B pharmacy Sem I CBSGS
T 2505 - POC , 2nd half 2017
7/12/17 A.T.K.T

Q.P. Code : 00232

[Time: Three Hours] [Marks:70]

Please check whether you have got the right question paper.

N.B: 1. All questions are compulsory.
2. Answer all sub questions together.
3. Figures to right indicate full mark.

Q.1 a) **Explain the terms (Any 5)** 5

i) Quantum numbers ii) Rate law
iii) HOMO iv) catalyst
v) Transition state vi) Formal charge

b) **Fill in the blanks.** 5

i) The rate constant for the first order reaction is.....if its half-life is one hour.
ii) The dipole moment for NH_3 is..... than NF_3.
iii) Lewis structure for CO_3^{-2} is.....
iv)The geometry for PCl_5 is..... as per hybridization concept.
v) Tetralkyl ammonium bromide is an example of..... catalyst

c) **Match the following** 5

	Column A	Column B
1.	Starch-iodine complex	Octahedral
2.	Cr valence electrons (At.No.24)	charge transfer complex
3.	BF_3	sp^2 hybridization
4.	Water	specific acid
5.	SF_6	$3d^4 4s^2$

Q.2 a) Draw resonating structures for : 2

i) CH_3COO^- ii) NO_2^-

b) Draw the molecular orbital diagram for ethane 3

c) Define: primary isotope effect, Secondary isotope effect. State any one example to explain the concept 3

d) Enlist various types of catalysis and explain electrophilic catalysis 3

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Q.3 a) Elaborate on group orbitals of planar methyl by drawing molecular orbitals 3

b) Represent molecular orbitals of water molecule and clearly indicate where lone pairs on oxygen are sitting?

c) State Arrhenius rate law. Explain each term involved in it. 3

d) For a first order reaction calculate time required to complete 90% of the reaction if its half-life is 3hours. 2

Q.4 a) Give strengths and weaknesses of Molecular orbital theory 3

b) State and explain any three rules for QMOT 3

c) Enlist various methods to follow fast kinetics and explain any one method 3

d) Add a note phase transfer catalysis 2

Q.5 a) Draw the resonating structure for the given molecule. Indicate the most stable structure 3

b) Explain the formation of carbanion by molecular orbital theory 3

c) The specific reaction rate at 273 K and 300 K are 2.56×10^{-5} sec^{-1} and 15.8×10^{-4} Sec^{-1}. Calculate the energy of activation ($R = 8.314\ JK^{-1} mol^{-1}$) 2

d) What are charge transfer complexes? Discus their applications 3

Q.6 a) Complete the following table on the basis of hybridization concept 3

Molecule	Hybridization state of the underlined atom	Bond angle
$\underline{S}F_6$		
$H_2\underline{O}$		
$\underline{C}$ in Ethylene		

b) Write a note on specific base catalysis 4

c) State and explain reactivity and selectivity principle 2

d) `Sulfonation of naphthalene at 80°C gives naphthalene-l -sulfonic acid and at 160°C gives naphthalene-2-sulfonic acid'- 2

State clearly name of kinetically controlled product and thermodynamically controlled product in above reaction

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F.Y. B pharm (Sem I) CBSGS - PPL, 2nd May 2017
12/12/17

Q. P. Code: 27541

(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) List out different types of liquid crystals and give their characteristics. 3
   (b) Define specific rotation and give the applications of Polarimeter. 2
   (c) 0.44g of a substance dissolved in 22.2g of benzene lowered the freezing point of benzene by 0.567◦ C. Calculate the molecular mass of the substance. (K_f=5.12◦ C mol^{-1}). 3
   (d) Distinguish between reversible and irreversible process. Give different statements of first law of thermodynamics. 4

   (e) State Faraday's first law of electrolysis. Discuss the variation of equivalent conductance with dilution. 3

2. (a) Explain Linde's method of liquefaction of gases. 4

   OR

   (a) Write a short note on liquefaction of gases by Claude's method.
   (b) Define dielectric constant and give its significance. 3
   (c) State Kirchhoff's equation. Explain Hess's law of constant heat summation. 4

3. (a) State Raoults law? Explain positive and negative deviations from Raoults law. 4
   (b) The resistance of a 0.1N solution of a salt is found to be 2.5 X 10^3 ohms. Calculate the equivalent conductance of the solution if cell constant is 1.15cm^{-1}. 3
   (c) Explain efficiency of heat engine. Calculate the maximum efficiency of an engine operating between 110 ◦C and 25◦C. 4

   OR

   (c) Define Chemical Potential. State the following:-
   (i)Carnot theorm
   (ii)Gibb's Helmholtz equation
   (iii)Third law of thermodynamics.

4. (a) Derive the relationship between Van der Waals constants and critical constants. 4
   (b) Explain the principle and working of Abbes Refractometer. 3
   (c) Explain any one method for determination of molecular weight of nonvolatile solute. 4

   OR

   (c) Establish the correlation between depression of freezing point and lowering of vapor pressure. How is it used for determination of molecular weight?

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5. (a) Write a Short note on Polymorphism. 4
   (b) State and explain the following 3
   i) Clausius clapeyeron equation
   ii) Vant Hoff equation.

OR

(b) Calculate the heat of reaction for:

$C_2H_4\ (g) + 3O_2(g) \rightarrow 2CO_2\ (g) + 2H_2O\ (g)$

From the following values of bond energies in kJ:

C-H : 414 C=O : 724 C=C :619

O=O : 499 O-H : 460

(c) What is osmotic pressure? Describe any one method for its determination. 4

6. (a) Van der Waal's constants for hydrogen chloride gas are 3
   $a = 3.67$ atm $lit^2\ mol^{-2}$, $b = 0.0408$ lit mol^{-1}.
   If the gas constant $R = 0.0821$ lit atm $K^{-1}\ mol^{-1}$, calculate the critical temperature and critical pressure of the gas.
   (b) Write a short note on steam distillation. 3
   (c) What do you mean by entropy? State its importance in thermodynamics. 3
   (d) State postulates of Arrhenius theory of electrolyte dissociation. 2

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 (Sem I) CBSGS - APP I

14/12/17

Q.P. Code :06723

[Time: Three Hours] **[Marks: 70]**

Please check whether you have got the right question paper.

N.B:
1. All questions are compulsory.
2. Answer all sub questions together.
3. Draw neat labeled diagram wherever necessary.

Q.1 a) Answer the following. 12

- i. Classify epithelial issue.
- ii. Explain the process of pinocytosis
- iii. Enlist organs of lymphatic system.
- iv. What is granulocytopenia.
- v. What is chemotaxis.
- vi. Explain what isometric & isobaric contraction is.

b) Answer the following : 03

- i. Explain what is serum & what is plasma
- ii. ------------------neurotransmtter is released at neuromuscular junction.
- iii. --------------------fluid is found in joints.

Q.2 a) Answer **any Two** of the following. 08

- i) Explain the process of erythropoiesis in detail.
- ii) Explain in details about type I & type II hypersensitivity reactions.
- iii) Write a note on different types of anemia.

b) Answer **any One** of the following: 03

- i) Write a note on Sickle cell anemia.
- ii) Give functions of WBCs & platelets.

Q.3 a) Answer **any Two** of the following: 08

- i) Explain the structure of skeletal muscle with a neat labeled diagram
- ii) Compare & contrast between skeletal & smooth muscle.
- iii) Write a note on Neuromuscular junction.

b) Answer **any One** of the following. 03

- i) Explain the process of transcytosis
- ii) Explain the structure of sarcomere.

Q.4 a) Answer **any TWO** of the following. 08

- i) Explain the histology & function of spleen in brief.
- ii) Write a note on flow of lymph
- iii) Write a note on Grave's disease.

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b) Answer **any ONE** of the following 03

i) Classify & give functions of connective tissue.

ii) Write a note on adipose tissue.

Q.5 a) Answer **any TWO** of the following. 08

i) Explain the role of integral proteins & cholesterol in plasma membrane.

ii) With a neat labeled diagram, explain the structure of cardiac muscle.

iii) Differentiate between active & passive transport processes.

b) Answer **any ONE** of the following. 03

i) Explain the role of histamine in inflammatory reaction.

ii) Explain in brief mechanism involved in increase in vascular permeability during inflammation

Q.6 a) Answer **any TWO** of the following. 08

i) Explain the process of blood coagulation.

ii) Classify WBC's give its normal count & explain in what conditions its number increase & decreases.

iii) Write a note on blood group's & explain what is erythroblastosis fetalis.

b) Answer **any ONE** of the following. 03

i) Explain the process of phagocytosis

ii) Describe the features of chronic inflammation.

Q. P. Code: 27667

Time: 3 Hours Marks: 70

(1) All questions are compulsory
(2) Draw neat labelled diagrams wherever necessary
(3) Figures to the right indicate full marks

1) (i) Give two examples of indoor air pollutants 1
(ii) Define carbon credits 1
(iii) Explain the term Environmental Impact Assessment (EIA) 1
(iv) Enlist the chemicals produced during Acid rain 1
(v) Enlist 2 non- renewable sources of energy 1
(vi) What do you mean by Eutrophication 2
(vi) Explain primary air pollutants with two examples 2
(viii) Define disaster management and enlist techniques used for disaster management 2
(ix) Explain the need of environmental education 2
(x) Give advantage and disadvantage of fossil fuels as sources of energy 2

2) (i) Write the causes and effects of depletion of soil resources and measures undertaken for prevention of same 4

OR

(i) Describe the cause and effects of depleting nature of forests in the environment

(ii) Gives the roles and duties of Central Pollution Control Board 4
(iii) Explain how you use the principle of 3R in treatment of E-pollution 3

3) (i) Describe ecological pyramids along with examples 4
(ii) What is geothermal energy and explain energy generation using geothermal energy 4
(iii) Describe the need of public awareness for environment 3

OR

(iii) Explain multidisciplinary nature of environmental studies

4) (i) Write short note on causes and effects of Ozone layer depletion 4
(ii) Describe Ganga action plan 4

OR

Explain "Taj Mahal" as a case study in environmental legislation
(iii) What do you mean by green building? What are its benefits? 3

5) (i) Enumerate the objectives and functions of Ministry of Environment and Forest (MoEF) 4

OR

(i) What is the need and Role of environmental legislation in Indian Scenario

(ii) Write a note on techniques of disaster management with reference to earthquakes 4
(iii)Explain the resource utilization as per the carrying capacity 3

6) (i) Write a note on sanitary landfill as one of the methods for Solid Waste Management 4
(ii) Explain the principle and working of photovoltiac cell 4

OR

Explain the principle and working of flat plate collector
(iii) Explain Minamata Disease case study 3

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