



AIKTC/KRRC/SoP/ACKN/QUES/2019-20/

Date: 15/01/2020School: SoP-CBCSBranch: SoPSEM: V

To,
Exam Controller,
AIKTC, New Panvel.

Dear Sir/Madam,

Received with thanks the following ^(Reg) Semester/Periodic question papers from your exam cell:

Sr. No.	Subject Name	Subject Code	Format		No. of Copies
			SC	HC	
1	Organic Chemistry III	BPH_C_501_T		✓	02
2	Pharmaceutics II	BPH_C_502_T		✓	02
3	Pharmaceutical Biotechnology	BPH_C_503_T		✓	02
4	Pharmacology II	BPH_C_504_T		✓	02
5	Nutraceutical and Dietary Supplements	BPH_E_5xx_T		✓	02
6	Cosmeticology	BPH_E_5xx_T		✓	02

Note: SC – Softcopy, HC - Hardcopy

(Shaheen Ansari)
Librarian, AIKTC

Paper / Subject Code: 66101 / Organic Chemistry- III

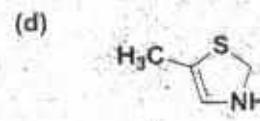
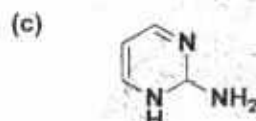
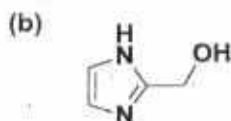
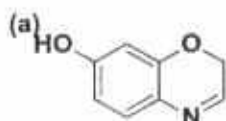
SEM-V CBCS 06/11/2019

Time: 3 hours

Marks: 80

- N.B.: 1. All Questions are compulsory
2. Figures to right indicate full marks

Q.1.A. (i) Give IUPAC nomenclature of the following: (Any Three) (03)



(ii) Draw the structures for the following: (Any Two) (02)

(a) 4-methoxy-7-ethylisoquinoline

(b) 4,5-dihydrofuran-2-carbaldehyde

(c) 5-methylindole-4-carboxylic acid

B. Answer the following in brief: (10)

(i) Size exclusion chromatography of monodisperse fractions of a linear polymer A and B yield molecular weights of 1,00,000 and 3,00,000 respectively. A mixture is prepared from 2 parts by weight of A and 4 parts by weight of B. Determine weight average molecular weights.

(ii) Give examples of protecting groups used for acidic and basic functional groups of amino acids.

(iii) Calculate the isoelectric point of histidine, which has $pK_1 = 1.77$, $pK_2 = 6.10$, $pK_3 = 9.18$. Provide the structure of the zwitterion.

(iv) Give the structure/s of reduction product of Pyridine.

(v) At which position does electrophilic aromatic substitution occur in furan? Why?

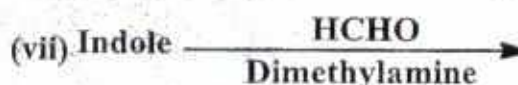
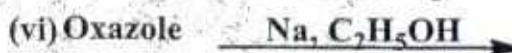
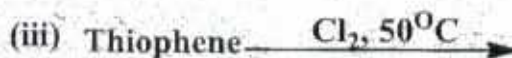
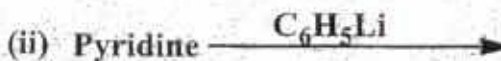
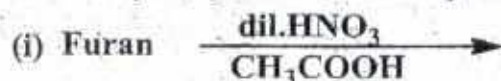
C. Answer the following:

(i) Draw all resonating structures for pyrrole. (02)

(ii) Compare the basicity of pyridine and pyrimidine. (02)

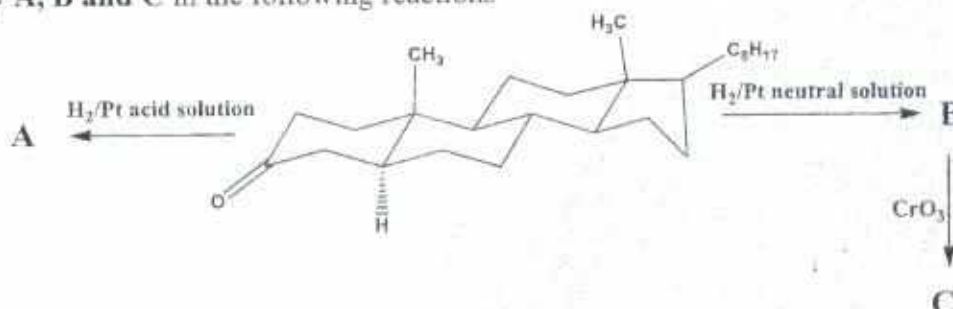
(iii) Draw the structure of 5 α -pregnan-3 β -ol (in chair conformation) (01)

Q.2. A. Give the products of the following reactions (Any Six) (06)



B. Identify A, B and C in the following reactions

(03)



C. Illustrate the Edman degradation analysis of the tripeptide Lys-Phe-Glu.

(03)

Q.3. A. Write the following synthesis with mechanisms (Any Three)

(06)

- (i) Skraup synthesis
- (ii) Hantzsch synthesis for thiazole
- (iii) Fischer Indole synthesis
- (iv) Paal Knorr Synthesis for thiophene

B. Write all the steps required for synthesis of Ile-Lys dipeptide.

(03)

C. Give the polymerisation reaction of ethane using Ziegler Natta catalyst.

(03)

Q.4. A. Give reasons for the following: (Any Three):

(06)

- (i) 3β -Cholesteryltrimethylammonium hydroxide on heating gives no product but 3α -Cholesteryltrimethylammonium hydroxide gives 2-cholestene
- (ii) Electrophilic substitution in indole takes place at 3- position.
- (iii) Cholestan- $3\beta,5\alpha,6\alpha$ -triol forms dicathylate
- (iv) Furan, Pyrrole and Thiophene are aromatics.

B. 5-Cholestene when treated with peracetic acid gives product B, which is hydrolysed by acid and water to give product C. Give the structures of B and C with proper stereochemistry.

(03)

C. Briefly discuss the Merrifield solid phase synthesis of DNA

(03)

Q.5. A. Answer the following questions:

(03)

- (i) Write the tautomeric forms of imidazole.
- (ii) Write method of synthesis of morpholine from oxirane.
- (iii) Draw resonating structures for Quinoline.

B. Attempt the following conversions (Any Five)

(05)

- (i) Thiophene to 2-chloromethylthiophene
- (ii) 4-methylpyrimidine to 4-methylpyrimidine-N-oxide.
- (iii) Phenylacetyl bromide to 2,4-diphenylimidazole.
- (iv) Furan to 2-bromofuran
- (v) 2-phenylethylamine to 1-methylisoquinoline.
- (vi) Glyoxal to imidazole-4,5-dicarboxylic acid

Paper / Subject Code: 66101 / Organic Chemistry- III

C. Explain what are biodegradable and non-biodegradable polymers with suitable examples. (04)

Q.6. A. Answer the following questions. (06)

(i) Give the reactions of quinoline with mild and strong oxidising agents.

(ii) Explain the effect of various reducing isoquinoline.

(iii) Explain what happens when pyrimidine reacts with hydrazine. (03)

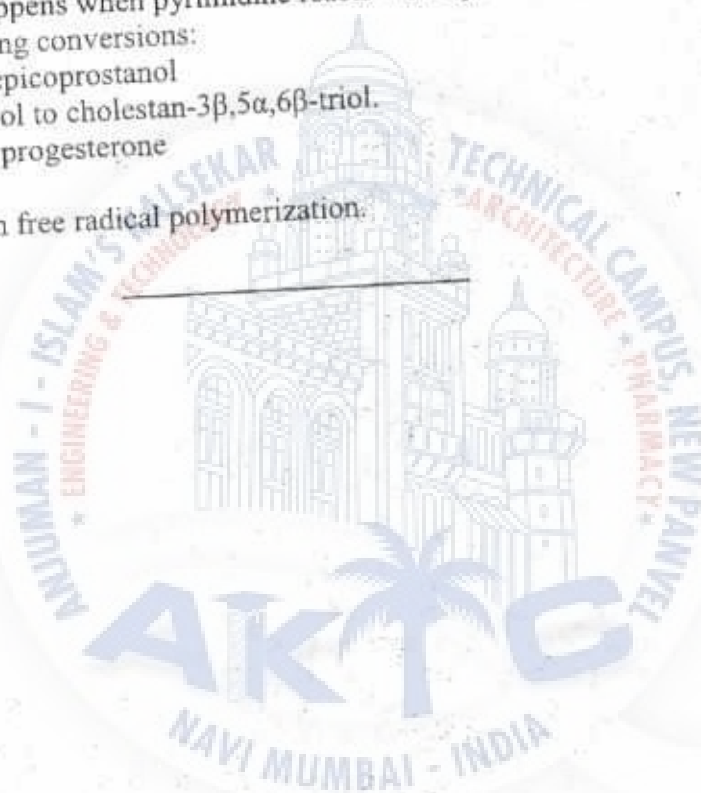
B. Attempt the following conversions:

(i) Coprostanone to epicoprostanol

(ii) Cholest-5-en-3 β -ol to cholestan-3 β ,5 α ,6 β -triol.

(iii) Pregnelolone to progesterone (03)

C. Write a short note on free radical polymerization.



SEM - I CBCS 08/11/19

Time: 3 Hours

Marks: 80

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

(2) Figures to the right indicate full marks.

(3) Draw neat labelled diagram wherever necessary.

- Q.1 (a) Elaborate on the desirable features of an emulsion. 3
 (b) Enlist the evaluation tests of suspensions. 2
 (c) Comment on any one pathway for drug penetration through skin. 2
 (d) Classify ointment bases giving examples and describe anyone in detail. 3
 (e) Explain any two physiological factors affecting rectal absorption. 2
 (f) What are aerosols? Give advantages and disadvantages of aerosols. 3
 (g) Discuss the containers used in aerosols. 3
 (h) Give classification of cosmetic products. 2
- Q.2 (a) Give the significance of following in suspension formulation: 4
 i. Zeta Potential
 ii. Schulze Hardy Rule
 (b) Describe large scale manufacturing including equipment for creams. 4
 (c) Explain methods of filling of aerosol containers. 4
- OR**
- (c) Write a note on propellants used in aerosols. 4
- Q.3. (a) Discuss formulation consideration of any one official preparation of suspension. 4
- OR**
- (a) Discuss symptoms of instability of suspensions. 4
 (b) Explain the methods to evaluate skin penetration. 3
 (c) Explain quality control tests for suspensions 3
 (d) Write a note on antimicrobial preservatives used in cosmetics 2
- Q.4. (a) Explain methods of preparation of suspensions
 (b) Describe large scale manufacturing of emulsions. 3

OR

4

- (b) Write a note on selection of emulsifiers based on HLB and Cloud point method. 4
- (c) Describe formulation of pastes. 2
- (d) Write a note on Schedule S and Schedule Q of cosmetics. 3

- Q.5. (a) Describe the formulation additives in the preparation of emulsions. 3
- (b) Describe rheological aspects of semisolids. 3
- (c) Explain parts of an aerosol valve assembly. 3

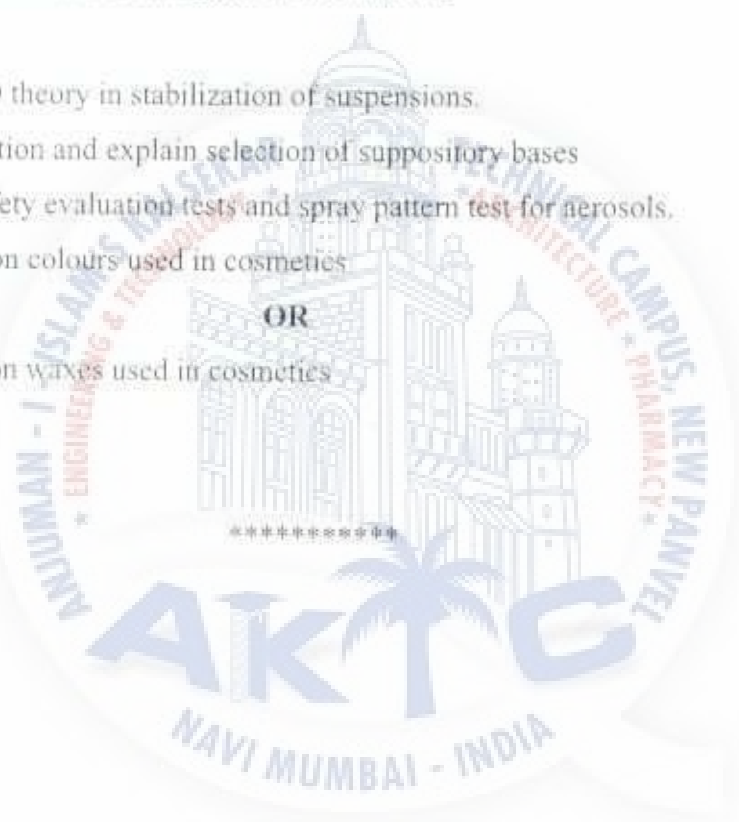
OR

- (c) Write a note on metered dose valve. 3
- (d) Elaborate on microbial contamination in cosmetics. 3

- Q.6. (a) Explain DLVO theory in stabilization of suspensions. 3
- (b) Give classification and explain selection of suppository bases 4
- (c) Explain the safety evaluation tests and spray pattern test for aerosols. 3
- (d) Write in brief on colours used in cosmetics 2

OR

- (d) Write in brief on waxes used in cosmetics 2



Paper / Subject Code: 66103 / Pharmaceutical Biotechnology

13/11/2019 sem-IV CBCS

(3 Hours)

Marks : 80

NB : (1) All questions are **Compulsory**.

(2) Draw neat labelled diagrams wherever necessary

- Q.1 a Write few applications of recombinant microbes in pharma industry 2
 b Define restriction endonucleases. Explain with example. 2
 c Draw structure of plasmid. 2
 d Write in brief about factors affecting pathogenicity and infection 2
 e Explain the principal of complement fixation test 2
 f Comment on Cell mediated immunity. 2
 g What is biotransformation. Give its applications in biotechnology. 2
 h Draw neat labelled diagram of fermenter. 2
 I Define Vaccine. Give its classification. 2
 J What are biosensors. Explain its applications. 2
- Q.2 a Define r-DNA technology. Explain the steps involved with a flowsheet 4
 b Explain the types of immunodeficiencies in detail 4
 c Classification of enzyme immobilization and explain crosslinking in detail. 4
- Q.3 a Elaborate on production of amylase by fermentation technology. 4
 b Explain production and purification of Penicillin 4
 c Define subunit vaccine. Explain Q.C. aspects of any one vaccine production 4
- Or**
- Write a note on Hepatitis B Vaccine production.
- Q.4 a Explain clonal selection theory 4
 b Explain RIA in detail 4
 c Write short note on Autoimmunity 4
- Or**
- Write short note on Type I Hypersensitivity
- Q.5 a Define DNA sequencing. Enlist the methods and explain any one in detail. 4
 b Write short note on c-DNA library 4
 c Write short note on RFLP and its applications 4
- Or**
- Explain mechanisms involved in Gene therapy
- Q.6 a What is animal cell culture. Enlist the components of animal media composition 4
 b Write short note on SDS page 4
- Or**
- Write short note on Northern blotting and its applications
- c Write short note on Bioinformatics 4
-

SEM-V CBCS 15/11/2019

(3 Hours)

- N.B.: (1) All questions are **compulsory**
 (2) **Figures** to the right indicates **full marks**

1. (a) Answer the following: -

- i) Enlist advantages of combination therapy with antimicrobials.
- ii) Explain mechanism of development of resistance to Streptomycin.
- iii) Give the clinical applications of Methotrexate.
- iv) Enlist adverse effects of Insulin therapy.
- v) Write in brief role of vitamin D in bone formation.
- vi) Explain the therapeutic applications of Immunosuppressants.
- vii) Enlist therapeutic uses of thrombolytic drugs.
- viii) Discuss mechanism of synergistic action of sulphonamide and trimethoprim.

1. (b). **Match** the followings:-

- A**
- i. Tetracycline
 - ii. Rosiglitazone
 - iii. Clopidogrel
 - iv. Acyclovir

- B**
- a. DNA polymerase inhibitor
 - b. Inhibition of platelet activation
 - c. Improves insulin sensitivity
 - d. Inhibition of protein synthesis

2. (a) Answer **any two** of the following: -

- (i) Discuss chemotherapy of Leprosy.
- (ii) Explain mechanism of action, therapeutic effects and side effects of Fluroquinolones.
- (iii) Classify antiretroviral drugs. Discuss the pharmacology of Saquinavir.

2. (b) Answer **any one** of the following:

- (i) Write in detail about mechanism of action and adverse effects of Sulphonamides.
- (ii) Discuss treatment for intestinal amoebiasis.

3. (a) Answer **any two** of the following: -

- (i) Classify oral hypoglycemic drugs. Write Mechanism of action the adverse effects and clinical uses of any one class.
- (ii) Write note on Oxytocics.
- (iii) Classify anti-thyroid agents. Write a note on radioactive Iodine.

3. (b) Write a short note on **any one** of the following: -

- (i) Insulin preparations.
- (ii) Bisphosphonates.

4. (a) Answer **any two** of the following: - 8
- (i) Write note on Iron preparations.
 - (ii) Compare and contrast between Low Molecular Weight and unfractionated heparin.
 - (iii) Explain mechanism of action and drug interactions of warfarin.
4. (b) Attempt **any one** of the following: - 4
- (i) Compare and contrast between Urokinase and Alteplase.
 - (ii) Classify Coagulants. Write a note on Vitamin K.
5. (a) Answer **any two** of the following: - 8
- (i) Discuss the role of antibiotics in the treatment of cancer.
 - (ii) Classify Beta lactam antibiotics. Add a note on extended spectrum Penicillins.
 - (iii) Classify antifungal drugs based on their mechanism of action. Discuss the pharmacology of Amphotericin B.
5. (b) Write a short note on **any one** of the following: - 4
- (i) Radical cure for Malaria.
 - (ii) Treatment for Filariasis.
6. (a) Answer **any two** of the following: - 8
- (i) Write a note on Glucocorticoids.
 - (ii) Classify Immunomodulators. Give mechanism of action of Tacrolimus.
 - (iii) Write a note on Oral Contraceptives.
6. (b) Answer **any one** of the following: - 4
- (i) Enlist first line drugs for treatment of Tuberculosis. Explain pharmacology of Rifampicin.
 - (ii) Write a note on Alkylating agents as anti-neoplastics.

18/11/2019 SEM-I CBCS

2 Hours

Marks: 40

Please check whether you have the right question paper

N.B. All questions are compulsory.

- Q.1. Answer the following- 12
- i Discuss advantages of 'Nutraceutical' in health care
 - ii Give two examples of Marketed Nutraceuticals for nutrition & ageing
 - iii Name the source and draw the structure of Resveratrol
 - iv What does MPO stand for?
 - v Give the source and uses of Fish oils
 - vi Write the occurrence and use of Shilajit
 - vii Name a Pharmacopial specification for Dietary Supplement
 - viii Name the enzyme and hydrolysed product in metabolism of Glucosinates
 - ix Name two Limitations of a Nutraceutical with a suitable example
 - x Name any 2 Toxic contaminants present in Nutraceutical Formulations
 - xi Name any two labelling parameters for Nutraceuticals.
 - xii Give the structure and recommended dose of Curcumin as Nutraceutical
- Q.2. i Classify Nutraceuticals based on chemical nature with examples 4
- ii Discuss Challenges involved in collection of Nutraceutical raw material. 3
- Q.3. i Describe the regulatory aspects of Nutraceuticals as per US guidelines 4
- ii Write short note on Carnitine 3
- Q.4. i Discuss the intentional adulteration & counterfeit labelling of Nutraceuticals 4
- ii Discuss stability evaluation of Nutraceuticals. 3
- Q.5. i With suitable examples, explain different types of dietary fibres. 4
- ii Write a note on occurrence, structure and uses of Lycopene. 3

27/11/2019 SEM - V CBCS

Time: 2 Hours

Total Marks: 40

Please check whether you have got the right question paper.

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

2. Figures to the right indicates full marks.

- | | | |
|-----|-----------------------------------------------------------------------------------------------------------|----|
| 1 | Answer any five | 10 |
| (a) | Give the Schedule M (II) requirements for nail lacquers. | 2 |
| (b) | Enlist and justify the need for baby cosmetics | 2 |
| (c) | Write a brief note on foaming shave products | 2 |
| (d) | Elaborate on the oils and waxes used in lipsticks | 2 |
| (e) | Elaborate on raw materials used in formulating shampoos | 2 |
| (f) | Write a brief note on denture cleansers | 2 |
| 2 | Answer any two | 6 |
| (a) | Differentiate between vanishing and cold creams with respect to their formulation and properties | 3 |
| (b) | Write a note on antioxidants used in the formulation of cosmetics | 3 |
| (c) | Discuss quality control tests with BIS specification for nail polish. | 3 |
| 3 | Answer any two | 6 |
| (a) | Enlist various Eye make-up products and describe any one. | 3 |
| (b) | Elaborate on hair waving products | 3 |
| (c) | Write a note on Sunscreen products | 3 |
| 4 | Answer any two | 6 |
| (a) | Give an account of Large scale manufacturing of Compact Face Powder. Mention equipment used in each step. | 3 |
| (b) | Write a note on After Shave products | 3 |
| (c) | Discuss raw materials used in a toothpaste formulation | 3 |
| 5 | (a) Write in detail on Sensorial Evaluation of cosmetics | 3 |
| | (b) Discuss Safety evaluation of cosmetics | 3 |
| 6 | (a) Classify surfactants. Give examples of cosmetics in which surfactants are used. | 2 |
| | (b) What are the steps to be followed during sensorial evaluation of cosmetics? | 2 |
| | (c) Write a formula of depilatory product with role of each ingredient | 2 |
