

S.Y.B.PHARM. SEMESTER-III (CBCS - 2015 COURSE) :

SUMMER - 2018

SUBJECT : PATHOPHYSIOLOGY

Day : **Saturday**
Date : **05/05/2018**

S-2018-3920

Time : **02.00 PM TO 05.00 PM**
Max. Marks : **60**

N.B.

- 1) Q.1 and Q.5 are **COMPULSORY**. Out of the remaining solve any **TWO** questions from each section.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer book.

SECTION – I

- Q.1** Solve any **FIVE** questions: **(10)**
- a) What do you mean by glycogen storage?
 - b) Define allergy what are the symptoms of allergy?
 - c) Define cell adaptation.
 - d) What are the types of hypersensitivity reactions?
 - e) Define shock give types of shock.
 - f) Define and classify of angina.
- Q.2** Define malignancy. Discuss pathogenesis of cancer. **(10)**
- Q.3** a) Explain physical and chemical agents that can causes cell injury. **(07)**
- b) Enlist the various auto immune diseases. Write pathophysiology of any one auto immune diseases. **(03)**
- Q.4** Write a note on any **TWO**: **(10)**
- a) Glycogen infiltration
 - b) Abnormalities in lipproteinemia
 - c) Pathophysiology of hypertension

SECTION – II

- Q.5** Solve any **FIVE** questions: **(10)**
- a) Define bacillary dysentery.
 - b) Explain wound healing.
 - c) What is Pneumonia?
 - d) What is swine flu?
 - e) What is Ebola?
 - f) What is peptic ulcer?
- Q.6** Explain pathophysiology of diabetes mellitus. **(10)**
- Q.7** a) Explain pathophysiology of epilepsy. **(07)**
- b) Discuss pathophysiology of bronchial asthma. **(03)**
- Q.8** Write a note on any **TWO**: **(10)**
- a) Acute renal failure
 - b) Tuberculosis
 - c) Parkinsonism

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S.Y.B.PHARM. SEMESTER-III (2011 COURSE) : SUMMER - 2018
SUBJECT : PATHOPHYSIOLOGY

Day : **Saturday**
Date : **05/05/2018**

S-2018-3956

Time : **02.00 PM TO 05.00 PM**
Max. Marks : 80

N. B. :

- 1) **Q. No. 1 and Q. No.5 are COMPULORY.** Out or remaining solve **ANY TWO** questions from each section.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer books.

SECTION - I

- Q. 1** Solve **ANY FIVE** of the following: **(10)**
- a) Explain risk factors of cancer.
 - b) Explain about biological effects of radiation.
 - c) Define cell adaptation.
 - d) What do you mean by autoimmunity?
 - e) Differentiate between benign and malignant tumors.
 - f) Differentiate metaplasia from hyperplasia.
- Q. 2** Explain pathogenesis of cell injury. Give physical and chemical agents that causes cell injury. **(15)**
- Q. 3**
- a) Discuss pathophysiology of malignancy. **(08)**
 - b) Explain basic mechanism of inflammation and repair. **(07)**
- Q. 4** Write a note on **ANY THREE** of the following: **(15)**
- a) Allergy
 - b) Glycogen infiltration
 - c) Environmental carcinogenesis
 - d) Glycogen storage disease

SECTION - II

- Q. 5** Solve **ANY FIVE** of the following: **(10)**
- a) Define Bacillary dysentery.
 - b) What is COPD?
 - c) Define and classify angina.
 - d) What do you mean by acute renal failure?
 - e) What is shock? Give types of shock.
 - f) Explain Schizophrenia.
- Q. 6** Explain pathophysiology of HIV. **(15)**
- Q. 7**
- a) Explain pathophysiology of bronchial asthma. **(08)**
 - b) Explain pathophysiology of Parkinsonism. **(07)**
- Q. 8** Write a note on **ANY THREE** of the following: **(15)**
- a) Diabetes mellitus
 - b) Paralysis
 - c) Hepatitis
 - d) Sleep disorders

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**S.Y.B.PHARM. SEMESTER-III (CBCS - 2015 COURSE) :
SUMMER - 2018**

SUBJECT : PHARMACEUTICAL ANALYSIS-I

Day : **Friday** S-2018-3917 Time : **02.00 PM TO 05.00 PM**
Date : **27/04/2018** Max. Marks: 60

N.B.:

- 1) Q. No. 1 and Q. No. 5 are **COMPULSORY**. Out of the remaining attempt any **TWO** questions from each section.
 - 2) Both the sections should be written in **SEPARATE** answer books.
 - 3) Figures to the **RIGHT** indicate full marks.
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SECTION-I

- Q.1** Attempt any **FIVE** of the following: (10)
- a) Define and classify errors.
 - b) How will you prepare and standardize 500 ml of 0.25 N HCl solution and 0.1 N perchloric acid solution.
 - c) Write chemical reaction, principle involved in assay of Norfloxacin and Sodium bicarbonate.
 - d) Why glycerine is added in assay of boric acid.
 - e) Write calibration of a burette.
 - f) Write requirements of a primary standard solution.
- Q.2** a) Derive an equation for dissociation constant of a weak base. Give the chemical reaction and principle involved in assay of aspirin. (07)
- b) Write about buffering index. (03)
- Q.3** a) Explain in detail determination of weak base by non-aqueous titration. Give the reaction principle and assay procedure of sodium acetate. (07)
- b) Give the equivalent weights of : (03)
 NaHCO_3 , H_2SO_4 , NaOH , Na_2CO_3 .
[Given $\text{H} = 1$, $\text{Na} = 23$, $\text{S} = 32$, $\text{O} = 16$, $\text{C} = 12$].
- Q.4** Write short notes on any **TWO** of the following: (10)
- a) Theories of Acid base indicators
 - b) Hydrolysis of salt
 - c) Non aqueous titrations application.

SECTION-II

- Q.5** Attempt any **FIVE** of the following: (10)
- a) How ferroin acts as redox indicator.
 - b) What is chelation and co-ordination number?
 - c) Why masking and demasking agents are used.
 - d) How to prepare and standardize 0.1 N KMnO_4 and 0.05 N Disodium EDTA solution.
 - e) Why nitrobenzene or dibutyl phthalate is added during Volhard's method.
 - f) Write chemical reaction principle and assay procedure involved in Ascorbic acid and Sodium chloride.
- Q.6** a) What are complexes and chelates? Explain stability and factors influencing a complex. (07)
- b) Compare between Mohr's and Volhard's method. (03)
- Q.7** a) Explain ceriometric type of titrations. (07)
- b) Give chemical reaction, principle and assay procedure for Calcium gluconate. (03)
- Q.8** Write short notes on any **TWO** of the following: (10)
- a) pM Indicators
 - b) Fajan's method
 - c) Permanganate titrations

S.Y.B.PHARM. SEMESTER-III (2011 COURSE) : SUMMER - 2018

SUBJECT : PHARMACEUTICAL ANALYSIS – I

Day : **Friday**

Date : **27/04/2018**

S-2018-3953

Time : **02.00 PM TO 05.00 PM**

Max. Marks : 80

N.B.:

- 1) **Q.No.1** and **Q.No.5** are **COMPULSORY**. Out of the remaining questions attempt **ANY TWO** questions from each section.
- 2) Answers to both the sections should be written in **SEPARATE** answer books.
- 3) Figures to the right indicate **FULL** marks.

SECTION – I

- Q.1** Attempt **ANY FIVE** of the following: [10]
- a) Classify types of error.
 - b) How to prepare standardize 0.25N HCl and 0.25N NaOH solution?
 - c) Why glycerine is added in assay of boric acid?
 - d) State advantages of non-aqueous titration.
 - e) Define the terms : i) Buffer ii) Buffer action iii) Buffer index and pH.
 - f) Enlist types of indicators used in non-aqueous.
- Q.2** a) Discuss in detail about dissociation constant of strong acid and strong base. [08]
b) Describe in detail salt hydrolysis. [07]
- Q.3** a) Explain neutralization curve for weak acid and weak base. [08]
b) Discuss on types of solvents used in non-aqueous. Write about differencing and leveling effect. [07]
- Q.4** Write short notes on **ANY THREE** of the following: [15]
- a) Theories of indicators used in Acid base titration
 - b) Calibration of volume apparatus
 - c) Applications of non-aqueous titration
 - d) Buffering capacity

SECTION – II

- Q.5** Attempt **ANY FIVE** of the following: [10]
- a) Why KI is added during preparation of Iodine solution.
 - b) Calculate the solubility of magnesium hydroxide in mg/100ml, if the solubility product of magnesium hydroxide is 6.03×10^{-10} .
(Mol. Wt of Mag-hydroxide is 58.33)
 - c) Write theory, principle and reaction involved in assay of H₂O₂ and Sodium chloride.
 - d) Why ammonium buffer is added?
 - e) Write preparation and standardize of 0.1N Silver nitrate and 0.05N EDTA solution.
 - f) Write significance of K_{sp}.
- Q.6** a) How end point is detected in complexometric titration? Explain types of EDTA titrations. [08]
b) Describe method to calculate equivalent weight in redox titrations. [07]
- Q.7** a) Discuss Volhard's method of precipitation in detail. [08]
b) Explain ceriometric type of titrations. [07]
- Q.8** Write short notes on **ANY THREE** of the following: [15]
- a) Fajan's Method
 - b) Permanganate titrations
 - c) Chelon effect
 - d) Unit operations in Gravimetry

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Day: Monday
Date: 23-04-2018

Time: 2:00 PM TO 5:00 PM
Max. Marks: 60

5-2018-3916

N.B.:

- 1) Q. No. 1 and Q. No. 5 are **COMPULSORY**. Out of the remaining solve any **TWO** question from each section.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer book.

SECTION-I

- Q.1** Attempt any **FIVE** of the following: (10)
- a) What is oxidative phosphorylation?
 - b) What is oxidative deamination?
 - c) What is favism?
 - d) State transamination of aspartate.
 - e) State biosynthesis of serotonin from tryptophan
 - f) What is enzyme antibody conjugate?
- Q.2** a) What is diagnostic PCR? Explain in detail. (07)
b) What is detoxication? Give examples. (03)
- Q.3** a) What is Jaundice? Explain in detail and give different types. (07)
b) What is Ketosis? (03)
- Q.4** Write notes on any **TWO**: (10)
- a) Catabolism of Arginine
 - b) Hyperammononia
 - c) Biochemical role of Vitamin -D

SECTION-II

- Q.5** Attempt any **FIVE** of the following: (10)
- a) What is ATP cycle?
 - b) What is immunoprecipitation?
 - c) What is frame shift mutation?
 - d) How milk sugar is made available for glycolysis?
 - e) State the biochemical reaction where biotin is required as co- substrate.
 - f) What is osteoporosis?
- Q.6** a) What is transcription? Explain in detail. (07)
b) What is chemical jaundice? (03)
- Q.7** a) What is translation? Explain in detail. (07)
b) State biochemical role of vitamin ascorbic acid. (03)
- Q.8** Write notes on any **TWO**: (10)
- a) Glycolysis
 - b) Radio immunoassay (RIA)
 - c) ELISA

S.Y.B.PHARM. SEMESTER-III (CBCS - 2015 COURSE) :

SUMMER - 2018

SUBJECT: PHARMACEUTICAL CHEMISTRY-V (ORGANIC)

Day : Friday
Date : 20/04/2018

S-2018-3915

Time: 02.00 PM TO 05.00 PM
Max. Marks: 60

N.B.:

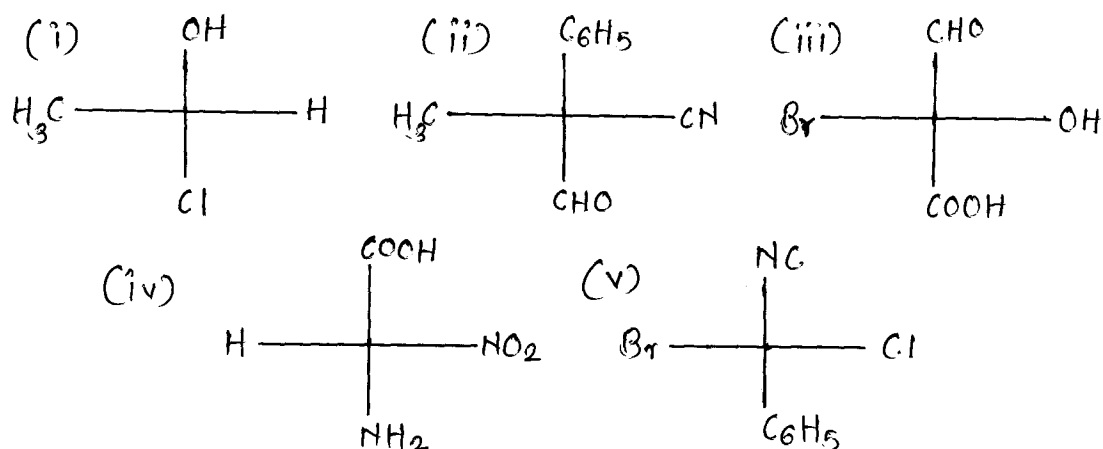
- 1) Q. No. 1 and Q. No. 5 are **COMPULSORY**. Out of the remaining attempt any **TWO** questions from each section.
- 2) Both the sections should be written in **SEPARATE** answer books.
- 3) Figures to the **RIGHT** indicate full marks.

SECTION-I

Q.1 Attempt any **FIVE** questions of the following: (10)

- a) Why racemic mixtures are optically neutral?
- b) Enlist the conditions of optical activity.
- c) Draw schematic diagram of polarimeter.
- d) What are Z and E isomers?
- e) Define and explain with example of enantiomer.
- f) Enlist the methods of racemic mixture preparation.

Q.2 Assign R & S configuration to following structures with reasons:



Q.3 a) Draw the structure and show possible conformers using various projection formulae.

(i) 2-Bromobutane (ii) iso-Propylalcohol (iii) Ethylalcohol

b) Comment on stability of free radicals.

Q.4 Write note on any **TWO** of the following:

- a) Schmidt's reaction
- b) Mannich reaction
- c) Gabriel synthesis.

P.T.O.

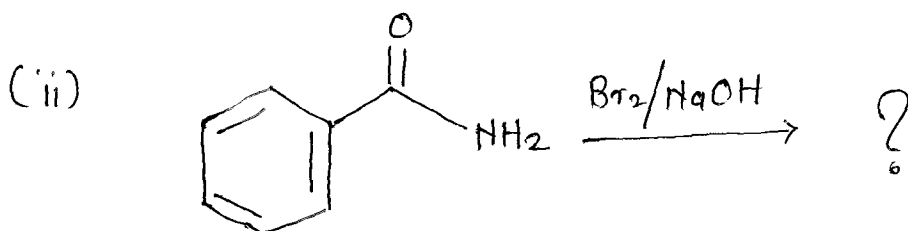
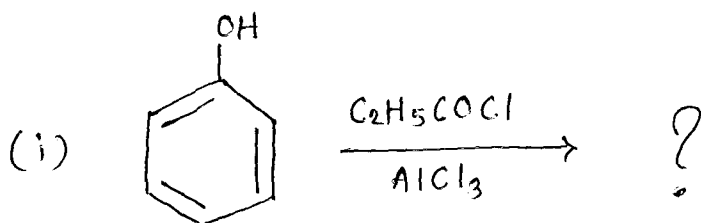
SECTION-II

Q.5 Attempt any **FIVE** questions of the following: **(10)**

- a) Explain how amines can be generated by Lossen rearrangement.
- b) What is role of H_2O_2 in Baeyer-Villiger oxidation?
- c) What is limitation of Dakin oxidation?
- d) Explain how diazoketones converted in carboxylic acid in Wolff rearrangement.
- e) Name the rearrangement reactions which follows through isocyanate intermediate.
- f) What is role of acids in Pinacol-Pincolone rearrangement?

Q.6 Explain in detail mechanism orientation and stereochemistry for Hofmann and Schmidt rearrangement.

Q.7 a) Complete the reaction and explain the mechanism.



b) How α -hydroxy carboxylic acids generated from 1,2-diketones.

Q.8 Write note on any **TWO** of the following:

- a) Favorskii rearrangement
- b) Beckmann rearrangement
- c) Wittig rearrangement

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S.Y.B.PHARM. SEMESTER-III (CBCS - 2015 COURSE) :

SUMMER - 2018

SUBJECT: PHARMACEUTICAL MICROBIOLOGY - I

Day : **Thursday**
Date : **03/05/2018**

Time : **02.00 PM TO 05.00 PM**
Max. Marks : 60

S-2018-3919

N.B.:

- 1) **Q.No.1** and **Q.No.5** are **COMPULSORY**. Out of the remaining questions attempt **ANY TWO** questions from each section.
- 2) Answers to both the sections should be written in **SEPARATE** answer books.
- 3) Figures to the right indicate **FULL** marks.

SECTION - I

- Q.1** Answer **ANY FIVE** of the following: [10]
- a) State Koch Postulates.
 - b) Draw a neat labeled diagram of Transmission Electron Microscope (TEM).
 - c) Give pharmaceutical significance of micro-organisms.
 - d) List morphological features of *Escherichia*.
 - e) Explain principle of Acid Fast Staining.
 - f) How bacterial cultures are preserved?
- Q.2** a) How will you identify an unknown bacterial culture? [06]
b) Draw and discuss Fluorescence Microscopes. [04]
- Q.3** a) Discuss scope and various applications of pharmaceutical microbiology. [06]
b) How to measure bacterial growth? [04]
- Q.4** Write short notes on **ANY TWO** of the following: [10]
- a) Discovery of Antibiotics
 - b) Bacteriological Culture Media
 - c) Bacterial Cell Wall

SECTION - II

- Q.5** Answer **ANY FIVE** of the following: [10]
- a) Highlight characteristics of Rickettsia.
 - b) Define and explain Z-value.
 - c) Draw a well labeled diagram of *Aspergillus niger*.
 - d) How halogens disinfect?
 - e) Write general properties of viruses.
 - f) Which biological indicators are used in moist heat sterilization?
- Q.6** a) Discuss factors affecting disinfectant activity. [06]
b) Write in detail about sterility tests as per I.P. [04]
- Q.7** a) Draw and explain Lytic Cycle of viruses. [06]
b) Explain isolation of Actinomycetes. [04]
- Q.8** Write short notes on **ANY TWO** of the following: [10]
- a) Phenol Coefficient Test
 - b) Moist Heat Sterilization
 - c) Cultivation of Viruses

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S.Y.B.PHARM. SEMESTER-III (2011 COURSE) : SUMMER - 2018
SUBJECT: PHARMACEUTICAL MICROBIOLOGY - I

Day: **Thursday**
Date: **03/05/2018**

Time: **02.00 PM TO 05.00 PM**
Max. Marks: **80**

S-2018-3955

N.B.:

- 1) Q. No. **1** and Q. No. **5** are **COMPULSORY**. Out of remaining questions, attempt **ANY TWO** from each section.
- 2) Answers to both the sections should be written in **SEPARATE** answer books.
- 3) Figures to the right indicate **FULL** marks.
- 4) Draw neat, labeled diagrams wherever necessary.

SECTION - I

- Q.1** Answer the following: (**ANY FIVE**) **(10)**
- a) Write function of flagella.
 - b) How will you calculate microbial generation time?
 - c) Differentiate between Gram + ve and Gram - ve bacterial cell.
 - d) Write importance of *Penicillium* species.
 - e) Enlist Koch postulates.
 - f) Define Numerical Aperture and Resolving Power.
- Q.2** Answer the following. **(15)**
- a) Write in detail Whittakar's five kingdom concept.
 - b) Draw a ray diagram of compound microscope and explain the function of different parts of it.
 - c) Write in detail different methods used for preservation of bacterial culture.
- Q.3**
- a) Explain the different methods used for isolation of pure cultures. **(08)**
 - b) Describe different method for measurement of bacterial growth. **(07)**
- Q.4** Write short note **ANY THREE** of the following: **(15)**
- a) Reproduction of bacteria by asexual method
 - b) *Candida albicans*
 - c) Importance of Actinomycetes
 - d) Phase contrast microscope

P.T.O.

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SECTION - II

- Q.5** Answer **ANY FIVE** of the following: **(10)**
- a) Draw a neat labeled diagram of T-even bacteriophages.
 - b) What are biohazards? Give its symbol.
 - c) How HEPA filters are validated?
 - d) Compare between sterilization and disinfection.
 - e) Define and explain *interferons*.
 - f) How will you sterilize zinc oxide powder and fixed oil?
- Q.6** a) Classify disinfectants. Explain mechanisms and applications of various disinfectants. **(08)**
- b) Discuss different tests used in testing of Aseptic Areas. **(07)**
- Q.7** a) Explain different sterilization indicators. **(08)**
- b) Classify viruses. Describe the morphology of viruses in detail. **(07)**
- Q.8** Write short notes on **ANY THREE** of the following: **(15)**
- a) Non-thermal Sterilization Techniques
 - b) Phenol Coefficient Tests
 - c) Multiplication of Human Viruses
 - d) Design of Aseptic Area

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S.Y.B.PHARM. SEMESTER-III (CBCS - 2015 COURSE) :

SUMMER - 2018

SUBJECT : PHYSICAL PHARMACY – I

Day : **Monday**
Date : **30/04/2018**

S-2018-3918

Time : **02.00 PM TO 05.00 PM**
Max. Marks : 60

N.B.:

- 1) **Q.No.1 and Q.No.5** are **COMPULSORY**. Out of the remaining questions attempt **ANY TWO** questions from each section.
- 2) Answers to both the sections should be written in the **SEPARATE** answer books.
- 3) Figures to the right indicate **FULL** marks.

SECTION – I

- Q.1** Answer **ANY FIVE** of the following: [10]
- a) What is Joule Thompson effect?
 - b) Derive ideal gas equation.
 - c) Explain the term 'Phase'.
 - d) Define Molarity.
 - e) Differentiate between ideal and real solution.
 - f) What is effect of dilution on equivalent and specific conductance?
- Q.2** a) Explain in detail binding forces between molecules. [06]
b) Give an account of kinetic molecular theory of gases. [04]
- Q.3** a) Define Raoult's Law. Explain deviations from Raoult's Law. [06]
b) Prove that lowering of the vapor pressure is a colligative property. [04]
- Q.4** Write notes on **ANY TWO** of the following: [10]
- a) Arrhenius theory
 - b) Two component system
 - c) Determination of critical constants

SECTION – II

- Q.5** Answer **ANY FIVE** of the following: [10]
- a) What is effect of temperature and pressure on solubility of gases in liquid?
 - b) Give significance of partition co-efficient.
 - c) Define order of reaction.
 - d) What is the unit of rate constant of first order reaction?
 - e) Classify energy of thermodynamic system.
 - f) Define half-life of a reaction.
- Q.6** a) Derive an expression for rate constant of second order reaction. [06]
b) Explain transition state theory. [04]
- Q.7** a) What is Nernst distribution law? Explain effect of molecular association and dissociation on partitioning of molecules. [06]
b) Describe in detail solute – solvent interaction. [04]
- Q.8** Write notes on **ANY TWO** of the following: [10]
- a) Methods to determine order of reaction
 - b) Solubility of slightly soluble electrolytes
 - c) Effect of temperature on rate of reaction

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S.Y.B.PHARM. SEMESTER-III (2011 COURSE) : SUMMER - 2018

SUBJECT: PHYSICAL PHARMACY- I

Day: **Monday**
Date: **30/04/2018**

S-2018-3954

Time: **02.00 PM TO 05.00 PM**
Max Marks: **80**

N.B:

- 1) **Q. No 1 and 5 are COMPULSORY.** Out of remaining attempt **ANY TWO** Questions from each section.
- 2) Answers to both the sections should be written in **SEPARATE** answer book.
- 3) Figures to the right indicate **FULL** marks.

SECTION-I

- Q.1** Answer **ANY FIVE** of the following: **(10)**
- a) Explain the term 'Component'.
 - b) Differentiate between ideal & real solutions.
 - c) What is Joule Thompson effect?
 - d) State rules for drawing ternary phase diagram.
 - e) Give wrong assumptions of ideal gas law.
- Q.2** a) Explain in detail methods used for liquefaction of gases. **(08)**
b) Discuss kinetic molecular theory. **(07)**
- Q.3** a) What do you mean by critical constants? Explain different methods used for determination critical constants. **(08)**
b) Explain in detail one component three phase system. **(07)**
- Q.4** Write short notes on **ANY THREE** of the following: **(15)**
- a) Compressibility factor
 - b) Raoult's law & its deviation
 - c) Phenol – water system
 - d) Colligative properties

SECTION-II

- Q.5** Answer **ANY FIVE** of the following: **(10)**
- a) What is half life of a reaction?
 - b) Define molality & mole fraction.
 - c) What are advantages of conductometric titrations?
 - d) Enlist methods of decomposition of medicinal agents with examples.
 - e) Define equivalent & specific conductance.
 - f) What is common ion effect?
- Q.6** a) Explain in detail accelerated stability studies. **(08)**
b) Give detailed account of solute- solvent interactions. **(07)**
- Q.7** a) Derive an expression for rate constant of second order reaction. **(08)**
b) Write a note on reaction theories. **(07)**
- Q.8** Write short notes on **ANY THREE** of the following: **(15)**
- a) Effect of pH and solvents on solubility of weak electrolyte
 - b) Determination of energy of activation
 - c) Nernst distribution law
 - d) Debye Huckel theory

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S.Y.B.PHARM. SEMESTER-IV (2011 COURSE) : SUMMER - 2018
SUBJECT : DOSAGE FORM DESIGN – I

Day : **Wednesday**
Date : **02/05/2018**

S-2018-3960

Time : **02.00 PM TO 05.00 PM**
Max. Marks : 80

N.B.:

- 1) **Q.No.1 and Q.No.5 are COMPULSORY.** Out of the remaining questions attempt **ANY TWO** questions from each section.
 - 2) Answers to both the sections should be written in the **SEPARATE** answer books.
 - 3) Figures to the right indicate **FULL** marks.
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SECTION – I

- Q.1** Answer **ANY FIVE** of the following: [10]
- a) Define solubility. Explain any one method of solubility improvement.
 - b) Explain the factors which affects the solubility and dissolution rate.
 - c) Give comment on flocculating agents.
 - d) Write in short about QA and QC.
 - e) What is importance of partition coefficient in liquid formulation?
 - f) Explain the role of colouring agents and dyes in preparation.
- Q.2** a) Define preformulation. Explain the physico-chemical properties of preformulation. [08]
b) Comment on common ion effect and polymorphism. [07]
- Q.3** a) Define solution. Explain in detail methods of preparation of solutions. [08]
b) Enlist the types of emulsion. Explain test for identification of emulsions. [07]
- Q.4** Write short note on **ANY THREE** of the following: [15]
- a) Stability of suspension
 - b) Phase inversion
 - c) HLB scale
 - d) CMC

SECTION – II

- Q.5** Answer **ANY FIVE** of the following: [10]
- a) What are different protein structure?
 - b) Differentiate between multiple and micro-emulsion.
 - c) Explain dry suspension formulation. Give one example.
 - d) Write different polymorphic forms of coca butter.
 - e) Explain creaming of an emulsion.
 - f) Enlist various preservative used in emulsion.
- Q.6** a) Define suppository. Explain in detail formulation and evaluation of suppository. [08]
b) Explain role of emulsifying agent. [07]
- Q.7** a) Explain in detail theories of emulsification. [08]
b) Discuss factors affecting preservation of emulsion. Give two commercial examples of emulsions. [07]
- Q.8** Write short note on **ANY THREE** of the following: [15]
- a) Hydrocarbon base
 - b) QC of emulsions
 - c) Displacement value
 - d) Factors affecting emulsion stability

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S.Y.B.PHARM. SEMESTER-IV (CBCS - 2015 COURSE) :
SUMMER - 2018

SUBJECT : PHARMACEUTICAL ANALYSIS - II

Day : **Saturday**
Date : **28/04/2018**

S-2018-3923

Time : **02.00 PM TO 05.00 PM**
Max. Marks : 60

N. B. :

- 1) Question No – 1 and 5 are **COMPULSORY**. Out of remaining questions attempt **any Two** from section - I and **any Two** questions from section - II
 - 2) Answers to both the sections should be written in **SEPARATE** answer books.
 - 3) Figures to the right indicate **FULL** marks.
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SECTION - I

- Q.1** Attempt **ANY FIVE** of the following: **(10)**
- a) What is differentiating pulse polarography
 - b) Classify various electro analytical techniques
 - c) What is acid error and alkaline error in potentiometry?
 - d) What is 'maxima' in polarography? How is it reduced?
 - e) With what is calibration of pH electrode done?
 - f) Why is it necessary to remove oxygen from polarographic equipment?
- Q.2** a) Give a detailed account of Amperometric titrations **(7)**
b) Explain the principle involved in biamperometry **(3)**
- Q.3** a) Draw and explain construction and working of DME **(7)**
b) Give Ilkovic equation and its significance **(3)**
- Q.4** Write short notes on **ANY TWO** of the following: **(10)**
- a) Applications of Coulometry
 - b) Reference electrodes in potentiometry
 - c) Mass transfer by various modes

SECTION - II

- Q.5** Attempt **ANY FIVE** of the following: **(10)**
- a) Explain various factors affecting angle of refraction
 - b) Explain the term ORD and CD
 - c) How and with what is calibration of conductometer performed?
 - d) Explain the effect of dilution on molar and equivalent conductance
 - e) Give comparison between co-precipitation and post precipitation
 - f) Explain conductometric titration of Weak Acid Vs. Strong Base
- Q.6** a) Give principle, instrumentation and application of Abbe's Refractometer **(10)**
- Q.7** a) Explain the principle and instrumentation of polarimeter **(7)**
b) Give applications of Polarimetry **(3)**
- Q.8** Write short notes on **ANY TWO** of the following: **(10)**
- a) Gasometric assay of CO₂
 - b) Conductivity cell
 - c) Steps in gravimetry

S.Y.B.PHARM. SEMESTER-IV (2011 COURSE) : SUMMER - 2018

SUBJECT : PHARMACEUTICAL ANALYSIS – II

Day : **Tuesday**
Date : **24/04/2018**

S-2018-3958

Time : **02.00 PM TO 05.00 PM**
Max. Marks : 80

N.B.:

- 1) **Q.No.1 and Q.No.5 are COMPULSORY.** Out of the remaining questions attempt **ANY TWO** questions from each section.
- 2) Answers to both the sections should be written in **SEPARATE** answer books.
- 3) Figures to the right indicate **FULL** marks.

SECTION – I

- Q.1** Attempt **ANY FIVE** of the following: [10]
- a) State Ilkovic equation.
 - b) How pH meters are calibrated, write composition of buffers?
 - c) State merits and demerits of instrumental analysis.
 - d) Define Migration current and diffusion current.
 - e) Classify indicator electrodes used in potentiometry.
 - f) Why nitrogen gas is bubbled in polarographic apparatus?
- Q.2** a) What is half wave potential? How it is calculated? Explain factors affecting diffusion current. [08]
b) Describe Polarographic apparatus. [07]
- Q.3** a) Explain theory, principle involved in potentiometry. Discuss instrumentation in detail. [08]
b) Discuss about ion selective electrodes used in potentiometry. [07]
- Q.4** Write short notes on **ANY THREE** of the following: [15]
- a) Dropping mercury electrode
 - b) Rotating platinum electrode
 - c) Potentiometric titrations
 - d) Applications of Amperometry

SECTION – II

- Q.5** Attempt **ANY FIVE** of the following: [10]
- a) Give significance of inorganic precipitants in gravimetry.
 - b) Write about cell constant and its significance.
 - c) Define: **i) Plane polarized light** **ii) Circularly polarized light**
 - d) Explain the terms specific refraction and molar refraction.
 - e) Explain factors affecting refractive index.
 - f) Write about cotton effect.
- Q.6** a) State principle involved in measurement angle of refraction and give its application. [08]
b) Explain the theory of optical activity. Discuss about polarimeters. [07]
- Q.7** a) Explain principle involved in gravimetric analysis. Discuss various steps involved in gravimetric analysis. [08]
b) Discuss in detail conductometric titration curves. [07]
- Q.8** Write short notes on **ANY THREE** of the following: [15]
- a) High frequency titration
 - b) Dipping refractometer and Pulfrich refractometer
 - c) Circular Dichroism
 - d) Occlusion and Mixed crystal formation

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S.Y.B.PHARM. SEMESTER-IV (2011 COURSE) : SUMMER - 2018
SUBJECT : PHARMACEUTICAL CHEMISTRY – VI (ORGANIC)

Day : **Saturday**
Date : **21/04/2018**

S-2018-3957

Time : **02.00 PM TO 05.00 PM**
Max. Marks : **80**

N. B. ;

- 1) **Q. No. 1 and Q. No. 5 are COMPULSORY.** Out of remaining solve **ANY TWO** questions from each Section.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer books.

SECTION - I

Q. 1 Solve **ANY FIVE** of the following: **(10)**

- a) Anomeric forms of glucose, explain with structure.
- b) Hemiacetal formation of carbohydrates. Explain.
- c) Why sucrose not give tollen's test?
- d) Explain Fehling's solution test of carbohydrates?
- e) Write structure and properties for maltose.
- f) Write structure and properties for Lactose.

Q. 2 Explain in detail with mechanism and example. Free radical chain reaction and termination of reaction. **(15)**

Q. 3 a) How phenylosazone reaction with glucose mannose and fructose gives same product? Explain in detail. **(08)**

b) Comment on Fluorination and Iodination of Alkenes. **(07)**

Q. 4 Write a note on **ANY THREE** of the following: **(15)**

- a) Reducing sugars
- b) Chlorine is more reactive and less selective than Bromine
- c) Hydrogen halides reaction with alkenes by radical mechanism
- d) Mutarotation

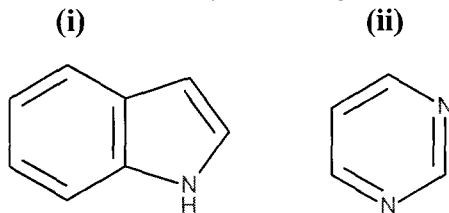
SECTION - II

Q. 5 Solve **ANY FIVE** of the following: **(10)**

a) Draw structure and give numbering to following heterocyclic:

(i) Imidazole (ii) Quinoline

b) Name the heterocyclic and give the numbering:



P. T. O.

- c) Name the corresponding drugs for following heterocycles:
(i) Pyrimidine (ii) Indole
- d) Why Indole undergoes electrophilic substitution reaction at 2-position.
e) Give general mechanism of electrophilic substitution reaction.
f) How will you synthesize Glycine by phthalimide synthesis?

Q. 6 Give any three methods of preparation and three chemical reactions of pyridine and Indole. **(15)**

Q. 7 a) Explain any two methods of preparation of amino acids with examples. **(08)**

b) Give structure, numbering, corresponding drugs and methods of preparation of thiazole. **(07)**

Q. 8 Write a note on **ANY THREE** of the following: **(15)**

- a) Fischer Indole synthesis
b) Secondary structure of protein
c) Skraup synthesis
d) Biologically important peptide

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S.Y.B.PHARM. SEMESTER-IV (CBCS - 2015 COURSE) :
SUMMER - 2018

SUBJECT : PHARMACEUTICAL CHEMISTRY – VI (ORGANIC)

Day : **Saturday**
Date : **21/04/2018**

S-2018-3921

Time : **02.00 PM TO 05.00 PM**
Max. Marks : **60**

N. B. :

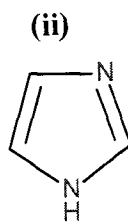
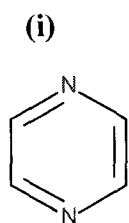
- 1) **Q. No. 1 and Q. No. 5 are COMPULSORY.** Out of remaining solve **ANY TWO** questions from each Section.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer books.

SECTION - I

- Q. 1** Solve **ANY FIVE** of the following: **(10)**
- a) Write structure and properties for maltose.
 - b) Write structure and properties for cellobiose.
 - c) Explain acid-base properties of amino acids.
 - d) What is peptide linkage?
 - e) Explain the fehling's test of glucose.
 - f) What is annomerization of glucose?
- Q. 2** Write detailed classification of Amino acids with structures. **(10)**
- Q. 3**
- a) Write a detailed note on chemistry of Glucose. **(07)**
 - b) Explain the iso-electric point of Amino acids **(03)**
- Q. 4** Write a note on **ANY TWO** of the following: **(10)**
- a) Separation of Amino acids by electrophoresis
 - b) Ruff degradation of carbohydrates
 - c) Peptide bond formation in Amino acids

SECTION - II

- Q. 5** Solve **ANY FIVE** of the following: **(10)**
- a) Draw structure and give numbering to following structures
 - i) Pyrrole
 - ii) Imidazole
 - b) Name the heterocycle and give the numbering:



P. T. O.

- c) What are phospholipids?
- d) Define the term and give the example;
 - i) Synthon
 - ii) Retrosynthesis
- e) What is Fischer indole synthesis?
- f) Give structures of two Sulphur containing heterocycles.
- g) Why pyrrole undergoes electrophilic substitution reaction at 2-position?

Q. 6 Give any three methods of preparation and two chemical reactions of furan and pyridine. (10)

Q. 7 a) Explain rules of disconnections for retrosynthesis using synthesis of pyrimidine. (07)

b) Give the numbering and corresponding drugs for following structure: (03)

- i) Hydantoin
- ii) Quinoline

Q. 8 Write a note on **ANY TWO** of the following: (10)

- a) Methods of preparation of Isoquinoline
- b) Chemical properties of Imidazole
- c) Fat soluble vitamins
- d) Synthon approach in synthesis

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S.Y.B.PHARM. SEMESTER-IV (2011 COURSE) : SUMMER - 2018
SUBJECT: PHARMACEUTICAL MICROBIOLOGY (Including Immunology) – II

Day : **Friday**
Date : **04/05/2018**

Time : **02.00 PM TO 05.00 PM**
Max. Marks : **80**

S-2018-3961

N.B.:

- 1) **Q.No.1 and Q.No.5 are COMPULSORY.** Out of the remaining questions attempt **ANY TWO** questions from each section.
- 2) Answers to both the sections should be written in **SEPARATE** answer books.
- 3) Figures to the right indicate **FULL** marks.

SECTION – I

- Q.1** Answer **ANY FIVE** of the following: **[10]**
- a) Compare Cup-Plate and Turbidometric Assay methods.
 - b) How to evaluate efficacy of a preservative?
 - c) Enlist commercial probiotics products.
 - d) What is TOC and COD?
 - e) Draw a typical fermentation protocol.
 - f) Mention microbial limits for Pure Water and Dried Aluminum Hydroxide.
- Q.2** a) How to isolate and screen commercial micro-organisms? **[08]**
b) Write various stages of downstream processing and discuss them. **[07]**
- Q.3** a) Discuss properties, mechanism and significance of probiotics. **[08]**
b) How MIC of an antibiotics is determined? **[07]**
- Q.4** Write short notes on **ANY THREE** of the following: **[15]**
- a) Trickling Filters
 - b) Microbial Limit Tests
 - c) Tray Fermenter
 - d) Microbial Assay of Antibiotics

SECTION – II

- Q.5** Answer **ANY FIVE** of the following: **[10]**
- a) Classify types of immunity.
 - b) Give examples of hypersensitivity.
 - c) Differentiate between Active and Passive Immunity.
 - d) Write significance of Booster Dose.
 - e) What is a Hapten?
 - f) Define and explain vaccines.
- Q.6** a) Explain various immunological preparations and products. **[08]**
b) Describe Antigen-Antibody reactions and their significance. **[07]**
- Q.7** a) Discuss Immediate Hypersensitivity in detail. **[08]**
b) How monoclonal antibodies are produced? **[07]**
- Q.8** Write short notes on **ANY THREE** of the following: **[15]**
- a) BCG Vaccines
 - b) Complement System
 - c) Structure of Immunoglobulin
 - d) Immunofluorescence

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S.Y.B.PHARM. SEMESTER-IV (CBCS - 2015 COURSE) :
SUMMER - 2018
SUBJECT: PHARMACEUTICAL MICROBIOLOGY – II

Day : **Tuesday**
Date : **24/04/2018**

S-2018-3922

Time : **02.00 PM TO 05.00 PM**
Max. Marks : 60

N.B.:

- 1) **Q.No.1 and Q.No.5 are COMPULSORY.** Out of the remaining questions attempt **ANY TWO** questions from each section.
 - 2) Answers to both the sections should be written in **SEPARATE** answer books.
 - 3) Figures to the right indicate **FULL** marks.
-

SECTION – I

- Q.1** Answer **ANY FIVE** of the following: **[10]**
- a) Which micro-organisms are used in the assays of Erythromycin and Nystatin?
 - b) Enlist various strain improvement methods.
 - c) Define COD and BOD.
 - d) Draw a well labeled diagram of Trickling Filters.
 - e) Give the microbial limits for Lactose and pure water.
 - f) Define and explain primary metabolites.
- Q.2** a) How to design and monitor fermentation process? **[06]**
b) Write the significance of MIC. How it is determined? **[04]**
- Q.3** a) Explain post fermentation processing in detail. **[06]**
b) How to assess preservative efficacy? **[04]**
- Q.4** Write short notes on **ANY TWO** of the following: **[10]**
- a) Microbial assay of Vitamin B12
 - b) Fermentation Media
 - c) Assessment of Microbial Contamination

SECTION – II

- Q.5** Answer **ANY FIVE** of the following: **[10]**
- a) Classify vaccines with examples.
 - b) Define and explain Hapten.
 - c) What causes serum sickness?
 - d) Compare Active and Passive Immunity.
 - e) What is Coombs Test?
 - f) Draw and describe the Biohazard symbol.
- Q.6** a) Discuss Hybridoma Technology in detail. **[06]**
b) What is Phagocytosis? **[04]**
- Q.7** a) Explain production of bacterial vaccines in detail. **[06]**
b) Describe the structure of Antibody. **[04]**
- Q.8** Write short notes on **ANY TWO** of the following: **[10]**
- a) Probiotics
 - b) Precipitation type Ag – Ab reactions
 - c) Delayed Hypersensitivity

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S.Y.B.PHARM. SEMESTER-IV (CBCS - 2015 COURSE) :

SUMMER - 2018

SUBJECT : PHARMACOGNOSY – I

Day : **Friday**
Date : **04/05/2018**

S-2018-3925

Time : **02.00 PM TO 05.00 PM**
Max. Marks : **60**

N.B.

- 1) Q.1 and Q.5 are **COMPULSORY**. Out of the remaining **THREE** questions solve any **TWO** questions.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer book.

SECTION – I

- Q.1** Answer any **FIVE** questions: (10)
- a) Which are different types of soils?
 - b) What is bhasma?
 - c) What is main principle of Kampo system?
 - d) Which are different quality control parameters for Asawa.
 - e) Which are different natural auxins?
 - f) Write advantages of chemical classification.
- Q.2** a) What is drying? Write in detail advantage and disadvantage of different methods of drying of crude drug. (07)
- b) Differentiate Primary and Secondary metabolites. (03)
- Q.3** a) Explain Homoeopathic drug proving. Write in detail. (05)
- b) Which are different factors influencing cultivation of medicinal plants. (05)
- Q.4** Answer any **TWO** of the following: (10)
- a) Shikkinic acid pathway
 - b) Mevalonic acid pathway
 - c) Significance of Pharmacognostic parameter

SECTION – II

- Q.5** Answer any **FIVE** questions: (10)
- a) Write biological source and main chemical constituent of Kokum butter.
 - b) Write methods of preparation of Shark liver oil.
 - c) What are uses of carotenoids?
 - d) What is PUFA?
 - e) Which are different uses of Guar gum?
 - f) Write chemical constituents of Bees wax.
- Q.6** a) What are carbohydrates? Write classification, biosynthesis, chemical tests for carbohydrates. (07)
- b) Write pharmacognostic account of Rice bran oil. (03)
- Q.7** a) What are lipids? Write classification of lipids. (05)
- b) Write pharmacognostic account of Starch. (05)
- Q.8** Answer any **TWO** of the following: (10)
- a) Caster oil
 - b) Neem oil
 - c) Isapgol

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S.Y.B.PHARM. SEMESTER-IV (2011 COURSE) : SUMMER - 2018

SUBJECT: PHARMACOLOGY -I

Day: **Monday**
Date: **07/05/2018**

Time: **02.00 PM TO 05.00 PM**
Max. Marks: **80**

S-2018-3962

N.B.:

- 1) **Q. No. 1 and Q. No. 5 are COMPULSORY.** Out of the remaining attempt any **TWO** question from each section.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer books.
- 4) Draw neat labelled diagrams **WHEREVER** necessary.

SECTION-I

- Q.1** Define with examples (any **FIVE**) (10)
- a) Therapeutic index
 - b) Efficacy
 - c) Noncompetitive antagonism
 - d) Margin of safety
 - e) Idiosyncrasy
 - f) Cumulative effect
- Q.2** a) Discuss in detail the process of new drug development with special emphasis on preclinical and clinical studies. (08)
- b) Enlist the different routes of drug administration. Discuss the advantages and disadvantages of transmucosal routes. (07)
- Q.3** a) Discuss in detail manifestation of adverse drug reaction. (08)
- b) Define drug interaction. Discuss pharmacodynamics drug interactions with examples. (07)
- Q.4** Write short notes on any **THREE** of the following: (15)
- a) Dose response relationship
 - b) Excretion of drugs
 - c) Drug tolerance
 - d) Receptor regulation

SECTION-II

- Q.5** Solve any **FIVE** of the following: (10)
- a) Explain the term cycloplegia.
 - b) Classify cholinergic drugs.
 - c) Write the tissue distribution of nicotinic receptors.
 - d) Classify the drug acting on autonomic ganglia.
 - e) Explain the term neurotransmitter and synaptic cleft
 - g) Write the tissue distribution of α -receptors.
- Q.6** a) Classify the anti-cholinergic. Discuss pharmacological action, adverse drug reactions and therapeutic uses of atropine. (08)
- b) Discuss the pharmacological action adverse drug reactions and therapeutic uses of Ephedrine. (07)
- Q.7** a) Write the classification, pharmacological action and adverse effects of adrenergic drugs. (08)
- b) Write the clinical applications and adverse effects of beta- blockers. (07)
- Q.8** Write a note on any **THREE** of the following: (15)
- a) Neuromuscular blockers
 - b) Different parts and function of ANS
 - c) Muscarinic receptors
 - d) Belladonna poisoning

S.Y.B.PHARM. SEMESTER-IV (CBCS - 2015 COURSE) :

SUMMER - 2018

SUBJECT : PHARMACOLOGY – I

Day : **Monday**
Date : **07/05/2018**

Time : **02.00 PM TO 05.00 PM**
Max. Marks : 60

S-2018-3926

N.B.:

- 1) **Q.No.1 and Q.No.5 are COMPULSORY.** Out of the remaining questions attempt **ANY TWO** questions from each section.
- 2) Answers to both the sections should be written in the **SEPARATE** answer books.
- 3) Figures to the right indicate **FULL** marks.

SECTION – I

- Q.1** Attempt **ANY FIVE** of the following: [10]
- a) Define Synergism. Give examples.
 - b) Define pharmacodynamics.
 - c) Define Therapeutic index.
 - d) Define clinical trials. Name its phases.
 - e) Define Bioavailability.
 - f) Define drug dependence.
- Q.2** Write in detail general mechanism of action of drugs. Give suitable examples. [10]
- Q.3**
- a) Explain the role of drug distribution in drug action. [07]
 - b) Explain factors modifying drug effect. [03]
- Q.4** Write short notes on **ANY TWO** of the following: [10]
- a) Nature of drugs
 - b) Tolerance
 - c) Plasma protein binding

SECTION – II

- Q.5** Attempt **ANY FIVE** of the following: [10]
- a) Write the therapeutic classification of sympathomimetics.
 - b) Discuss the metabolic pathway of adrenaline.
 - c) Name the subtypes of nicotinic receptor and their tissue distribution.
 - d) Explain the terms neuroeffector junction and synaptic cleft.
 - e) Name the drugs used for the treatment of myasthenia gravis.
 - f) Write the co-transmitters of autonomic nervous system.
- Q.6** Explain the pharmacological actions, adverse drug reactions and therapeutic uses of atropine. [10]
- Q.7**
- a) Classify α - blockers. Write pharmacological account of ergot alkaloids. [07]
 - b) Discuss the biosynthesis pathway of acetylcholine. [03]
- Q.8** Write short notes on **ANY TWO** of the following: [10]
- a) Anti-cholinesterase poisoning
 - b) Mechanism of action of catecholamines
 - c) Neuromuscular junction blockers

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S.Y.B.PHARM. SEMESTER-IV (CBCS - 2015 COURSE) :

SUMMER - 2018

SUBJECT : PHYSICAL PHARMACY – II

Day : **Wednesday**

Date : **02/05/2018**

Time : **02.00 PM TO 05.00 PM**

Max. Marks : 60

S-2018-3924

N.B.:

- 1) **Q.No.1 and Q.No.5 are COMPULSORY.** Out of remaining questions attempt **ANY TWO** questions from each section.
- 2) Answers to both the sections should be written in the **SEPARATE** answer books.
- 3) Figures to the right indicate **FULL** marks.

SECTION – I

- Q.1** Answer **ANY FIVE** of the following: [10]
- a) What are different types of emulsions? Enlist methods to identify the same.
 - b) What is HLB? Classify surfactants on the basis of HLB.
 - c) Classify colloids with examples.
 - d) Suspensions are thermodynamically unstable. Explain.
 - e) Define syneresis and imbibition.
 - f) Write an equation for Freundlich isotherm.
- Q.2** a) Explain methods used to determine surface tension. [06]
b) Derive an expression for spreading co-efficient. [04]
- Q.3** a) Give detailed account of solubilization. [06]
b) Add a note on controlled flocculation. [04]
- Q.4** Write notes on **ANY TWO** of the following: [10]
- a) Theories of emulsification
 - b) DLVO theory
 - c) Preparation of colloids

SECTION – II

- Q.5** Answer **ANY FIVE** of the following: [10]
- a) Classify crystals on the basis of bonds between molecules.
 - b) Enlist different types of viscometers.
 - c) What are bingham bodies?
 - d) Give significance of Heckel plots.
 - e) Explain dilatant flow behavior.
 - f) Give applications of micromeritics in pharmacy.
- Q.6** a) Give an account of compaction of powders and methods to evaluate the same. [06]
b) Classify polymorphs with examples. [04]
- Q.7** a) Explain in detail methods used to determine surface area of particles. [06]
b) Give an account of viscoelasticity. [04]
- Q.8** Write short notes on **ANY TWO** of the following: [10]
- a) Derived properties of powder
 - b) Thixotropy and methods to determine the same
 - c) Measurement of diffraction angle

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