

SEAT No. _____

No. of printed pages : 02

[28]

SARDAR PATEL UNIVERSITY

M.Sc. Pharmaceutical Chemistry, First Semester Examination

Thursday, 2nd November,
2017

10.00 a.m. to 1.00 p.m.

Chemistry of life: PS01CPCH21

Total Marks : 70

Note : (i) All questions are to be attempted. (ii) Figures to the right indicate marks.

Q.1 Choose the correct option for the following :

[08]

- (i) Which one is an aldose sugar ?
(a) glucose (b) mannose (c) galactose (d) all
- (ii) Non-protein amino acid is
(a) ornithine (b) homocysteine (c) histamine (d) all
- (iii) is an example of steroid.
(a) cholesterol (b) arginine (c) lipid (d) none
- (iv) The number of double bond present in arachidonic acid is
(a) one (b) two (c) three (d) four
- (v) Nitrogen base present in lecithin is
(a) choline (b) ethanolam (c) inositol (d) serine
- (vi) Esterification of cholesterol occurs at carbon position
(a) one (b) two (c) three (d) four
- (vii) The bond in protein structure that are not broken during denaturation is
(a) ionic (b) H-bond (c) peptide (d) di sulfide
- (viii) Which nitrogen base is absent in RNA ?
(a) Adenine (b) guanine (c) cytosine (d) thymine

Q.2 Answer the following (Attempt any seven):

[14]

- (i) Explain inversion of sucrose.
(ii) Write main properties of carbohydrates.
(iii) Distinguish between : epimers and anomers.
(iv) Explain the term Zwitter ion.
(v) Give the name and structure of any two essential amino acids.
(vi) Define isoelectric point.
(vii) Draw the structure of adenine and thymine.
(viii) Explain the general functions of nucleic acid.
(ix) Give the name of amino acids useful as drug.

Q.3 Answer the following :

- [A] Define, classify and write functions of carbohydrates. [06]
[B] Give an account of the structural configuration of monosaccharides, with special reference to glucose. [06]

OR

- [B] Define homo polysaccharides. Explain about starch and glycogen. [06]

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Q.4 Answer the following :

[A] Discuss the general functions of lipids. [06]

[B] Define phospholipid. Enlist various type of phospholipid and explain it giving suitable illustration. [06]

OR

[B] Explain about Amphipathic lipids in detail [06]

Q.5 Answer the following :

[A] Define standard amino acid. Give its classification based on the structure with suitable example. [06]

[B] Discuss the primary structure of protein in detail. [06]

OR

[B] Discuss the chemical properties of protein. [06]

Q.6 Answer the following :

[A] Discuss various component of nucleic acid and the structure of nucleotides. [06]

[B] What is meant by conformers? Discuss confirmation of double helix DNA. [06]

OR

[B] Explain organization of DNA in prokaryotic and eukaryotic cell. [06]

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SARDAR PATEL UNIVERSITY

M.Sc. Pharmaceutical Chemistry, First Semester Examination

Monday, 6th November

10.00 a.m. to 1.00 p.m.

Organic Chemistry - 1: PS01CPCH22

Total Marks : 70

Note : (i) All questions are to be attempted. (ii) Figures to the right indicate marks.

Q.1 Choose the correct option for the following:

[08]

- (i) Which carbanion is most stable ?
 (a) methyl (b) *t*-butyl (c) ethyl (d) propyl
- (ii) Upon homolytic bond cleavage is formed.
 (a) carbocation (b) free radical (c) carbanion (d) ylides
- (iii) Which one is a heterocyclic compound ?
 (a) pyridine (b) benzene (c) ethylene (d) cyclohexane
- (iv) In the reaction of propene with HCl, H⁺ ion acts as
 (a) electrophile (b) carbonium ion (c) nucleophile (d) carbanion
- (v) Which is used as an oxidizing agent ?
 (a) KMnO₄ (b) HCOOOH (c) OsO₄ (d) all
- (vi) Reduction mean ;
 (a) loss of electron (b) gain of electron (c) addition of oxygen (d) none
- (vii) Nitrogen atom in pyridine is hybridized.
 (a) sp³ (b) sp² d (c) sp² (d) sp
- (viii) Which one is lewis acid ?
 (a) AlCl₃ (b) CH₃OH (c) CH₃OCH₃ (d) NH₃

Q.2 Answer the following : (Attempt any seven)

[14]

- (i) Define : Resonance and mesomeric effect.
 (ii) Distinguish between : Electrophilic and nucleophilic substitution reaction.
 (iii) Explain the structure of furan.
 (iv) Define : (a) Nucleophile and (b) Carbanion.
 (v) Explain S_N1 and S_N2 reaction.
 (vi) Write Diels-Alder reaction using suitable illustration.
 (vii) Define green reagent and enlist various green reagent used in green synthesis.
 (viii) Explain the role of KMnO₄ in a chemical reaction.

Q.3 Answer the following :

[A] Define reactive intermediates. What are the different type of organic reactions ? [06]

Explain them with suitable example.

[B] Explain the relative stability of primary, secondary and tertiary carbocation. [06]

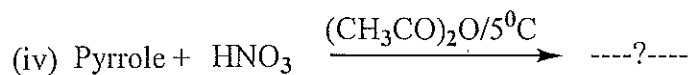
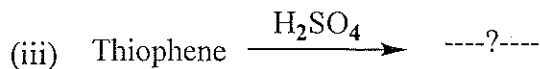
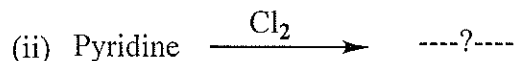
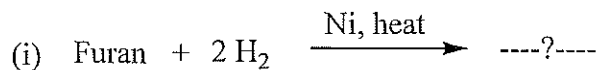
OR

[B] Define and discuss the Markonikov's and anti-Markonikov's addition rule giving suitable illustrations. [06]

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Q.4 Answer the following :

[A] Complete and rewrite the following reaction : [06]



[B] Write the synthesis of pyrrole and pyrazol. [06]

OR

[B] Write the Skrup and Bischler - Napieralski synthesis. [06]

Q. 5 Answer the following :

[A] Discuss the basic principal of green synthesis. [06]

[B] Discuss microwave assistant organic synthesis and their application taking suitable illustrations. [06]

OR

[B] Write short note on : Phase Transfer catalyst. [06]

Q. 6 Do as Directed :

[A] Write the following reactions : [06]

(i) Birch reduction (ii) Meerwein-Ponndroff-Verley reduction.

[B] List out various reducing agent. Write application of LiAlH_4 . [06]

OR

[B] Define reduction. Write hydrogenation of double bond using metal catalyst. [06]

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SARDAR PATEL UNIVERSITY
M. Sc. Pharmaceutical Chemistry (Semester-I) Examination
Wednesday, 08/11/2017; Time-10:00 AM to 01:00 PM
SUBJECT CODE: PS01CPCH23
SUBJECT TITLE: Chemistry of Natural Product I

Maximum Marks: 70

Note: (1) All questions are compulsory.
(2) Figure to right indicates total marks of question.

Q-1 Choose the correct option for the following:

1×8

1. Yin & Yang theory belong to
 - a. Chinese medicine
 - b. Ayurveda
 - c. Both a & b is correct
 - d. Can't say
2. The well-known treatises in Ayurveda are:
 - a. Sushruta Samhita
 - b. Chakra Samhita
 - c. Both a & b is correct
 - d. None
3. Curcumin is found in:
 - a. Rose
 - b. Turmeric
 - c. Hibiscus
 - d. None
4. Oxytocics are the drug that stimulate
 - a. Stomach ache
 - b. Urine concentration
 - c. Eye itching
 - d. All the above
5. The synonyms of rauwolfia leaf is:
 - a. Foxglove
 - b. Thuja
 - c. Digitalis
 - d. Sarpagandha
6. Identification and determination of quality and purity of a drug is known as
 - a. Evolution
 - b. Substitution
 - c. Calculation
 - d. None
7. Upon hydrolysis maltose gives
 - a. Fructose + Glucose
 - b. Glucose + Fructose
 - c. Glucose + Glucose
 - d. Glucose + Galactose
8. Gum Acacia is generally known as:
 - a. Tamarind Gum
 - b. Indian Gum
 - c. Corn flour dough
 - d. None

Q-2 Answer the following (Any Seven).

2×7

1. Describe the treatment procedure for Unani medicine system.
2. Give the approach of Aroma therapy.
3. What is ergotism?
4. Give the name and sources of natural anti-diabetics.
5. Explain antiseptics.
6. What is Palisade ratio?

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7. Describe Stomatal Index.
8. Define iodine value.
9. Describe the detection of Sesum oil as adulterant
- Q-3 A. Describe pharmacological classification of crude drug. 6
 B. Highlight the scope of pharmacognosy. 6
- OR
- B. Elaborate the traditional Chinese medicine & Kampoh system. 6
- Q-4 A. Draw and describe the morphology of Bada Gokhru & Chhota Gokhru. 6
 B. Give the source, chemical constituents, test and uses of Benzoin. 6
- OR
- B. Write a note on *Gymnema sylvestre*. 6
- Q-5 A. What is pharmacopeial standard? Brief some analytical – physical standards. 6
 B. Give an account on pharmacognosy study of crude drug. 6
- OR
- B. List the method which are in practice for adultration of drug. 6
- Q-6 A. Write note on Guar Gum. 6
 B. Describe in detail about Starch. 6
- OR
- B. Elaborate the utility of Shark liver oil. 6

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SARDAR PATEL UNIVERSITY
M. Sc. Pharmaceutical Chemistry (Semester-I) Examination
Friday, 10/11/2017; Time-10:00 AM to 01:00 PM
SUBJECT CODE: PS01EPCH21
SUBJECT TITLE: BIOPHYSICAL CHEMISTRY

Maximum Marks: 70

- Note: (1) All questions are compulsory.
(2) Figure to right indicates total marks of question.

Q-1 Choose the correct option for the following:

1 × 8

1. **pKa the negative log of Ka is also known as:**
 - a. Rate of expression
 - b. Conc. of Buffer
 - c. Dissociation Constt.
 - d. Dissociation exponent
2. **The colour of methyl orange in acidic medium is:**
 - a. Yellow
 - b. Red
 - c. Blue
 - d. Lilac
3. **Cone and plate viscometer is applicable for the viscosity measured of:**
 - a. Newtonian Fluid
 - b. Non- Newtonian Fluid
 - c. Both a & b is correct
 - d. None
4. **Degree of thixotropy:**
 - a. Can change with time
 - b. Does not change with time
 - c. Will change after 1 year
 - d. None
5. **The dispersal of precipitated material into colloidal solution:**
 - a. Coagulation
 - b. Ultrafiltration
 - c. Peptization
 - d. Dialysis
6. **The process of removal of ions from sol by diffusion through permeable membrane:**
 - a. Coagulation
 - b. Ultrafiltration
 - c. Peptization
 - d. Dialysis
7. **The time left during which drug product retains the same property:**
 - a. Stability
 - b. Decomposition
 - c. Degradation
 - d. None
8. **The use of solvent mixture which lowers by di-electric constant, the rate of reaction**
 - a. Will increase
 - b. Will decrease
 - c. Will remain unchanged
 - d. Can't say

Q-2 Answer the following (Any Seven).

2 × 7

1. Define buffer with suitable example.
2. What is activity coefficient?
3. Define surface energy.
4. How the thixotropy used in formulation.

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5. Explain the term kinetic viscosity.
 6. Describe the emulsifying agent.
 7. Give the classification of emulsion and how will you identify them.
 8. Why the dissolution test is a pre-requisite for drug absorption?
 9. How the kinetics are use in predicting the stability?
- Q-3 A. Describe the effect of buffer capacity on neutralization curve. 6
- B. Describe the factors influencing the pH of buffer solution and also describe the role of buffer as drug. 6
- OR
- B. Describe the cryoscopic method and sodium chloride equivalent method for adjusting tonicity and pH. 6
- Q-4 A. Give the application of rheology in pharmacy. 6
- B. Describe pseudoplastic flow with suitable example. 6
- OR
- B. How will you measure surface and interfacial tension by using capillary rise and Du' Nouy ring method? 6
- Q-5 A. Give the characteristic of lyophilic and lyophobic sols. 6
- B. Describe the mono-molecular absorption theory for emulsification. 6
- OR
- B. How will you prepared sol by dispersion method. 6
- Q-6 A. Describe the preventing measure taken for the drug from Isomerism and epimerization. 6
- B. What are the factors influencing the dissolution and give its remedy. 6
- OR
- B. Write a note on mathematical treatment on dissolution. 6
