KALSEKAR TECHNICAL CAMPUS

Knowledge Resource & Relay Centre (KRRC)

AIKTC/KRRC/SoP/ACKN/QUES/2018-19/   Date: _____

School: __SoP-CBSGS__   Branch: __SoP__   SEM: ____I____

To,
Exam Controller,
AIKTC, New Panvel.

Dear Sir/Madam,

✓ (ATKT)

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

Sr. No.	Subject Name	Subject Code	Format		No. of Copies
			SC	HC	
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

25/04/19 sem-I CBSCS

(3 Hours)   (Total Marks : 70)

Please check whether you have got the right question paper.

N.B. :   1) All questions are compulsory.

      2) Draw neat labelled diagrams wherever necessary.

1.   a)   Explain the terms-liquid crystals and supercritical fluids.   (03)
    b)   Write short note on optical activity.   (02)
    c)   Calculate Vapour pressure of a solution when 235m of sucrose is added to 650ml of water at 40^0C.

      MW of sucrose = 342, MW of water = 18.02   (03)
    d)   State different thermodynamic systems and give definition, applications and limitations of thermodynamics.   (04)
    e)   Define-   (03)
         1) Equivalent conductance
         2) Molecular conductance
         3) Faraday's First law of electrolysis

2.   (a)   State any one method for liquefaction of gases.

                            OR   (04)

    Give principle of-
      i.   Liquefaction of gases
      ii.   Aerosols.
    (b)   Explain in brief dielectric constant and give its applications.   (03)
    (c)   Derive the equation for relationship between C_p and C_v.   (04)

3.   (a)   Give any one method for measurement of relative lowering of vapour pressure.   (04)
    (b)   What is efficiency of heat engine? State first law of thermodynamics.   (04)

                            OR

    Calculate the work done by an engine operating between 200^0C and 75^0C, taking 500 J heat from a high temperature reservoir.   (04)
    (c)   The resistance of a 0.1 N solution of a salt is 2.5×10^5 Ohms. If the cell constant is $1.15cm^{-1}$, calculate equivalent conductance.   (03)

4.   (a)   State ideal gas equation. Explain pressure and volume correction.   (04)
    (b)   Write a short note on Abbe's refractometer.   (03)
    (c)   Give any one method for determination of molecular weight.   (04)
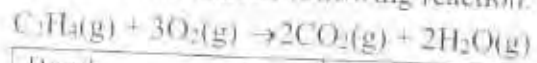
                            OR

    Explain with diagram, measurement of elevation of boiling point.

5.   (a)   What is polymorphism? What is its importance in pharmacy?   (04)
    (b)   State and explain the following-   (04)
      i.   Clausius Clapeyron equation
      ii.   Vant Hoff equation.
    (c)   Detail on Hess law of constant heat summation.   (03)

                            OR

(c) Calculate the heat of following reaction: (03)

$C_2H_6(g) + 3O_2(g) \rightarrow 2CO_2(g) + 2H_2O(g)$

Bond	Bond energies (KJ)
C–H	414
O–O	499
C=O	724
O–H	460
C–C	619

6. (a) Calculate the pressure exerted by 2 moles of ethane at 300K, filled in one lit (03) container. The constants are:

a = 5.57 atm lit² mol²

b = 0.064 lit mole

R = 0.0832 lit. moles K

(b) Explain steam distillation or fractional distillation.

(c) Write short on Gibb's free energy. (03)

(d) Elaborate on Arrhenius theory of electrolytic dissociation. (03)

(02)