Derive Vander Waal's equation. Write significance of Vander Waal's constant.

OR

ªàyà §ý ôwã§ýÊ½à qÊ â¹Åq½àã âvâh¥ ñ

Write note on liquification of gases.

ZàÎÀà-3. ôwà§ý ¡mÊà¡½à§ý rv qÊ ¥§ý â¹Åq½àã âvâh¥ ñ

Write a note on inter molecular forces in liquids.

OR

Êà£Ì¹§ýà âÂàut âvâh¥ ñ Êà£Ì¹§ý âÂàut y âwjvÀà §ýà âwÐmm w½àÂà §ýLâk¥ ñ

Write Raoult's law? Describe the deviation from Raoult's law in detail.

ZàÎÀà-4. ôw â§ýÐ¹v ¨uà Ñ ? âwâsÂÀà ôw â§ýÐ¹và §ýL yÊjÀàà ¥w £quà ªà rmà¢¥ ñ

What are liquid crystals? Describe structure and uses of different liquid crystals.

OR

r ªà ytã§ýÊ½à §ýL Íu¾qâÙà §ýLâk¥ ñ

Derive Bragg's Equation.

ZàÎÀà-5. £¾ZàÊ½à ¨uà Ñ ? £¾ZàÊ½à §ý wªàJ§ýÊ½à ¥w âwÎàxmà rmà¢¥ ñ

What is catalysis ? Discuss the classification and characteristics of catalysis.

OR

Zànt §ýàâ¹ ¡âsâ§ýuà §ý wªà ÐnÊà§ý §ý âv¥ ytã§ýÊ½à §ýL Íu¾qâÙà §ýLâk¥ ñ

Derive equation for velocity constant of first order reaction.

----x----

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Code No. : B-207(A)

Annual Examination - 2017

B.Sc.-I

CHEMISTRY

Paper - III

PHYSICAL CHEMISTRY

Max.Marks : 34

Time : 3 Hrs. Min Marks : 11

¹ãq ß h½»¡'¡'t 9 ¡âmvi ÙàÊã ZàÎÀà Ñ, âkÂÑ Ñv §ýÊÂàà ¡âÂàwàu Ñ ñ h½»¡ 'r' t vi ÙàÊã ZàÎÀà h½»¡ 'y' t Àãi £ÙàÊãu ZàÎÀà Ñ ñ h½»¡'¡' §ýà yry qÑv Ñv §ýÊ ñ

Note : Section 'A' containing 9 very short answer type questions, is compulsory. Section 'B' consists of short answer type questions and Section 'C' consists of long answer type questions. Section 'A' has to be solved first.

$(101)_2 \times (101)_2$

h½»¡-'¡'(Section-'A')

ÂÀàÈÂàà§ým ¡âm vi £ÙàÊãu ZàÎÀà §ý £ÙàÊ ¥§ý uà Àà qÊQýuà t À ñ (Answer the following very short-answer-type questions in one or two lines.) (1x9=9)

ZàÎÀà-1. $(111)_2 \times (101)_2$ §ýà tàÂà Öààm §ýLâk¥ ñ

Find out the value of .

ZàÎÀà-2. §ýà §ýàâm§ý màq âvâh¥ ñ

Write the critical temperature of .

ZàÎÀà-3. wà½»¡Ê wàÌy ytã§ýÊ½à âvâh¥ ñ

Write Vander Waal's equation.

ZàÎÀà-4. âwÐ§ýàâymà (ÎuàÂàmà) §ýL ¢§ýà¢ âvâh¥ ñ

Write unit of Viscosity.

P.T.O.

ZàÎÀà-5. uâÀ wà¢y ¡§ý Ñà¡ mà¡ âtvÊ ¡§ý Öààm §ýLâk¥ ñ

If Weiss indices are , find out the Miller indices.

ZàÎÀà-6. ¡àÊÑãâÀàuy ytã§ýÊ½à âvâh¥ ñ

Write Arrhenius equation.

ZàÎÀà-7. Ð§ýÂÀÂà §ýà¡ qáÊsàâxm §ýLâk¥ ñ

Define coagulation.

ZàÎÀà-8. ÎàÂu §ýà¡â¹¡ ¡âsâ§ýuà §ý ÀÊ 0ÐnÊà§ý §ýL ¢§ýà¢ âvâh¥ ñ

Write the unit of velocity constant for zero order reaction.

ZàÎÀà-9. qÊà§ýà¡Ê §ý âv¥ Íu¡k§ý ¨uà Ñ¡ ?

What is the expression for parachor?

h½»¡-'r'(Section-'B')

âÂàÈÂàà¡â§ým vi¡ £ÙàÊãu ZàÎÀàà¡ §¡ý £ÙàÊ 150-200 ÎàÈÀ-yãtà t¡ À¡ ñ (Answer the following short-answer type questions with word limit 150-200)(2x5=10)

ZàÎÀà-1. 89 §ýà¡ »¡yãtv q÷âm y¡ rà¢ÂàÊã t¡ qáÊwâm¡m §ýLâk¥ ñ

Change 89 from decimal to binary system.

OR

Ä¡ývÂà §¡ý £â° j™¡ ¥w¡ âÂà0ÈÀà™¡ Öààm §ýLâk¥ ñ

Find out the maximum and minimum value of the function .

ZàÎÀà-2. tàÁu tQý qn ¥w¡ y¡i¹¡Âà ¡àwâÙà qÊ yâÕàÃm â¹¡Âq½àã âvâh¥ ñ

Write short notes on mean free path & collision frequency.

OR

ªàyà¡ §ý ¡à½ãâw§ý wªàà¡ §ý âwmÊ½à qÊ màq §ýà ZàSàw ytlà¢¥ ñ

Explain the effect of temperature on distribution of molecular velocities of gases.

ZàÎÀà-3. wà½¹¡ ÑàÄý ªà½àà§ý §ýà¡ ytlà¢¥ ñ

Explain Vant Hoff factor.

OR

q™¡ mÂààw §ý vàÄvày ây÷à¡m §ýà¡ ytlà¢¥ ñ

Explain Laplace theory of surface tension.

ZàÎÀà-4. yàm h½»¡âu yv qÊ â¹¡Âq½àã âvâh¥ ñ

Write note on seven segment cell.

OR

§ýà¡và¢»¡ §ýL ÊÕàãu â§ýuà qÊ â¹¡Âq½àã âvâh¥ ñ

Write note on protective action of colloids.

ZàÎÀà-5. âtyvÊ £¥ZàÂÊm ¡âsâ§ýuà ¡à¡ §ýà¡ ytlà¢¥ ñ

Explain micellar catalysed reaction.

OR

¡âsâ§ýuà w¡ªà §ýà¡ ZàSàâwm §ýÊÂà¡ wàv¡ §ýàÊ§ýà¡ §ýà¡ ytlà¢¥ ñ

Explain the factors affecting the rate of reaction.

h½»¡-'y'(Section-'C')

âÂàÈÂàà¡â§ým Àâi¡ £ÙàÊãu ZàÎÀàà¡ §¡ý £ÙàÊ 300-350 ÎàÈÀ-yãtà t¡ À¡ ñ (Answer the following long-answer type questions with word limit 300-350)(3x5=15)

ZàÎÀà-1. §ýÈÄu¹¡Ê ZàÀªàà¡ãt¡ªà §ýà¡ âwÐmàÊ y¡ ytlà¢¥ ñ

Explain computer programming in detail.

OR

(¡) ây÷ §ýLâk¥ ß

Prove that :

(r) uâÀ Ñà¡ mà¡ §ýà¡ tàÂà Öààm §ýLâk¥ ñ

If , then find out the value of .

ZàÎÀà-2. wà½»¡Ê wàÌy ytã§ýÊ½à §ýL Íu¡qâÙà §ýLâk¥ ñ wà½»¡Ê wàÌy 0ÐnÊà§ý §ý tÑÙw §ýà¡ âvâh¥ ñ