ANJUMAN-I-ISLAM'S

AKTC KALSEKAR TECHNICAL CAMPUS

INNOVATIVE TEACHING · EXUBERANT LEARNING

Knowledge Resource & Relay Centre (KRRC)

AIKTC/KRRC/SoP/ACKN/QUES/2013-14/ 73   Date: 13/06/2014

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

Note: SC – Softcopy, HC - Hardcopy

(Shaheen Ansari)
Librarian, AIKTC

(2 Hours)   **[Total Marks : 70**

NOTE: 1) All questions are compulsory.
        2) Figures to the right indicate full marks.

Q1a. Explain the following terms: (5)
    i) Electrostatic Potential surface
    ii) Catalyst.
    iii) Rate law.
    iv) Node
    v) Charge transfer complex

Q1b.   Answer the following questions (Any five)   (10)
    i) Rate constant for a reaction is 0.16 hr^{-1}. How long will it take to complete 75% of the reaction?
    ii) Draw Lewis structure for KIO_3. Calculate the formal charge on I.
    iii) Identify the symmetry elements in an MH_3Y system.
    iv) Name the orbitals involved in the formation of trigonal bipyramidal and octahedral complexes.
    v) Explain in brief, phase transfer catalysis.
    vi) Give the applications of charge transfer complexes.

Q2a.   Explain secondary isotope effect with suitable example.   (2)
Q2b.   Write a note on covalent catalysis.   (2)
Q2c.   Explain second order perturbation mixing with the help of a suitable example. (3)
Q2d.   Complete the following sentences: (4)
    i.   Zero potential energy for hydrogen is ------ than that of deuterium.
    ii.   The Transition state of a catalyzed reaction should be -------- in energy as
        a. compared to that of an uncatalyzed reaction.
    iii.   In electrostatic potential surface maps, the colour red represents ------
        a. electrostatic potential whereas blue represents a ------ region in the molecule.
    iv.   Group electronegativity of a NO_2^- group is ------ than that of a CH_3 group.

Q3a.   Explain first-order kinetics using a suitable example.   (2)
Q3b.   Explain use of Eyring's plot for the determination of activation parameters.   (3)
Q3c.   Compare the geometries and HOMOs of a CH_3^+, a $CH_3\cdot$ and CH_3^-.   (3)
Q3d.   What is the effect of pyramidalization on the energies of the molecular orbitals of a planar CH_2 system?   (3)

Q4a.   Write a note on electrophilic catalysis.   (2)

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Q4b. Explain various methods to follow fast kinetics.   (3)
Q4c. How does MOT overcome the shortcomings of VBT?   (3)
Q4d. Discuss any three rules of QMOT giving suitable examples.   (3)

Q5a. Explain why cyclohexane is more polarizable than benzene.   (1)
Q5b. Plot of ln k versus 1/T is straight line with slope -1.4×10^2. What is activation energy
      of the reaction?   (2)

Q5c. Draw resonating structures for the given molecule. Indicate the most stable structure.

                                                                                (2)
Q5d. With the help of a suitable example of a reactive intermediate, explain the MOT
      version of "hyperconjugation effect".   (3)
Q5e. Classify and discuss the properties of charge transfer complexes.   (3)

Q6a. Addition of HBr to 1, 3-butadiene gives 1,2-addition product at lower temperature
      and 1,4-addition product at high temperature. Explain the underlying principle.   (2)
Q6b. Explain concept of microscopic reversibility in a chemical reaction.   (2)
Q6c. Explain the formation of ammonia molecule using hybridization theory. On the basis
      of hybridization index, elaborate on the hybridization status of 'N'.   (3)
Q6d. Write a note on general acid catalysis. Explain correlation graphs for reaction rates
      with acidity function.   (4)

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App. I

QP Code : BR-2073

2013-14

2-4-14

(3 Hours)   [Total Marks : 70

N.B. : (1) **All questions are compulsory.**
     (2) **Figures to right indicate full marks.**
     (3) Draw neat labelled diagrams wherever necessary.

1. Answer the following :-   12
  (a) (i) Enlist Functions of plasma membrane.
      (ii) What will happen if person with blood group A Rh +ve donates blood to patient with B Rh +ve blood group.
      (iii) Define motor unit.
      (iv) State the functions of lymphatic system.
      (v) What is chemotaxis
      (vi) Classify connective tissue.
  (b) (i) Define homeostasis.   3
      (ii) Deficiency of which nutrients cause megaloblastic anaemia.
      (iii) Enlist properties of muscles.

2. (a) Answer any **two** of the following :   8
      (i) Explain erythropoiesis and enlist factors essential for it.
      (ii) Write various types of immunity with suitable examples.
      (iii) Discuss composition and functions of blood.
  (b) Answer any **one** of the following :   3
      (i) Leukemia.
      (ii) Explain role of various factors involved in synthesis of haemoglobin.

3. (a) Answer any **two** of the following :   8
      (i) Describe organisation of skeletal muscle fiber with suitable diagram.
      (ii) Compare and contrast between skeletal and smooth muscle.
      (iii) Describe the events of sliding filament mechanism involved in skeletal muscle contraction.
  (b) Answer any **one** of the following :   3
      (i) Explain the production of ATP by anaerobic cellular respiration in skeletal muscle.
      (ii) Discuss various properties of cardiac muscle.

4. (a) Answer any **one** of the following :   4
      (i) Draw a neat labelled diagram showing structural features of lymph node and write formation of lymph.
      (ii) Write a note on primary lymphatic organs.
  (b) Answer any **one** of the following :   4
      (i) AIDS
      (ii) Types of hypersensitivity reactions

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    (c)   Answer any **one** of the following :
        (i)   Write a note on adipose tissue.
        (ii) Compare and contrast between simple and compound exocrine gland.

5. (a)   Answer any **one** of the following :
        (i)   Write a note on active transport mechanism with suitable example.
        (ii) Describe the structure and functions of plasma membrane.

    (b)   Answer any **one** of the following :
        (i)   Explain the role of calcium and acetyl choline in contraction of skeletal muscle.
        (ii) Explain various types of skeletal muscle contraction with suitable example.

    (c)   Answer any **one** of the following :
        (i)   Write in brief process of repair after inflammation.
        (ii) Discuss in brief mechanism involved in increase in vascular permeability during inflammation.

6. (a)   Answer any **two** of the following :
        (i)   Describe various pathways of coagulation of blood.
        (ii) Write a note on cell mediated immunity.
        (iii) Describe structural features and functions of platelets.

    (b)   Answer any **one** of the following :
        (i)   Discuss in brief process of phagocytosis.
        (ii) Explain role of histamine during inflammation.

Con. 5322-14.

(3 Hours)

[**Total Marks : 70**

N.B. (1) **All** questions are **compulsory**.
   (2) Draw **figure** wherever **necessary**.

Answer the following : –
   (a) Define Lithoshere   1
   (b) Draw a diagram of energy flow in the ecosystem.   1
   (c) What is EIA ? State its objectives.   1
   (d) Justify "Sun is a source of renewable energy".   1
   (e) Give two examples of use of technology in environment management.   2
   (f) What is the role of 3R's in water conservation.   2
   (g) Write a note on 'Venturi Scrubber'.   2
   (h) Define E-pollution. What are its effects ?   2
   (i) Define Geothermal Energy. Explain the working of a Steam Power Plant.   3

   (a) What do you understand by the word 'Sustainable development' ? Explain two key   4
       concepts of sustainability theory with suitable examples.
   (b) What are the causes and effects of global warming ? Give the control measures.   3
   (c) What are the functions and powers of Maharashtra State Pollution Control   4
       Board ?

   (a) Explain the conservation of forest resources with the help of 3R's.   4
   (b) Which are the different sources of water pollution ? Write a note on 'Minamata Disease'. 3
   (c) Explain the economic aspect of carbon.   4

   (a) How would environmental awareness help to protect our environment.   2
   (b) Explain 'Bhopal Gas Tragedy'.   3
   (c) Explain the envirnmental ethics and the importance of environmental legislation   2
       in India.
   (d) Explain the importance of disaster management. Write a note on techniques of   4
       disaster managment with reference to earthquake.

   (a) Explain the causes, effects and measures for depletion of water resources.   3
   (b) Define soil pollution. Write in brief about Solid Waste Management.   4
   (c) What is wind energy ? Explain the working of wind turbines.   3

   (a) Write short notes on the following :   9
       (i)   Structural and functional aspects of an ecosystem.
       (ii) Methods to treat waste water
       (iii) Ganga Action Plan
   (b) Distinguish between renewable and non-renewable resources. Give atleast two   2
       examples of each.

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Con. 3486-14.

N.B. (1) **All** questions are **compulsory.**
     (2) Draw a neat labelled **diagram** wherever **necessary.**

1. (a) Write a short note on supercritical fluid state.   3
   (b) What are additive, and colligative properties. Explain with examples.   2
   (c) 1.250 g of naphthalene was dissolved in 60 cm³ of benzene and freezing point of   3
the solution was found to be 277.515 K, while of benzene 278.495 K. Density of
benzene = 0.880 gcm⁻³ k_f = 5.1 k per 1000 g benzene. Calculate the molecular
mass of naphthalene.
   (d) Give the definition, application and limitations of thermodynamics.   4
   (e) State and explain Faraday's Laws of electrolysis.   3

2. (a) Write a note on aerosols and explain the application of liquefaction in aerosols.   4
               OR
   (a) Explain the principle and method of liquefacion of gases by Linde's method.
   (b) What is dipole moment and give its applications in pharmacy.   3
   (c) Explain Hess's Law of constant heat summation.   4

3. (a) Explain Raoult's Law and discuss with the help of diagram positive and negative   4
deviation from Raoult's Law.
   (b) If a carnot engine operating between two heat reservoirs at 227⁰C and 27⁰C absorbs   4
100 calories from the 227⁰C reservoir per cycle, how much work is done per cycle ?
               OR
   (b) Define entropy. Give the different statements of second law of thermodynamics.
   (c) 0.5 normal solution of salt placed between two platinum elecrodes, 20 cm apart   3
and of cross-section 4.0 sq cm has a resistance of 25 ohms. Calculate the equivalent
conductance of the solutions.

4. (a) Define critical constants and give a short account of critical phenomenon.   4
   (b) Define refractive index. Discuss the principle and working of Abbe's refractometer.   3
   (c) Describe a method to determine depression in freezing point of a non-volatile   4
solute in solution with a help of a labelled diagram.
               OR
   (c) Explain Landsberger method for the determination of molecular mass of solute.

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5. (a) Write a note on polymorphism.
   (b) Define osmosis and write a note on Berkeley and Hartley's method for measurement of osmotic pressure.
   (c) Define : (i) Heat of formation
               (ii) Heat of neutralization
               (iii) Heat of Combustion.

                    OR

   (c) Derive the relation between Cp and Cv.

6. (a) 34 gms of NH_3 (Mol. wt. of $NH_3 = 17$) are enclosed in a five litre flask at 27^0C. Calculate the pressure exerted by the as assuming that :
                    $R = 0.0821$ atm. lit K^{-1} mol^{-1}
                    $b = 0.037$ lit mol^{-1}
                    $a = 4.14$ lit^2 atm mol^{-1}
   (b) Write a note on steam distillattion.
   (c) Discuss Gibb's free energy.
   (d) State the postulates of Arrhenius theory of electrolytic dissociation.

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Anjuman-I- Islam's
Kalsekar Technical Campus
School of Pharmacy
Semester-I

Subject :--Communication Skills

Time   :-- 03 hrs   Marks   :-- 70

Instructions:--
Question No.01 is compulsory
Attempt any four questions out of remaining five.

Q.01 Do as directed [Any ten]   (10)
 1] It is the time to shut up the shop.[change the voice]
 2] He said, " Will you listen to such a man? " [change the speech]
 3] He is too proud to beg.[remove too]
 4] We wish to live. We eat for that purpose.[combine the sentences]
 5] I see him everyday.[add a question tag]
 6] He put up a brave fight.[change it into past perfect tense]
 7] He must work hard , or he will not win the first prize.[make it simple]
 8] Suman is not so clever as some other girls of the class.[change the degree]
 9] He was a villain to do such a deed.[make it interrogative]
 10] Night is very beautiful. [make it exclamatory]
 11] Ali was the best king that ever reigned the world.[Make it negative]
 12] The judge says the criminal should be hanged.[Rewrite the sentence using correct punctuation]

Q. 02 `   (15)
 A] Write an essay on " Social Health in India "   7
 B] Write technical description of Stethoscope.   6
 C] Do as directed   2
 1] Write a sentence using the word 'fast ' as a noun.
 2] Muslims fast in the month of Ramzan.[Identify the part of speech of the word 'fast']

Q 03   (15)
 A] Write a note on non-verbal communication.   9
 B] You are the lab-incharge of all the labs in KTC, school of Pharmacy. Write a monthly progress report to be submitted to the Principal of your institute. 6

Q 4   (15)
 A] What are the elements of back matter of a long report. Explain with suitable examples.   7
 B] Write phonetic transcription of the words givens below :-
 various, theater, height, climb, succeed, surprise   6
 C] Fill in the blanks   2
 1. The earth ......round the sun.[move,moves,moved]
 2. My friends .... the Prime Minister yesterday.[see,saw, seen,have seen]

1

Q 5 (15)

A] Write short notes [any two]
1] Eye contact
2] Haptics   5
3] Barriers to communication

B] There is a vacancy for the post of a pharmacist in a the reputed pharma-industry situated in Mumbai. Write an application for job with resume to be submitted to the HR manager of the company.   8

C] Correct the sentences: 2
1. Each of the sister is clever.
2. Neither of the men were very tall.

Q 6 (15)

A] You are appointed as a psychologist in an educational institute to counsel the students. Write the conversation between you and the student with arrogant behaviour.   7

B] Define X-ray machine, Urine test, microscope.   6

C] Fill in the blanks with appropriate conjunctions.   2
1. You will not succeed......you work hard.
2. We arrived after you ...... gone.

2