium, the forward and the backward reactions stop so that the concentrations of reactants and products are constant.
D) Equilibrium constant is independent of whether you start the reaction with reactants or products.



6. The correct set of quantum numbers for the unpaired electron of Cu atom is:

A) $n = 3, l = 2, m = -2, s = +½$

B) $n = 3, l = 2, m = +2, s = -½$

C) $n = 4, l = 0, m = 0, s = +½$

D) $n = 4, l = 1, m = +1, s = +½$

7. Among the following, the most polar molecule is:

A) $AlCl_3$

B) CCl_4

C) $SeCl_6$

D) $AsCl_3$

8. The covalent characters of $CaCl_2$, $BaCl_2$, $SrCl_2$ and $MgCl_2$ follow the order:

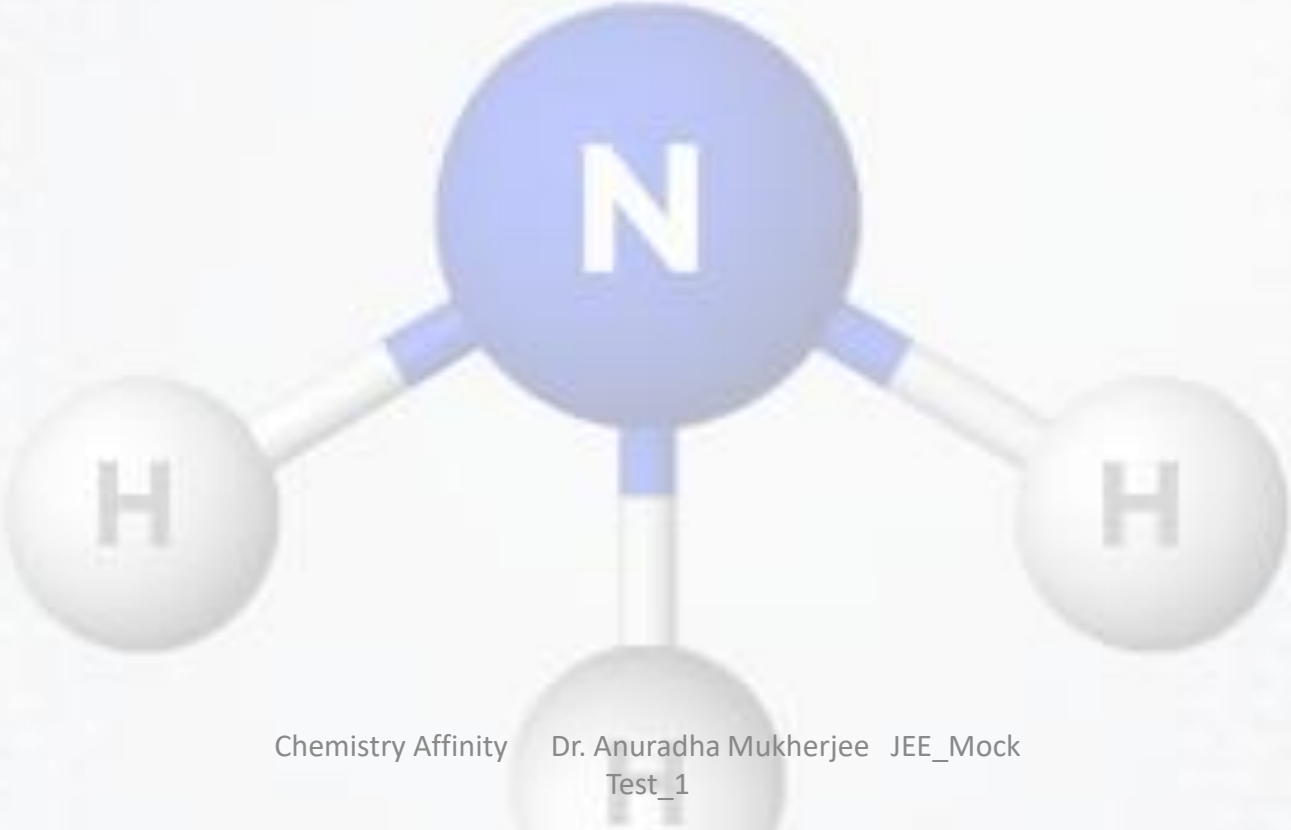
A) $CaCl_2 < BaCl_2 < SrCl_2 < MgCl_2$
B) $BaCl_2 < SrCl_2 < CaCl_2 < MgCl_2$
C) $CaCl_2 < BaCl_2 < MgCl_2 < SrCl_2$
D) $SrCl_2 < MgCl_2 < CaCl_2 < BaCl_2$

9. The first ionization potential (IP) of the elements Na, Mg, Si, P, Cl and Ar are 5.14, 7.65, 8.15, 10.49, 12.97 and 15.76 eV, respectively. The IP (in eV) of K is closest to:

A) 13.3
B) 18.2
C) 4.3
D) 6.4

10. (I) V_2O_5 , Cr_2O_3 are amphoteric oxides
(II)Interstitial compounds are very reactive
(III)In its higher oxidation states Mn forms stable compounds with oxygen and fluorine
(IV)Correct statements amongst the followings are

(A) I, II, (B) II, III, © I, III, (D) I, II



11.

The electrode potentials for

$Cu^{2+}_{(aq)} + e^- \rightarrow Cu^{+}_{(aq)}$ and $Cu^{+}_{(aq)} + e^- \rightarrow Cu_{(s)}$

Are + 0.15 V and + 0.50 V respectively.

The value of $E^{o}_{Cu^{2+}/Cu}$ will be -

(A) 0.500 V (B) 0.325 V

(C) 0.650 V (D) 0.150 V

12. $Na_2S_2O_3, 5H_2O$ sodium thiosulphate is used in photography to

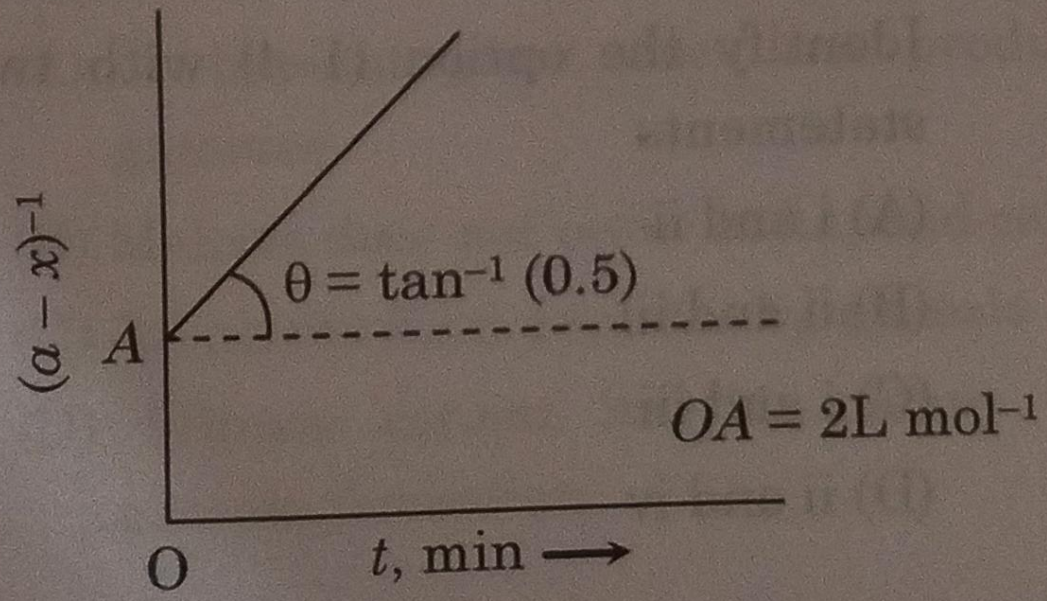
(A)Remove reduced silver

(B)Remove undecomposed AgBr as soluble silver thiosulphate complex

(C) convert the metallic silver to silver salt

(D)Reduce the silver bromide grains to metallic silver

13. Given is the graph between $(a - x)^{-1}$ and time.



Hence, rate at the start of the reaction is-

(A) 1.25 mol L^{-1} min^{-1}

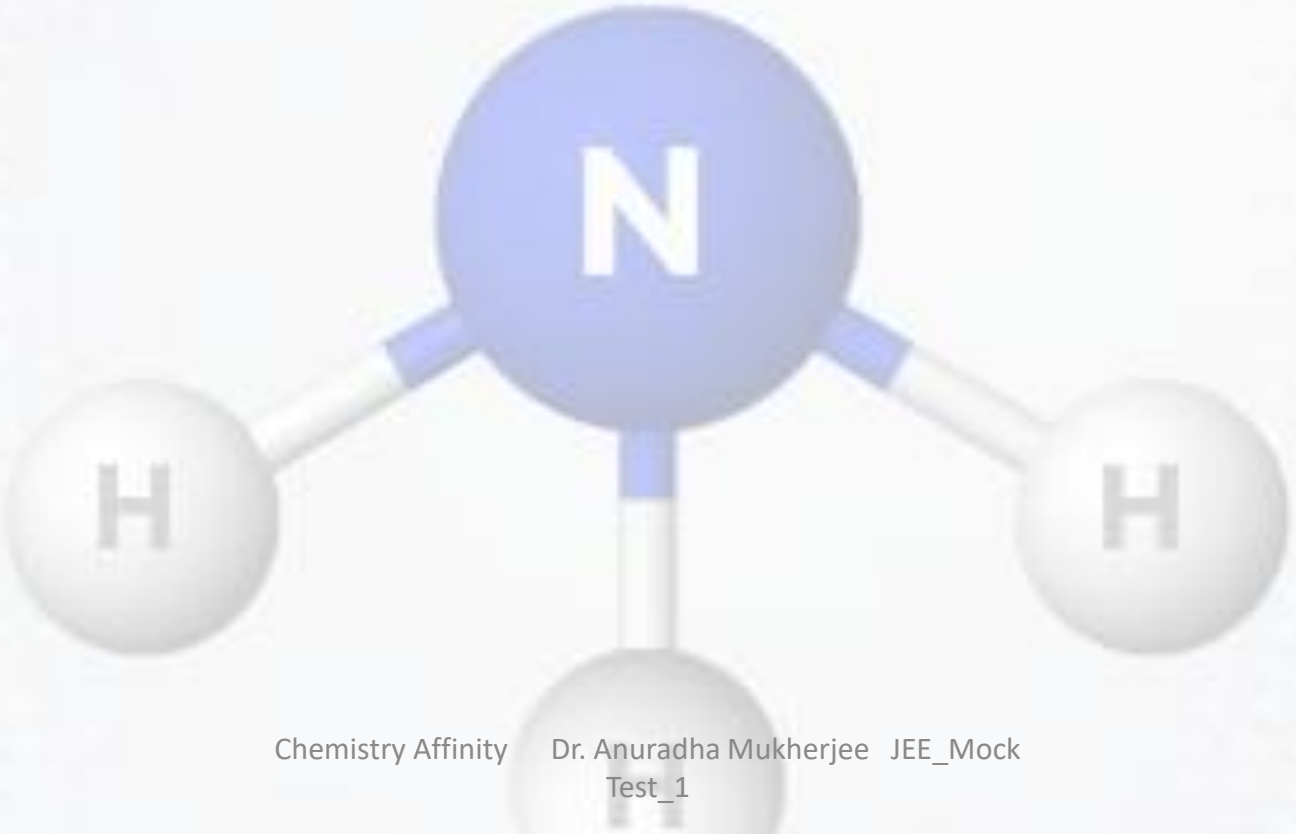
(B) 0.125 mol L^{-1} min^{-1}

(C) 0.5 mol L^{-1} min^{-1}

(D) 1.25 mol min^{-1}

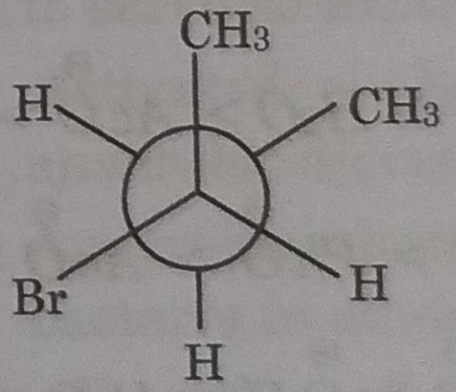
14. **H_2S reacts with lead acetate forming a black compound which reacts with H_2O_2 to form another compound. The colour of the compound is**

(A)Pink
(B)Black
(C) Yellow
(D)White

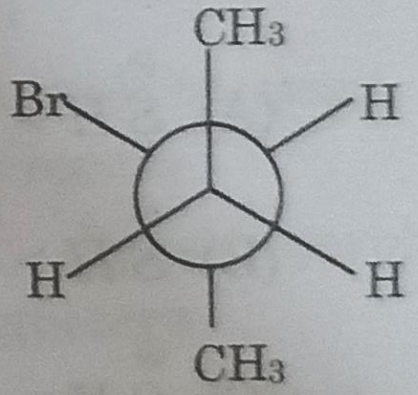


15. Which of the Newman projections shown below represents the conformation about the C_1–C_1 bond of 1 Bromo-2-methylpropane ?

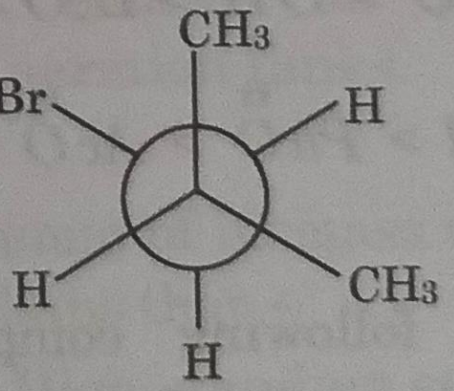
(A)



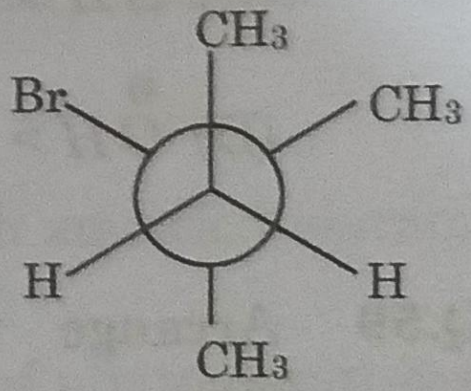
(B)



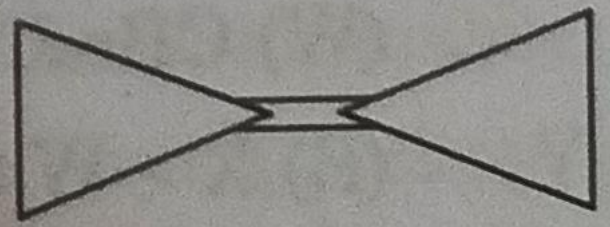
(C)

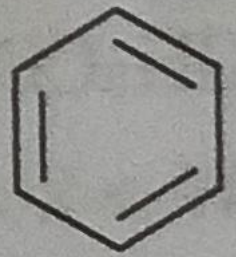


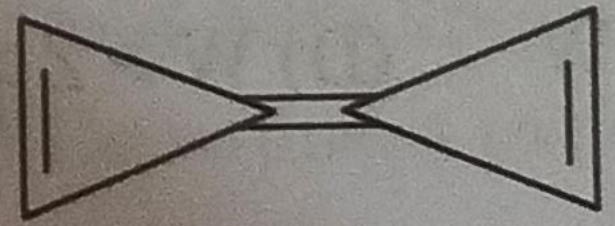
(D)



16. A hydrocarbon C_6H_4 gives $C_3H_2O_3$ on ozonolysis. The hydrocarbon is -

(A) 

(B) 

(C) 

(D) 

17.

Which one of the following will not give white precipitate with ammonical silver nitrate solution -

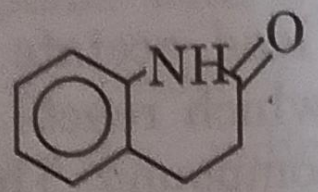
(A) $CH_3–C\equiv C–CH_3$

(B) $CH_3–\underset{\displaystyle CH_3}{\underset{|}{CH}} - C \equiv C - CH_3$

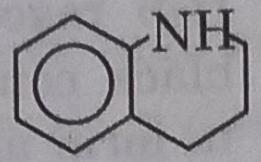
(C) $CH_3–CH_2–CH=CH_2$

(D) All of these

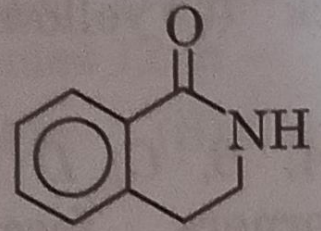
18. Order of rate of electrophilic substitution reaction is -



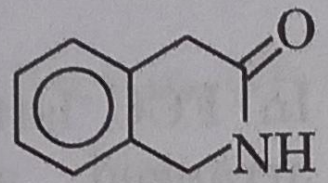
(P)



(Q)



(R)



(S)

(A) Q > P > S > R

(B) Q > P > R > S

(C) P > Q > S > R

(D) P > Q > R > S

19.

Arrange the following compounds in decreasing orders of rate of exchange of O^{18} with H_2O^{18} -

(X) CCl_3CHO (Y) CH_3CHO

(Z) CH_3COCH_3 (W) CBr_3CHO

(A) W > Z > X > Y (B) X > W > Y > Z

(C) X > Y > Z > W (D) W > Z > Y > X

20.

For a given reaction $A \rightarrow$ Product, rate is 1×10^{-4} Ms^{-1} when $[A] = 0.01$ M and rate is 1.41×10^{-4} Ms^{-1} when $[A] = 0.02$ M. Hence, rate law is -

(A) $-\frac{d[A]}{dt} = k[A]^2$ (B) $-\frac{d[A]}{dt} = k[A]$

(C) $-\frac{d[A]}{dt} = \frac{k}{4}[A]$ (D) $-\frac{d[A]}{dt} = k[A]^{1/2}$

21. Which of the following is not correctly matched ?

(A) Sodium (ethylenediaminetetraacetato) chromate(II) – $Na_2[Cr(CH_3COO)_4(en)]$

(B) Dichloridobis (ethane-1, 2-diamine) cobalt(III) ion-$[Co(Cl)_2(en)_2]^+$

(C) Tris(bipyridyl) iron(II)ion – $[Fe(NH_4C_5–C_5–H_4N)_3]^{2+}$

(D) Ammineaquadibromidocopper(II)– $[Cu(NH_3)(H_2O)Br_2]$

22. A body at 200°C undergoes a reversible isothermal process. The heat energy removed in the process is 7875 J. Determine the change in the entropy of the body.

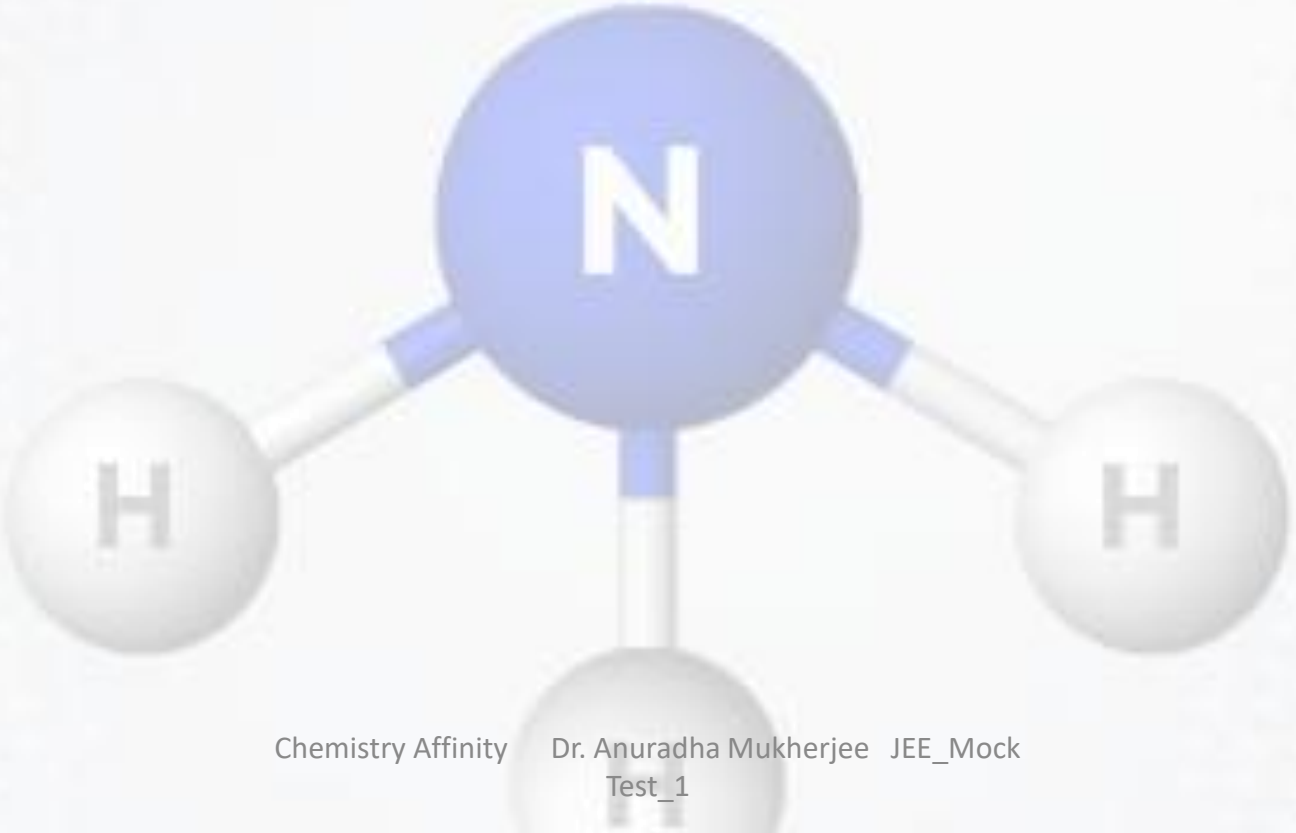
(A)-16.65 J (B) +16.65 J (C) +7875 J, (D) -7875 J

23. Which of the following has most acidic alpha hydrogen atom?

(1) CH_3CHO, (ii) CH_3COCH_3, (iii) $CH_3COCH_2COOC_2H_5$, (iv) CH_3COCH_2CHO

24. The degeneracy of hydrogen atom that has the energy equal to $-\frac{R_H}{9}$ is where R_H = Rydberg constant

(1) 6 (ii) 8 (iii) 5 (iv) 9



25. If the de-Broglie wavelength of a particle of mass (m) is 100 times its velocity, then its value in terms of its mass (m) and Plank Constant (h) is :

A $\frac{1}{10}\sqrt{\frac{m}{h}}$

B $10\sqrt{\frac{h}{m}}$

C $\frac{1}{10}\sqrt{\frac{h}{m}}$

D $10\sqrt{\frac{m}{h}}$

All the Best