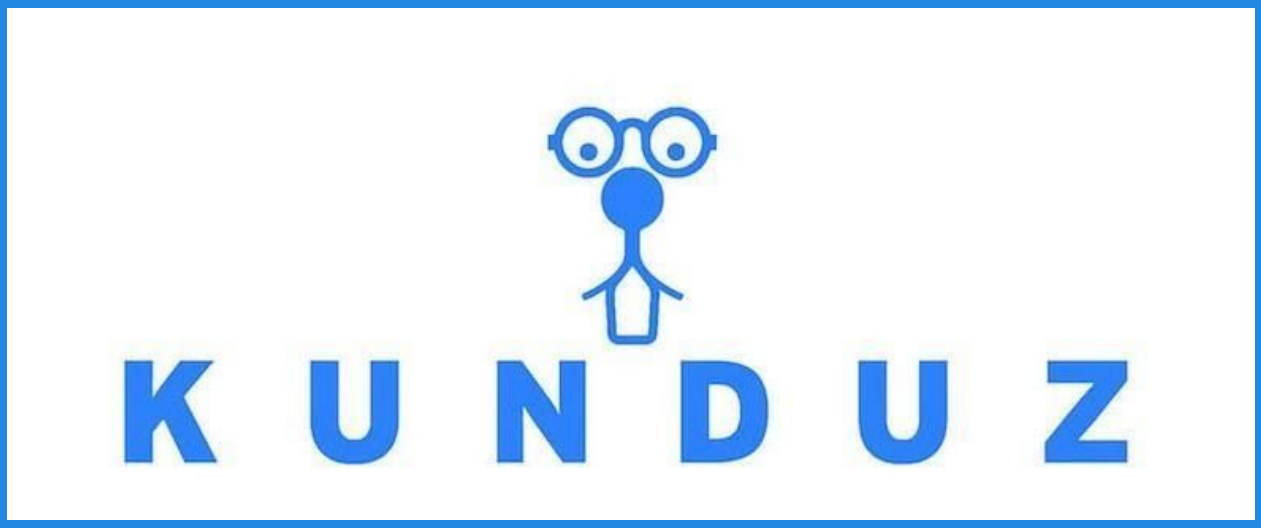
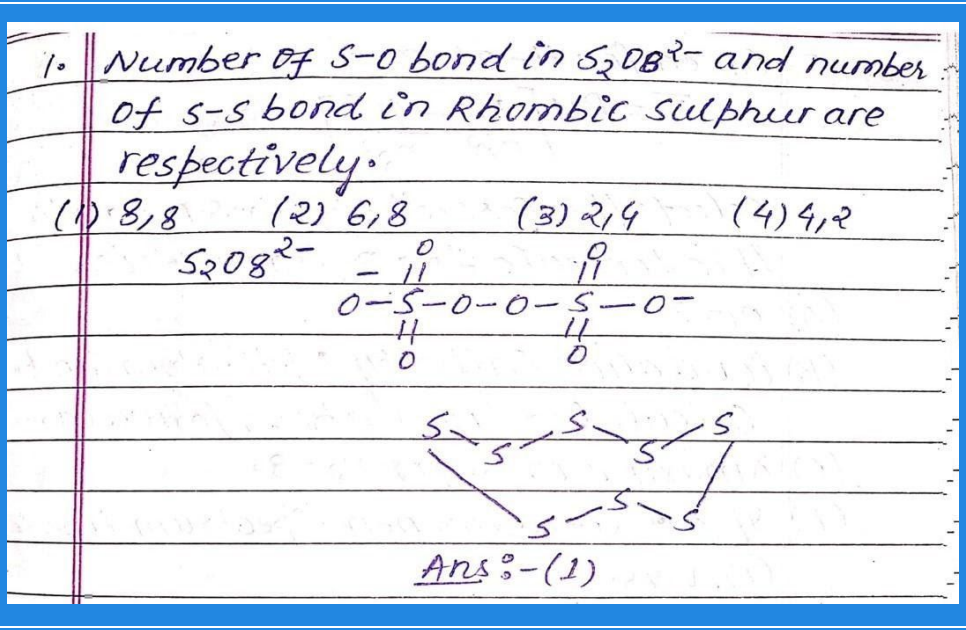
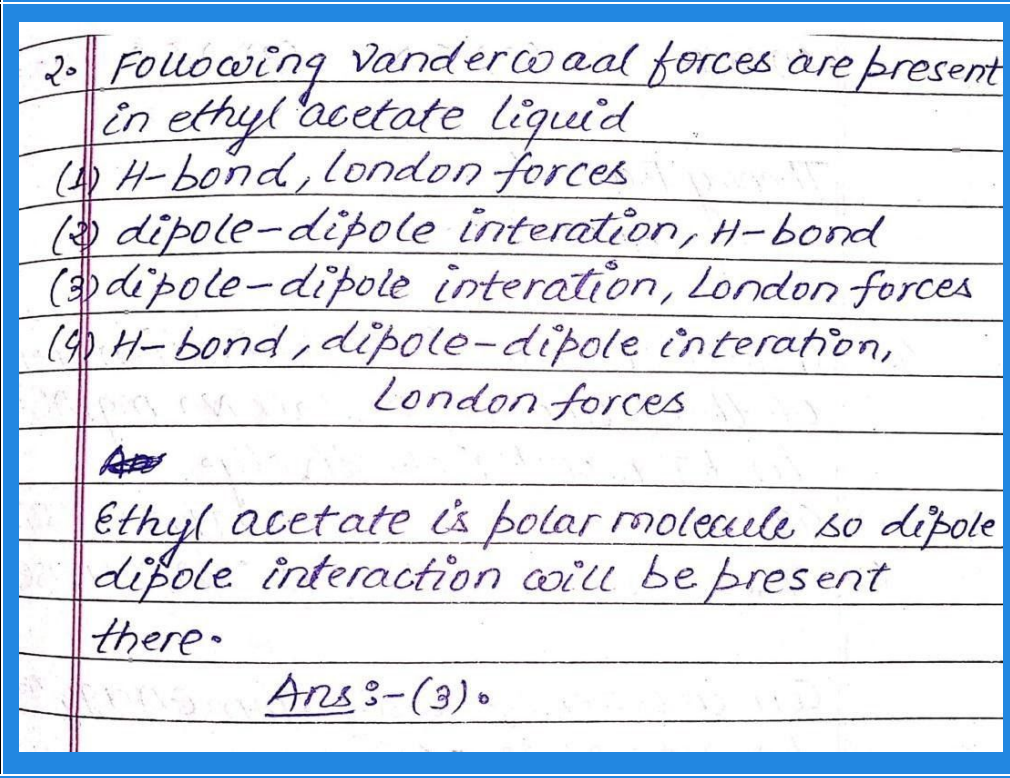


Jan 8 2020 shift 1 Chemistry prepared by KUNDUZ tutors

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Question no.	Questions and Answers
1	
2	

3

3. Given for H-atom

$$\bar{\nu} = RH\left[\frac{1}{n_1^2} - \frac{1}{n_2^2}\right]$$

Select the correct options regarding this formula for Balmer series

(A) $n_1 = 2$

(B) ionization Enthalpy of H-atom can be calculated from above formula.

(C) λ maximum is for $n_2 = 3$.

(D) If λ decreases then spectrum line will converse.

(1) A, B (2) C, D (3) A & C (4) A, B, C & D

Theory Based

Ans :- (3).

4

4. Correct order of first ionization energy of the following metals Na, mg, Al, Si in kJ mol^{-1} respectively.

(1) 497, 737, 577, 786 (2) 497, 577, 737, 786

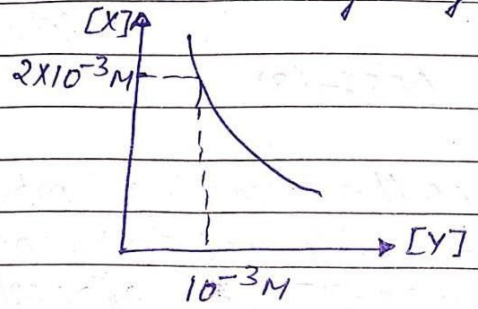
(3) 786, 739, 577, 497 (4) 739, 577, 786, 487

Correct order of ionisation energy will be Na < Al < Mg < Si

Ans :- (1)

5

5. Select the correct stoichiometry and its K_{sp} value according to given graphs.



(1) XY, $K_{SP} = 2X10^{-6}$ (2) XY_2, $K_{SP} = 4X10^{-9}$

(3) X_2Y, $K_{SP} = 9X10^{-9}$ (4) XY_2, $K_{SP} = 1X10^{-9}$

$$XY(s) \longrightarrow X^+(aq) + Y^-(aq)$$
$$2X10^{-3} \quad 10^{-3}$$
$$K_{SP} = [X^+][Y^-]$$
$$= 2X10^{-3} X 10^{-3}$$
$$= 2X10^{-6}$$

Ans :- (1)

6

6. According to Hardy Schultz rule, correct order of flocculation value for $Fe(OH)_3$ sol. is :-

(1) $K_2CrO_4 > K_3[Fe(CN)_6] > KNO_3 > KBr = AlCl_3$

(2) $K_3[Fe(CN)_6] > K_2CrO_4 > KNO_3 = KBr = AlCl_3$

(3) $K_3[Fe(CN)_6] < K_2CrO_4 < KNO_3 = KBr = AlCl_3$

(4) $KNO_3 > KBr = K_2CrO_4 > AlCl_3 = K_3[Fe(CN)_6]$

According to Hardy-Schultz rule

Coagulation value $\propto \frac{1}{\text{Coagulation Power}}$

Ans :- (3)

7

7. which of the following Complex exhibit facial meridional geometrical isomerism.

(1) $[Pt(NH_3)Cl_3]^-$ (2) $[Pt(Cl_2)(NH_3)_2]$

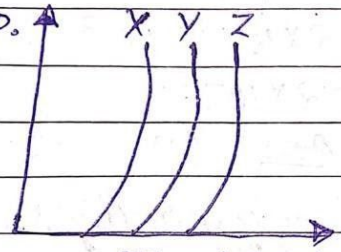
(3) $[Ni(CO)_4]$ (4) $[Co(NO_2)_3(NH_3)_3]$

$[Ma_3b_3]$ type Complex shows facial and meridional isomerism.

Ans :- (4)

8

8.



(A) Intermolecular force of attraction of X>Y.

(B) Intermolecular force of altration of X<Y.

(C) Intermolecular force of altraction of Z<X.

Select the Correct option(s)

(1) A and C (2) A and B

(3) B only (4) B and C

At a particular temperature as inter-molecular force of attraction increases vapour pressure decreases.

Ans :- (3).

9

9. Rate of a reaction increases by 10^6 times when a reaction is carried out in presence of enzyme catalyst at same temperature Determine the change in activation energy.

(1) $-6 \times 2.303 RT$ (2) $+6 \times 2.303 RT$

(3) $+6RT$ (4) $-6RT$

$$K = Ae^{-Ea/RT} \quad \text{---- (1)}$$

$$10^6 K = Ae^{-Ec/RT} \quad \text{---- (2)}$$

$$\frac{\text{Equation 2}}{\text{Equation 1}} \Rightarrow 10^6 = e^{(E-Ec)/RT}$$

$$6 \ln 10 = \frac{(E-Ec)}{RT}$$

$$E - Ec = 2.303 \times 6RT$$

$$\Delta Ea = Ec - E$$

$$= -2.303 \times 6RT$$

Ans :- (1)

10

10. Gypsum on heating at 393 K produces
(1) dead burnt plaster (2) Anhydrous $CaSO_4$
(3) $CaSO_4 \cdot \frac{1}{2}H_2O$ (4) $CaSO_4 \cdot 5H_2O$

Theory Based

Ans:- (3).

11

11. Among the following least 3rd ionization energy is for
(1) Mn (2) Co (3) Fe (4) Ni

$_{26}Fe = [Ar]3d^6 4s^2$

Ans:- (3)

12

12. Accurate measurement of Concentration of NaOH can be performed by following titration:-
(1) NaOH in burette and oxalic acid in Conical flask.
(2) NaOH in burette and Concentrated H_2SO_4 in Conical flask.
(3) NaOH in volumetric flask and Concentrated H_2SO_4 in Conical flask.
(4) Oxalic acid in burette and NaOH in Conical flask.

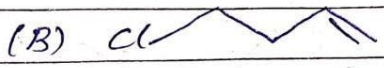
Oxalic acid is a primary standard solution while H_2SO_4 is a secondary standard solution.

Ans :- (4).

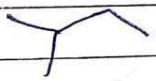
13

13. Arrange the following compounds in order of dehydrohalogenation (E1) reaction.

(A) 

(B) 

(C) 

(D) 

(1) C > B > D > A

(2) C > D > B > A

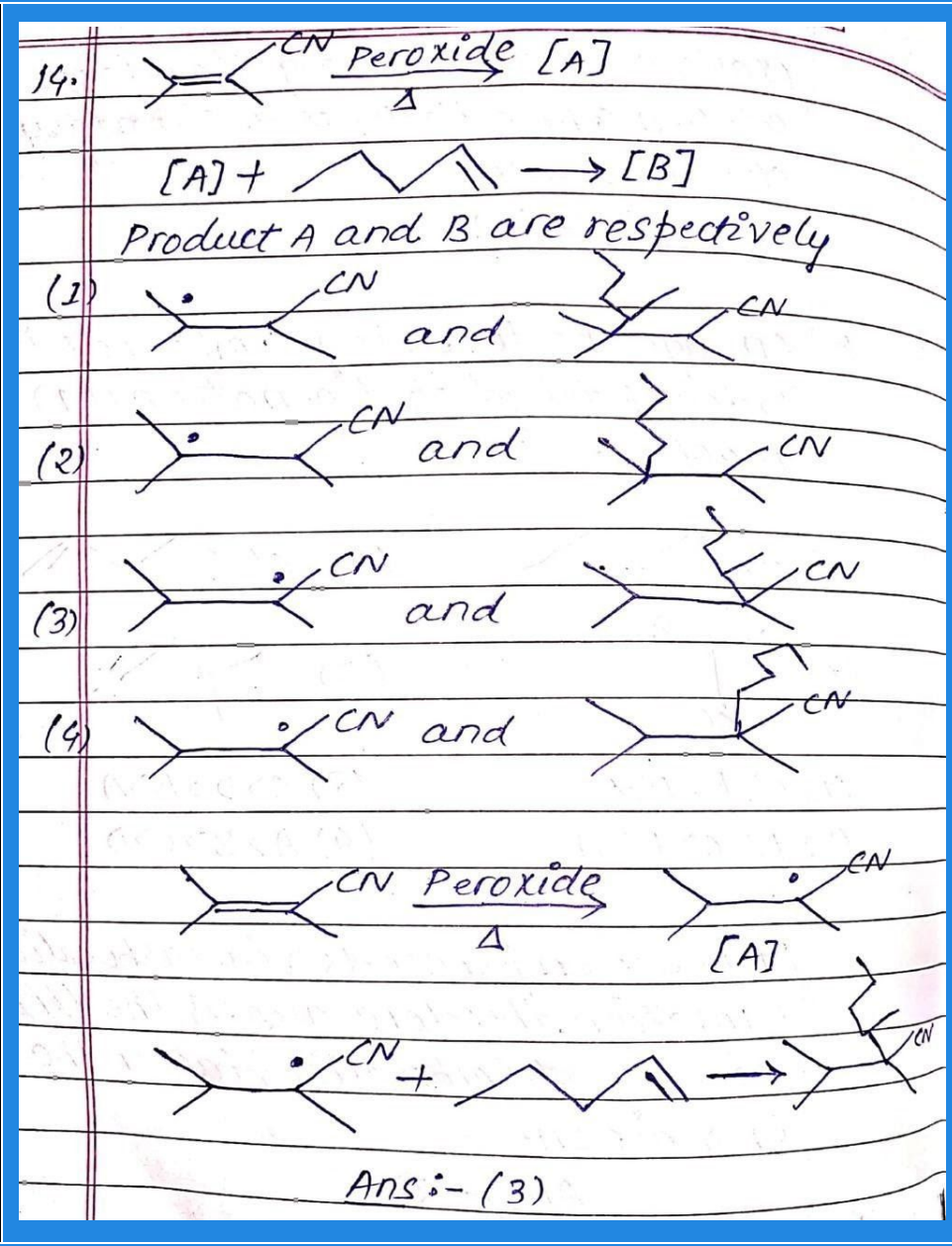
(3) B > C > D > A

(4) A > B > C > D

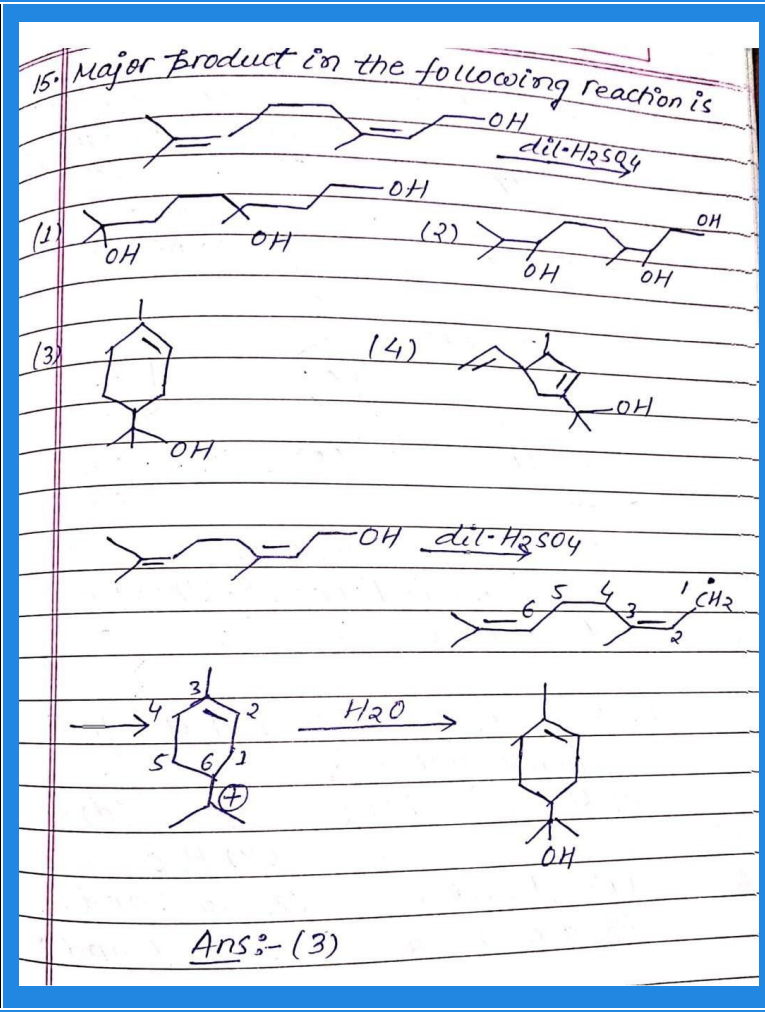
E1 reaction proceeds via carbocation formation, therefore greater the stability of carbocation, faster the E1 reaction.

Ans :- (2)

14


14.
CN
Peroxide
Δ
[A]
[A] +
[B]
Product A and B are respectively
(1)
CN
and
CN
(2)
CN
and
CN
(3)
CN
and
CN
(4)
CN
and
CN
CN
Peroxide
Δ
CN
[A]
CN
+
CN
Ans :- (3)

15


15. Major product in the following reaction is
OH
dil-H2SO4
(1)
OH
OH
(2)
OH
OH
OH
(3)
OH
(4)
OH
OH
dil-H2SO4
1
CH2
2
3
4
5
6
H2O
OH
Ans:- (3)

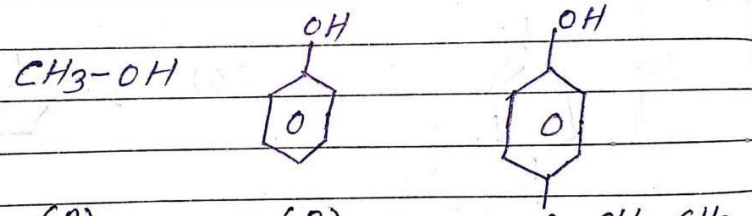
16

16. Arrange the order of C-OH bond length of the following compounds.

Methanol (A) Phenol (B) p-Ethoxyphenol (C)

(1) A>B>C (2) A>C>B

(3) C>B>A (4) B>C>A



CH_3-OH

(A) (B) (C)

—

There is not any resonance in CH_3-OH.
Resonance is poor in p-Ethoxyphenol than phenol.

17

17. Which of the following are "green house gases"?

(a) CO_2 (b) O_2 (c) O_3 (d) CFC (e) H_2O

(1) a, b and d (2) a, b, c and d

(3) a, c and d (4) a, c, d and e

CO_2, O_3, H_2O vapours and CFC's are green house gases.

Ans:- (4)

18

18. Two liquids isohexane and 3-methylpentane has boiling point 60°C and 63°C. They can be separated by:-

(1) simple distillation and isohexane comes out first.

(2) fractional distillation and isohexane comes out first.

(3) simple distillation and 3-methylpentane comes out first.

(4) fractional distillation and 3-methylpentane comes out first.

Liquid having lower boiling point comes out first in fractional distillation. Sample distillation can't be used as boiling point difference is very small.

Ans:- (2).

19

19. which of the given statement is incorrect about glucose?

(1) Glucose exists in two crystalline forms α and β.

(2) Glucose gives schiff's test.

(3) Penta Acetate of glucose does not form oxime.

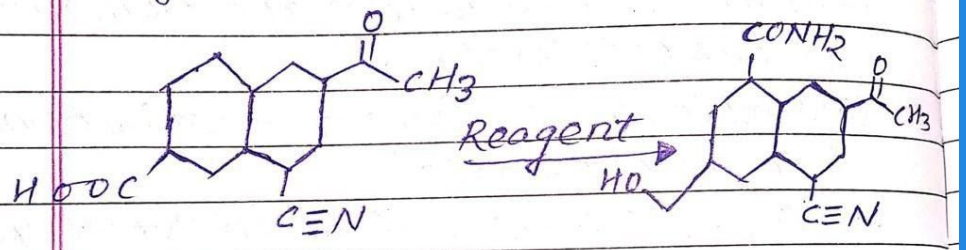
(4) Glucose forms oxime with hydroxyl amine.

Open chain form of glucose is very very small, hence does not gives schiff's test.

Ans:- (2)

20

20. Reagent used for the given Conversion is



(1) H_2, Pd (2) B_2H_6

(3) $NaBH_4$ (4) $LiAlH_4$

B_2H_6 is very selective and usually used to reduce acid to alcohol.

Ans :- (2)

21

21. 0.39 $[ML_6]Cl_3$ of molar mass 267.46 g/mol is reacted with 0.125 M $AgNO_3$ (aq) solution, Calculate volume of $AgNO_3$ required in ml.

$[ML_6]Cl_3 + 3AgNO_3 \longrightarrow 3AgCl$

0.39 V ml, 0.125 M

$$\frac{0.3 \times 3}{267.46} = 0.125 \times V \times 10^{-3}$$

$V = 26.92$ ml

22

22. Given : $2H_2O \longrightarrow O_2 + 4H^+ + 4e^-$ $E^\circ = -1.23\,V$
calculate electrode potential at PH = 5.

$$E = -1.23 - \frac{0.0591}{4} \log [H^+]$$

$$= -1.23 + 0.0591 \times PH$$

$$= -1.23 + 0.0591 \times 5$$

$$= -0.93\,V$$

23

23. Calculated the mass of $FeSO_4 \cdot 7H_2O$, which must be added in 100 kg of wheat to get 10 PPM of Fe.

$$10 = \frac{\text{Mass of Fe (in g)} \times 10^6}{100 \times 1000}$$

$M(FeSO_4 \cdot 7H_2O) = 278$

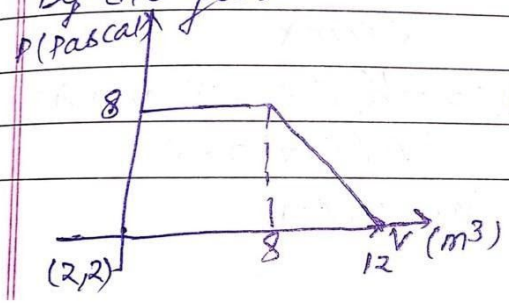
56 g in 1 mole

$$1\,g - \frac{1}{56}$$

$$\frac{1}{56} \times 278 = 4.96\,g$$

24

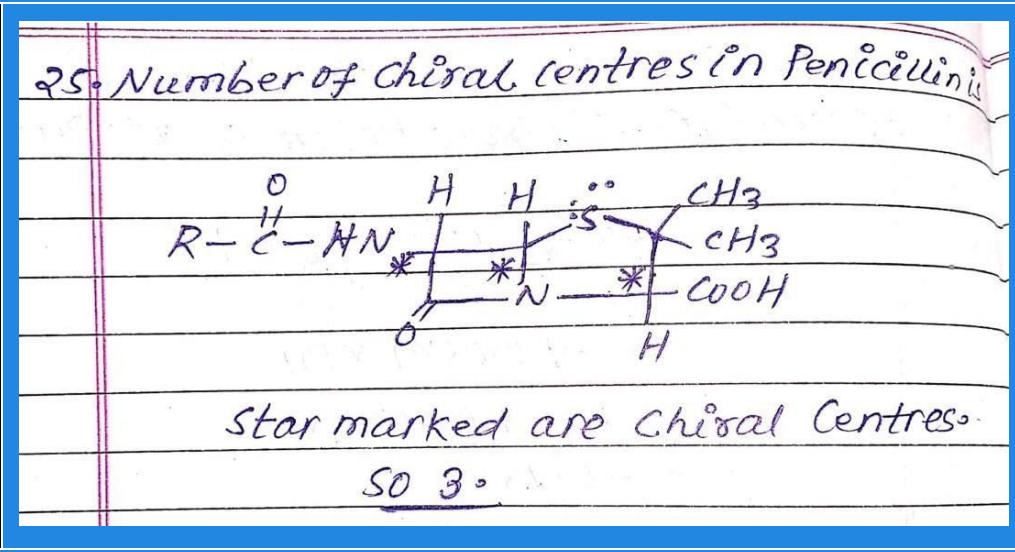
24. A gas undergoes Expansion according to the following graph. Calculate work done by the gas.



$$|W| = \frac{1}{2}(6+10) \times 6$$

$$= 48\,J$$

25



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