

Please check whether you have got the right question paper.

- N.B: 1. All questions are compulsory.
2. Write structures wherever necessary.

Q.1 A) Briefly answer the following questions:

10

1. Explain – ‘van der waals interactions’.
2. “Nucleic acids can act as drug targets” explain using suitable example.
3. Name the coenzyme involved in sulfate conjugation.
4. Illustrate the significance of any one post translational modification with a suitable example.
5. Briefly discuss the significance of SAR studies.
6. Explain – ‘Tertiary structure’ of a protein.
7. Give an example of a GPCR.
8. Which carbonyl oxygen can act as a better Hydrogen bond acceptor amongst RCOR and RCOO[⊖] ? Justify.
9. Give one example of a recombinant protein approved for human use.
10. Briefly explain the term ‘Proteomics’.

B) Match column A with columns B and C.

05

A	B	C
i) Non – competitive inhibition	Oligonucleotides	Topoisomerase
ii) Tertiary structure of DNA	K _m unaffected	Target nucleic acids
iii) Glucuronidation	Supercoiling	V _{max} decreases
iv) Azoles	Uridine – 5’ – diphospho – α – D – glucuronic acid	Lanosterol – 14α – demethylase
v) Antisense therapy	Target fungal enzyme	Phase – II

Q.2 A) Answer the following:

04

- i) Enlist any four intermolecular forces involved in drug- receptor interactions.
- ii) Complete the following table:

Receptor: Binding regions	Ligand: Binding groups	Type of intermolecular interaction
⊕ -NH ₃		
OH		

- B) Give the structure and generic name for the following (Any three) 03
- A Monobactam
 - A Prodrug of tetracycline
 - A degradation product of penicillin
 - A third generation cephalosporin.
- C) Answer the following questions (Any two) 04
- Give the generic name, structure and name the enzyme inhibited by the following:
5-Amino -1-cyclopropyl -7- [3,5 -dimethyl piperazin-1-yl] -6,8- difluoro - 4-oxo - quinoline - 3 - Carboxylic acid.
 - Give the structure and nomenclature of a sulfonamide used for ophthalmic use.
 - Comment on the structural features in fluoroquinolones that influence phototoxicity.
- Q.3 A) Explain the following with a suitable example 04
- Ion - channel receptors
 - Signal transduction.
- B) Outline the synthetic route and give suitable reagents and reaction conditions for Pyrimethamine OR Primaquine. 03
- C) Answer the following: 04
- Justify the statement - "Functional diversity of Proteins".
 - Define the terms: 'Efficacy' and 'Potency'.
- Q.4 A) i) Predict any two Phase - I metabolites for the given molecule 02
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- ii) List any four Phase - II metabolic reactions. 02
- B) Outline the synthesis with necessary reagents and reaction conditions for Ampicillin OR Cloxacillin. 03
- C) Give reason for the following: 04
- Drug should have appropriate solubility and partition coefficient for oral administration

ii) Co – trimoxazole is an example of synergism.

Q.5

A) Based on SAR, Predict the effect of the following structural changes on activity. 04

- i) Introduction of a dimethylphenoxy substituent on acyl side chain in penicillins.
- ii) Epimerization at position 4 in tetracyclines.
- iii) Addition of alkoximino group in acyl side chain of Cephalosporins.
- iv) Introduction of fluoro group at 6 – position in fluoroquinolones.

B) Outline the synthesis of PAS with suitable reagents and reaction conditions. 03

C) Answer the following: 04

i) Give the generic name and structure of a schizonticidal antimalarial drug.

OR

i) List the chemical features of artemisinin, and give the structure of any one artemisinin derivative.

ii) Give structure and use of Mebendazole.

Q.6

A) Answer in brief: 04

i) Give the structure and mechanism of action of Flucytosine.

ii) Write a short note First line anti – tubercular agents.

B) Outline the synthetic route for clotrimazole OR Metronidazole with suitable reagents and reaction conditions. 03

C) Answer in brief: 04

i) Discuss the metabolic pathways for tertiary amines

ii) Structural features of Amino glycoside class of antibiotics.

Date: 25/4/18

Q.P. Code: 14856

Duration: 3 Hours

Total marks 70

- N.B (1) All questions are compulsory
(2) Figures to the right indicate full marks
(3) Answer all sub questions together
(4) Draw neat labeled diagrams wherever necessary
- Q.1 A) Answer the following (any SEVEN) 7M
- Name two types of burners used in flame photometry
 - Enlist bending vibrations in IR spectroscopy
 - Name two sources used in IR spectrometer
 - Name the material used for making sample cell windows in IR Spectroscopy
 - Define Wavelength maxima
 - Define the unit Becquerel used in radiochemistry
 - Calculate the absorbance of solution giving transmittance of 10 %
 - Name two types of filters used in colorimeter
- Q.1 B) Answer the following (any FOUR) 8M
- Explain the term excited Triplet state
 - What is Cut-off wavelength of the solvent? Give its significance
 - Fluorimetric analysis is more specific as compared to UV-Visible spectroscopic analysis. State whether true or false. Justify your answer
 - What are cationic interference in flame photometry?
 - Explain the terms Sievert and Gray with reference to radiochemistry
- Q2 A) Answer the following (any TWO) 8M
- With the help of suitable diagram explain working of photon multiplier tube detector
 - Enlist any four applications of X ray diffraction
 - Draw block diagram of Raman Spectrometer. Give any two applications of Raman Spectroscopy
- Q2 B) Define the term Radiochemical purity. Give one example of radionuclidic impurity and the instrument used to detect the same. 3M
- Q3 A) Answer the following (any TWO) 8M
- Discuss any four factors affecting the TG curve
 - Write a note on FTIR spectrophotometer
 - Differentiate between AAS and AES based on the principle involved. Give one advantage, one disadvantage and one application of AAS
- Q3 B) Enlist factors influencing vibrational frequencies in IR spectroscopy. 03M

Q4 A) Answer the following (any TWO) 08M

- i. When is chemical derivatization employed in UV-Visible and fluorescence spectroscopy? Name one derivatizing agent in each of these spectroscopic techniques with its application.
- ii. In assay of streptomycin by colorimetric method following results were obtained. Perform linear regression to determine slope and intercept of calibration line with the data

Concentration of Streptomycin (mg/ml)	Absorbance at 530 nm
5	0.19
10	0.40
15	0.58
20	0.81
25	1.01

- iii. In standardization of 0.1 N NaOH, burette readings obtained were as follows

Day 1	15.6	15.5	15.7	15.9	15.3
Day2	15.0	15.5	15.4	16.4	-

Was the variance on day 1 significantly different from day 2 at 95% confidence level [Tabulated F value is 6.59]

Q4 B) With the help of an example explain thermo gravimetric curve. 03M

Q5 A) Answer the following (any TWO) 08M

- i. Define fluorescence. Discuss any three factors affecting fluorescence intensity.
- ii. Explain the term overtones with reference to Near IR spectroscopy with suitable diagram. Give one pharmaceutical application of Near IR spectroscopy.
- iii. Enlist three methods for used in quantitative UV spectrophotometric assay of single component formulation. Explain any one in detail

Q5 B) Derive Bragg's Law in X ray diffraction 03M

Q6 A) Answer the following (any two) 08M

- i. Discuss the UV spectrophotometric method for determination of equilibrium constant
- ii. Draw block diagram of Spectrofluorimeter. Explain role of each of its components in brief.
- iii. Discuss attenuated total reflectance technique for sample handling in IR spectroscopic analysis of sample.

Q6 B) A (1%, 1cm) of a drug at its wavelength maxima (λ_{max}) is 714. When 1 ml of the injection containing drug was diluted to 1000 ml, the solution gave an absorbance of 0.728 at λ_{max} when measured in 1 cm cell. Calculate the concentration of drug in the injection in mg/ml. 03M

Q.P. Code : 34981

[Time: Three Hours]

[Marks:70]

Please check whether you have got the right question paper.

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

- Q.1 a What are Disintegrants? Explain the various mechanisms of tablet disintegration. 3
b Elaborate on Effervescent tablets. 3
c What are quality control tests for film coated tablets? 3
d Discuss defects of hard gelatin capsule shells. 3
e State advantages and disadvantages of aerosols. 3
- Q.2 a What is "Capping and Lamination" in tablets? Give its causes and remedies. 4
b Which are the materials used in strip packaging? Give an account of the strip packing process. 4
c Explain the formulation of dispersion type aerosols. 3
- Q.3 a Discuss the sugar coating process giving suitable examples in each step. 4
b Give the flow chart for the manufacturing of gelatin. 3
c Write a note on components of aerosol package. 4
- Q.4 a Explain in detail the physics of tablet compression. 4
b Discuss the large scale manufacturing of soft gelatin capsules. 4
c Enlist quality control tests for aerosols and explain any one test. 3
- Q.5 a Justify the importance of stability in preformulation studies. 3
b Elaborate on spray and air variables in film coating process. 4
c Describe the working of any one hard gelatin capsule filling machine based on 'auger' principle. 4
- Q.6 a Explain the steps in wet granulation process for tablet manufacture. 4
b Define 'enteric coating' and give an account of polymers used for the same. 4
c Illustrate the layout for a capsule section. 3

Q.P. Code :32294

[Time: Three Hours]

[Marks:70]

Please check whether you have got the right question paper.

- N.B:
1. All questions are compulsory.
 2. Illustrate answer with sketches and structures wherever required.
 3. Answer to sub-questions must be written together.

- Q.1
- a) Correct the statements if required & justify all the statements with significant reasons or examples. 07
- i) Agar is an example of dried latex.
 - ii) Altitude is an important parameter affecting cultivation of medicinal plants.
 - iii) Aleurone grains are found in collenchyma cells.
 - iv) Flavonoids are biosynthesized via shikimic acid pathway.
 - v) Hexane is the solvent of choice in microwave-assisted extraction of crude drugs.
 - vi) Lycopodium spore method is applied for identification of calcium oxalate crystals.
 - vii) Flax is a lignocellulose fibre.
- b) Answer briefly: 08
- i) Give the morphological and histological differences between allied species of brahmi.
 - ii) Give two examples of lipid-based drugs with structures of relevant phytoconstituents & applications.
 - iii) Give source, preparation & uses of malt.
 - iv) Give source, preparation & uses of serratiopeptidase.
- Q.2
- i) Discuss the significance of pharmacognosy in modern day medicine. 03
 - ii) With the help of suitable illustrations, explain the morphological & histological features of a typical dorsiventral leaf. 04
 - iii) Write a detailed note on alginic acid and its derivatives. 04
- Q.3
- i) Explain supercritical fluid extraction with suitable examples. 03
 - ii) Write a note on physical methods of evaluation of crude drugs. 04
 - iii) Compare & contrast absorbent & non-absorbent cotton. 04
- Q.4
- i) Write a note on morphological method of classification of crude drugs. Give its merits & demerits. 03
 - ii) With the help of suitable examples, explain the role of collection in maintaining quality of crude drugs. 04
 - iii) Outline the general method of extraction of glycosides & tannins. Explain the principle involved therein. 04

- Q.5
- i) Give source, constituents & commercial utility of acacia & isapgol. 03
 - ii) Give detailed biosynthetic pathway with structures, for steroids. 04
 - iii) With respect to WHO guidelines, explain the relevance of any 2 microbiological tests for quality control of DONO. 04
- Q.6
- i) Give sources, preparation & uses of protein hydrozates & pepsin. 03
 - ii) Write a note on subterranean stem modifications. 04
 - iii) Write a note on micro propagation of plants. 04

Time : 3 Hours

Marks : 70

- Q.1 a) Describe role of PTC in adverse drug reaction monitoring. 4M
b) Define hospital formulary. Enlist contents of hospital formulary. 3M
c) Describe drug dispensing system followed for in patients. 3M
d) Write note on Canes and crutches. 2M
e) What are the legal requirements to be satisfied for wholesale of drugs? 3M

- Q.2 a) Write note on Administration of hospital 2M

OR

- Define Hospital and classify on ownership and control basis. 2M
b) Describe pharmaceutical services rendered in hospital. 2M
c) Describe hospital control procedures followed for controlled substances in hospital. 4M
d) Explain role of ward pharmacist in prevention of medication error. 3M

- Q.3 a) Discuss scope of community Pharmacy in India. 2M

OR

- Comment on code of ethics for Pharmacist in relation to his profession. 2M
b) Discuss channels of distribution with factors affecting it's choice. 3M
c) Discuss sales promotion in retail drug store 4M
d) Elaborate on purchasing procedure in retail drug store 2M

- Q.4 a) Comment on current status of Hospital Pharmacy 2M

- b) Give the contents of hospital pharmacy procedural manual 2M
c) Discuss storage and purchasing procedure of drugs in hospitals 3M
d) Write the methods of packing, loading and prevention of wetting of dressings. 4M

OR

- Write the sterilization methods for following
i. Syringes ii Bedpans iii. Utensils iv. Tubing 4M

- Q. 5. a) Comment about the location and planning of CSSD. 3M

- b) Write a short note on Partnership business organization. 2M
c) Draw the ideal layout design of a drug store. 4M

OR

- Describe Traffic flow analysis followed in a drug store. 4M
d) Write about the personal accident insurance purchased by the Pharmacist as an employer. 2M

- Q.6 a) Write about the EOQ method to control hospital inventory. 3M

OR

- Write about the VED method of inventory control in hospital pharmacy. 3M
b) Comment on bulk compounding and manufacturing activity in hospitals. 3M
c) Comment on the qualities of a successful small business entrepreneur. 2M
d) Write about the intuitive method and open to buy budget system for inventory control of drug store. 3M
