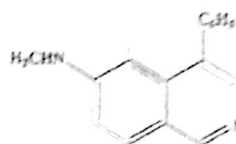
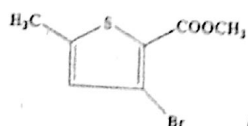


- N.B.: 1. All Questions are compulsory  
2. Figures to right indicate full marks

Total Marks: 70

Q1. (a) Give IUPAC nomenclature of the following (any three):



- (b) Compare and comment on basicity of imidazole and pyridine. (02)  
 (c) Explain disrotatory motion with example. (01)  
 (d) Explain the term Functional Group Addition with suitable example. (01)  
 (e) What is the strategy used for disconnection in pyrrole. (01)  
 (f) Give structures of the following in chair form: (03)  
 (i) 5 $\alpha$ -progesterone (ii) Cortisone (iii) 3 $\beta$ -hydroxy-6 $\beta$ -acetoxy-5 $\alpha$ -androstane  
 (g) Give product formed for reaction of Cholesterol with H<sub>2</sub>O<sub>2</sub> and justify (01)  
 (h) Draw reaction to depict classical and non-classical route for Friedel Craft alkylation. (01)  
 (i) Define term Atom efficiency. If atom efficiency of a reaction corresponds to 40% then what will be its theoretical E-factor? (02)

Q2. (a) Write the following reactions with mechanism (any two):

- (i) Doebner Miller synthesis (04)  
 (ii) Pomeranz - Fritsch synthesis  
 (iii) Fischer indole synthesis

(b) Using orbital diagram, explain whether (4 $\pi$  + 2 $\pi$ ) cycloaddition photochemical reaction would be suprafacial or antarafacial by giving suitable example. (04)

(c) Compare biocatalytic route of penicillin G with chemical synthesis. (03)

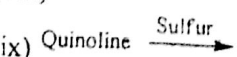
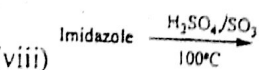
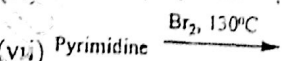
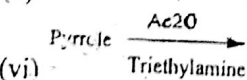
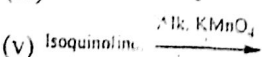
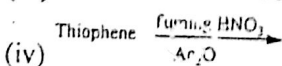
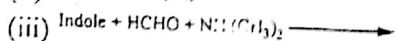
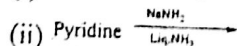
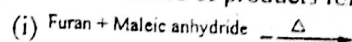
Q3. (a) Attempt the following conversions (Any Four)

- (i) Pyrimidine to 5-bromopyrimidine (04)  
 (ii) Pyridine to 2-phenylpyridine  
 (iii) 2,3-butanedione to 2,4,5-trimethylimidazole  
 (iv) Pyridine to 1,4-dihydropyridine  
 (v) 2,4,6-trichloropyrimidine to pyrimidine

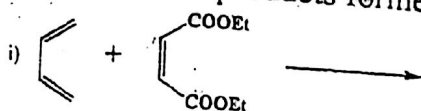
(b) Using synthon approach devise scheme for synthesis of atenolol. (04)

(c) Discuss classical and non-classical route for synthesis of Hydroquinone. (03)

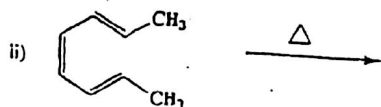
Q4. (a) Write structures of products formed for the following reactions (any eight):



(b) Write structures of products formed in the following reactions:



(03)



Q5. (a) Write the following reactions with mechanism (any two):

(i) Knorr pyrrole

(ii) Hinsberg synthesis

(iii) Paal Knorr synthesis for furan.

(04)

(b) Give reasonable explanation for the following (Any seven)

(i) Protonation of Nitrogen atom present in pyridine ring is easier than pyrrole.

(ii) Which is the preferred position for Electrophilic aromatic substitution reaction in imidazole and why?

(iii) Why pyrimidine ( $pK_a$ : 1.30) is much less basic than pyridine ( $pK_a$ : 5.2).

(iv)  $5\beta$ -cholestane-3-one forms 4-bromo derivative.

(v) Acetates of  $5\alpha$ -cholestane- $3\beta$ -ol get more rapidly hydrolysed than  $5\alpha$ -cholestane- $3\alpha$ -ol.

(vi) Cholesterol gives trans product upon oxidation with  $H_2O_2$ .

(vii) Electrophilic substitution in quinoline takes place at 5 and 8-position.

(viii) Furan undergoes Diels Alder reaction whereas thiophene does not

(07)

Q6. (a) Draw resonating structures for the following

(i) Pyridine

(ii) Indole

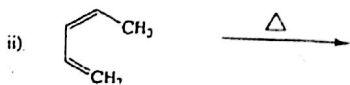
(iii) Imidazole

(iv) Quinoline

(04)

(b) Explain following reactions with mechanism:

(04)



(c). Give simplest retrosynthetic pathway for the following (any 3)

(03)

(i) p-methoxyacetophenone

(ii) Ethyl p-aminobenzoate

(iii) 1-butene

(iv) 2,4-dimethyl-2-pentanol

QP Code : 16115

(3 Hours)

[ Total Marks : 70

**N.B.** (1) All questions are compulsory.  
(4) Figures to the right indicate marks.

1. (a) Define cosmetics. Classify cosmetics based on intended use. 2  
(b) Describe the mechanism of wrinkle formation. How do antiwrinkle agents overcome the wrinkle formation. 3  
(c) What are nail bleaches ? Mention any two nail bleaching agents. 2  
(d) What are the steps in chemical hair waving ? Mention the chemical agents used in each step in hot waving process. 2  
(e) Describe the pre-electric shave lotions. 3  
(f) Classify bath products and discuss the formulation of bubble baths. 3
2. (a) Explain in detail the procedure for toxicity testing of cosmetics by open patch test. Add a note on Shelanski test for chronic testing. 4  
(b) Discuss in detail the formulation of moisturizing preparations. 3  
**OR**  
(b) Discuss in detail the ingredients used in the preparation of vanishing creams. 3  
(c) Classify the surfactants used in the formulation of shampoos. Add a note on advantages and disadvantages of each class of surfactants. 4
3. (a) Elaborate on the ingredients used in the preparation of aerosol foaming shaving creams. 3  
(b) Give an account of anhydrous eye shadow preparations. Add a note on quality control of eye shadows. 4  
(c) Write short note on any **one** of the following :—  
(i) Preservatives used in cosmetics  
(ii) Herbal cosmetics. 3
4. (a) Elaborate on the quality control tests on compact face powdes. 3  
**OR**  
(a) Describe the problems encountered in formulation of foundation lotions and suggest suitable measures to overcome the same. 4  
(b) Classify hair colourants. How is toxicity testing carried out for hair colourants ? 4  
(c) Write in detail about the evaluation of oral hygiene index for medicated dentifrices. 3
5. (a) Discuss the formulation of depilatories. 4  
(b) Give an account of various raw materials that controls the quality of lipsticks base. 4  
**OR**  
(b) Describe the large-scale manufacturing procedure for lipsticks. 4  
(c) What are the sources for microbial contamination of cosmetics during manufacturing ? How can you prevent them ?

[ TURN OVER

6. (a) Write short note on any one of the following :—
- (i) Antiperspirants
  - (ii) Baby toiletries.
- (b) Enumerate the various evaluation tests and BIS standards of nail lacquers.
- (c) What are the different invitro and invivo evaluation tests for sunscreens ?
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Sem V  
CBSCS

Pharm Biotechnology

March 2015

QP Code : 16119

(3 Hours)

[ Total Marks : 100

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

1. (a) Name any two autoimmune disorder. 1  
(b) Name any two application of monoclonal antibody. 1  
(c) Draw the structure of immunoglobuline. 1  
(d) Write microbial limit of Lactose. 1  
(e) Name two application of agglutination test. 1  
(f) Give scope of pharmaceutical Biotechnology. 1  
(g) Name any one subunit vaccine with organism involved. 1  
(h) How will you isolate and confirm the presence of Salmonella typhi in the given sample of lactose. 1  
(i) Write two application of a biosensor. 1  
(j) Give the types of fermenter. 1  
(k) Differentiate between Active and passive immunity. 1  
(l) Define phagocytosis. 1  
(m) What is epitope and haptane. 2  
(n) Explain the term avidity and affinity. 1
2. (a) Discuss the methods of enzyme immobilization and write one of the method in detail. 3
- OR
- (a) Write the types of microbial assay method write one of the method in detail. 3  
(b) Classify biosensor and how will you identify glucose oxidase by biosensor technique. 3  
(c) Short note on transgenic plant (any two ex vivo method) 3  
(d) Define whole cell immobilization. 2
3. (a) Write flow sheet of penicillin G production. 3  
(i) Upstream technique.
- OR
- (i) Down stream technique. 3  
(b) Discuss in details preparation and standardization of BCG vaccine. 3  
(c) Draw the labelled diagram of a fermenter. 3  
(d) Define saik and sabine polio vaccine. 2
4. (a) Discuss in detail production of monoclonal antibody . 3
- OR
- (a) Draw labelled diagram of life cycle of bacteriophage  $\lambda$ . 3  
(b) Write flow chart of gene library and enlist its application. 3  
(c) What are the types of antigen-antibody reaction write precipitation test technique and its application. 3

[TURN OVER

(d) Application of stem cell culture.

5. (a) What is DNA sequencing. Explain any one method.

OR

(a) Write the techniques of ELISA, any one method in details.

(b) Short note on PCR.

(c) Write gene therapy (any two method)

(d) Application of recombinant DNA technology.

6. (a) Discuss different types of hypersensitivity with suitable example.

OR

(a) Define restriction endonucleases with application and example.

(b) Ig- types and application.

(c) Write short note (any one)

(i) Fever

(ii) Inflammation

(d) Define virulence and pandemic disease.

Sem V

CBSCS

Pharmacology

March 2015

QP Code : 16121

(3 Hours)

Total Marks : 70

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

1. (a) Answer the following :- 12
- Enlist the various mechanisms for development of microbial resistance.
  - Give mechanism of action of aminoglycosides.
  - CD4 cell count gets depleted in HIV infection. Justify.
  - Name the hormones secreted by thyroid gland. Give the physiological role of one of the thyroid hormone.
  - Give mechanism of action of DPP-IV inhibitors.
  - Enlist factors affecting iron absorption.
- (b) Fill in the blanks:- 3
- \_\_\_\_\_ produces gray baby syndrome.
  - Active form of vitamin D is \_\_\_\_\_.
  - Aspirin inhibits \_\_\_\_\_ enzyme to produce its analgesic and anti-inflammatory action.
2. (a) Answer any two of the following :- 8
- Explain the cycle of malarial parasite indicating various targets for anti-malarial drug action.
  - Classify anti-cancer drugs. Explain pharmacology of any one class.
  - Give classification, mechanism of action and therapeutic uses of penicillin. 3
- (b) Write short note on any one of the following :- 8
- Tetracyclines
  - Albendazole
3. (a) Answer any two of the following :-
- Classify anti-diabetic drugs. Explain mechanism of action and unwanted effect of sulfonylureas.
  - Write a short note on anti-thyroid drugs.
  - Explain pharmacological action, adverse effect and clinical uses of oxytocin. 3
- (b) Answer any one of the following :-
- What are the different types of oral contraceptives. Explain mechanism of action of combined pill.

[ TURN OVER

- (ii) Explain the role of parathyroid hormones in the treatment of osteoporosis. 8
4. (a) Explain mechanism of action, adverse effects and clinical uses of any two drugs :- 3
- (i) Heparin
  - (ii) Aspirin
  - (iii) Folic acid
- (b) Write short notes on any one of the following :- 8
- (i) Vitamin - K
  - (ii) Thrombolytic Drugs
5. (a) Answer any two of the following :-
- (i) Sulphonamides are not very effective in presence of pus justify. Explain mechanism of action of trimethoprim. 3
  - (ii) Write a short note on chemotherapy of AIDS
  - (iii) Classify anthelmintic drugs. Write a short note on Metronidazole.
- (b) Answer any one of the following :- 8
- (i) Classify anti-fungal drugs on the basis of mechanism of action
  - (ii) Classify anti-tubercular drugs. Add a note on mechanism of action of Rifampicin.
6. (a) Answer any two of the following :- 3
- (i) Write a short note on Immunosuppressant.
  - (ii) Give mechanism of action and complications of insulin.
  - (iii) Classify the drugs used for treatment of osteoporosis. Elaborate on pharmacological actions of vitamin-D.
- (b) Answer any one of the following :-
- (i) Give mechanism of action of Amphotericin B and Azole antifungals.
  - (ii) Write a short note on Dapsone.
-



Exam - I  
CBCS Pharmacy Management

March  
2015

QP Code : 16124

(3 Hours)

[Total Marks : 70

- N.B.:** (1) Question No. 1 is compulsory.  
(2) Attempt any 5 questions from remaining 6 questions.  
(3) Attempt in all 6 questions.

- |  |   |
|--|---|
| 1. (a) Explain in brief (any two) : -  | 8 |
| (i) Product life cycle   |   |
| (ii) Marketing Mix   |   |
| (iii) Product Cost.  |   |
| (b) Explain the positioning of pharmaceutical Industry.                                      | 4 |
| (c) Explain different working style of Acute, Chronic and OTC segment.                       | 3 |
| 2. (a) Discuss the main components of Balance sheet.   | 8 |
| (b) Write a note on-Importance of Brand plan.  | 3 |
| 3. (a) Explain SWOT Analysis with any one example.   | 8 |
| (b) Write a note on six sigma concept.   | 3 |
| 4. (a) Describe FDA regulations and approvals for pharmaceutical product quality Management. | 8 |
| (b) Write a note on ESIS scheme.   | 3 |
| 5. (a) Explain BCG Matrix with example.  | 8 |
| (b) Write a note on DPCO.  | 3 |
| 6. (a) Explain Market Segmentation with example.   | 8 |
| (b) Write a note on Stress Management.   | 3 |
| 7. (a) Explain theories of Motivation.   | 8 |
| (b) Write a note on effective Segmentation Criteria.   | 3 |

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