ANJUMAN-I-ISLAM'S

AKTC KALSEKAR TECHNICAL CAMPUS
INNOVATIVE TEACHING · EXUBERANT LEARNING

Knowledge Resource & Relay Centre (KRRC)

AIKTC/KRRC/SoP/ACKN/QUES/2017-18/   Date: 31/12/18

School: **SoP-CBSGS**   Branch: **SoP**   SEM: **I**

To,
Exam Controller,

AIKTC, New Panvel.

Dear Sir/Madam,   ✓   KT

Received with thanks the following **Semester/Periodic** question papers from your exam cell:

Sr. No.	Subject Name	Subject Code	Format SC	HC	No. of Copies
1	Physical Org. Chem.				
2	Physical Pharmacy – I			✓	02
3	APP – I				
4	Environmental Sci.				
5	Communication Skill				

Note: SC – Softcopy, HC - Hardcopy

(Shaheen Ansari)
Librarian, AIKTC

SEM-I CBSGS
13/12/2018

Q.P. Code :27542

[Time: Three Hours]   [Marks:70]

Please check whether you have got the right question paper.

N.B: 1) Attempt all questions.
        2) Draw neat diagrams wherever necessary.

1. a. Write a note on liquid crystals and explain their significance.   3
    b. Define specific Rotation and give applications of Polarimeter.   2
    c. The boiling point of a solution containing 0.20g of substance X in 20g of ether is 0.17k   3
        higher than that of pure ether. Calculate the molecular mass of X. Boiling constant of ether
        per 1kg is 2.16k.
    d. Define the following :   4
        i)   Intensive property
        ii) Closed system
        iii) Isobaric process
        iv) Isothermal process
    e. State and explain Faraday's laws of electrolysis.   3

2. a. Explain Linde's method for Liquefaction of gases.   4
                                    OR
    a. Explain the principle and method of liquefaction of gases by Claude's method.
    b. Define Dipole moment. Write its applications.   3
    c. Derive the relation between C_p and C_v.   4

3. a. Explain Raoult's law and discuss with the help of diagram positive and negative deviation   4
        from Raoult's law.
    b. Define entropy and give different statements of Second law of thermodynamics.   4
                                    OR
    b. An engine operating between 200°c and 75°c takes 500J heat from a high temperature
        reservoir. Assuming that there are no frictional losses, calculate the work that can be done
        by this engine.
    c. Explain equivalent conductance of weak electrolyte at infinite dilution.   3

4. a. What are ideal gases and real gases? Describe the deviations of real gases from the ideal gas   4
        equation.
    b. Define refractive index. Discuss the principle and working of Abbe's refractometer. 3
    c. Describe any one method to determine depression in freezing point as a colligative   4
        property.
                                    OR
    c. With the help of diagram, discuss the relationship between elevation of b. p. and lowering of
        vapor pressure.

5. a. Write a note on polymorphism.   4
    b. What is osmosis? Explain Berkeley and Hartley's method for measurement of osmotic   4
        pressure.
    c. Explain Hess's law of constant heat summation.   3

                                    OR

    c. Define the following:
        i)   Heat of solution
        ii) Heat of formation
        iii) Heat of combustion

6. a. Calculate the pressure exerted by 1.00 mole of methane (CH_4) in a 250 ml container at 300k   3
        using Van der Waals equation.
            a = 2.253 L^2 atm/mol^2
            b = 0.0428 L/mol
            R = 0.0821 L atm K^{-1} / mol
    b. Write a short note on Steam distillation.   3
    c. Write a note on Gibb's free energy.   3
    d. State the postulates of Arrhenius theory of electrolytic dissociation.   2

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