

PURUS-I (2011 COURSE): SUMMER-2016
SUBJECT: HUMAN ANATOMY AND PHYSIOLOGY I

Day: **Thursday**
Date: **05-05-2016**

Time: **10:00 AM TO 1:00 PM.**
Max. Marks: **80**

N.B:

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

SECTION-I

- Q.1** Answer **ANY FIVE** of the following: (10)
- a) Define the terms medial, lateral.
 - b) Write a brief note on cuboidal epithelium.
 - c) What is thrombocytopenia?
 - d) Define congestive heart failure.
 - e) Write a brief note on nucleus.
 - f) Define blood pressure. What is its normal value?
- Q.2.** a) Explain in detail hormonal and neural regulation of blood pressure. (08)
b) Explain in detail the anatomy of heart. (07)
- Q3.** a) Explain in detail the components of cell. Add a note on plasma membrane. (08)
b) Explain the anatomy and physiology of different types of cartilages. (07)
- Q4.** Write short notes on **ANY THREE** of the following (15)
- a) Anemia
 - b) Importance of blood group
 - c) Pulmonary circulation.
 - d) Differentiate skeletal and smooth muscle tissues.

SECTION-II

- Q5.** Answer **ANY FIVE** of the following: (10)
- a) Enlist the functions of lymphatic system.
 - b) Give the composition and functions of saliva.
 - c) Define peptic ulcer.
 - d) Define COPD.
 - e) Enlist the organs of respiratory system with their functions.
 - f) Define lung capacity, respiratory reserve volume
- Q6.** a) Explain in detail the mechanism of respiration. Add a note on gaseous exchange. (08)
b) Explain the anatomy of lungs. (07)
- Q7.** a) Describe the structure and functions of stomach. Add a note on mechanical and chemical digestion of food in stomach. (08)
b) Describe the structure and functions of liver. Add a note on composition and functions of bile. (07)
- Q8.** Write short notes on **ANY THREE** of the following (15)
- a) Spleen
 - b) Pancreas
 - c) Formation of lymph

PURUS –I (2011 COURSE) : SUMMER 2016
SUBJECT: PHARMACEUTICAL STATISTICS

Day: Saturday
Date: 07-05-2016

Time: 10:00 AM TO 1:00 PM.
Max Marks. 80

N.B.

- 1) Q. No. 1 and Q. No.5 are **COMPULSORY**. Out of the remaining solve any **TWO** questions from Section – I and any **TWO** questions from Section – II.
- 2) Answers to the two sections should be written in **SEPARATE** answer books. .
- 3) Figures to the **RIGHT** indicate full marks.
- 4) Draw diagrams or graph **WHEREVER** necessary

SECTION – I

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

- a) State any two measures of dispersion.
- b) Define regression coefficient of Y on X.
- c) Find the mode of the following observations
61, 62, 63, 62, 63, 62, 64, 64, 60, 65
- d) State one real life situation where binomial distribution is applicable.
- e) A card is selected at random from a well shuffled pack of 52 playing cards.
Find the probability of getting a spade.
- f) Define distribution functions of a random variable.

Q.2 The sales and expenses of 10 firms are given below **(15)**

Sales (in thousand)	45	70	65	30	90	40	50	75	85	60
Expenses (in thousand)	35	90	70	40	95	40	60	80	80	50

- a) Obtain the least square regression line of expenses on sales.
- b) Estimate expenses if sales are Rs. 75000.

Q.3 The variation in weight (in milligram) is measured for two compounds A and B is given below. **(15)**

Compound A	05	20	09	76	102	90	06	108	20	16
Compound B	40	35	60	62	58	76	42	30	30	20

- Q.4** Attempt the following terms. **(15)**
- a) Sacks of grains packed by an automatic machine loader have an average weight of 100 kg and standard deviation of 2.8 kg. Assuming the distribution of sack to be normal. Find the probability of getting a sack with weight over 95 kg but below 105 kg.
 - b) Explain the probability density function and distribution function .
 - c) Define binomial distribution and state under what conditions binomial distribution used.

SECTION - II

- Q.5** Attempt any **FIVE** of the following. **(10)**
- a) Define Type I and Type II error.
 - b) Define population and sample.
 - c) Discuss critical region.
 - d) What is null hypothesis?
 - e) What do you mean by testing of hypothesis?
 - f) State test statistic to test paired t-test.
- Q.6** a) Discuss Chi – Square test for goodness of fit. **(07)**
- b) Following data is given for two formulation of same drug. Do you think there is significant difference in two formulations at 5% level of significance? **(08)**
(Given: $t_{25, 0.05} = 2.06$).

	Mean	Standard Deviation	Sample size
Brand X	2000 days	250	12
Brand Y	2230 days	300	15

- Q.7** Discuss briefly on various parametric tests and non parametric tests. **(15)**
- Q.8** Attempt the following terms. **(15)**
- a) Cross over designs
 - b) Rank test
 - c) Statistical control chart.

PURUS - I (2011 COURSE) : SUMMER - 2016
SUBJECT: PHARMACEUTICAL CHEMISTRY-II (ORGANIC)

Day: Thursday
Date: 28-04-2016

Time: 10:00 AM TO 1:00 PM.
Max. Marks: 80

N.B.:

- 1) **Q. No. 1 and Q. No.5 are COMPULSORY.** Out of the remaining attempt 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 Answer any **FIVE** of the following: **(10)**

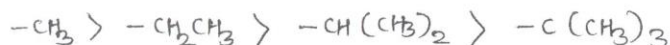
- a) What is sacrificial Hyperconjugation?
- b) What is bond length?
- c) Melting points of ionic compounds are higher than non-ionic compounds. Why?
- d) Why nucleophilic substitution on aromatic ring is very difficult?
- e) What is Isovalent Hyperconjugation?
- f) Write hyperconjugating structures for the following compound



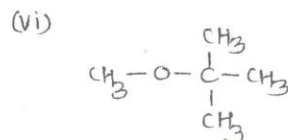
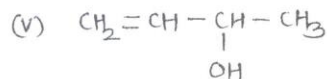
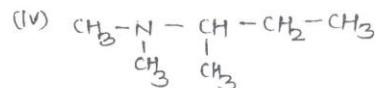
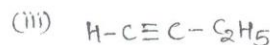
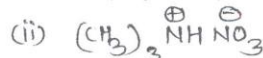
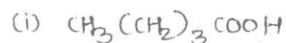
- g) What is ionization potential?

Q.2 Define S_N1 reaction. Give its stereochemistry, kinetics, mechanism and factors affecting rate of S_N1 reaction. **(15)**

Q.3 a) Explain: Alkyl groups attached to benzene ring have +I effect in the order, **(10)**



b) Give IUPAC names of the following structures. (Any FIVE) **(05)**



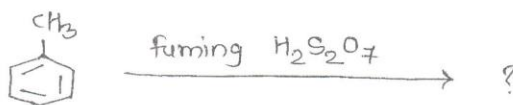
Q.4 Write short notes on any **THREE** of the following: **(15)**

- a) Steric effect
- b) Solubility
- c) Resonance of CO_2 molecule

SECTION-II

Q.5 Answer any FIVE of the following: (10)

a) Predict the product.



b) Enlist reagents used for chlorination reaction.

c) What happens when benzene is treated with ethene in presence of AlCl_3 and HCl ?

d) How dichlorocarbene is obtained from chloroform?

e) Differentiate the following into Electrophiles and Nucleophiles.



f) What is Metamerism?

g) How specific rotation is calculated?

Q.6 Define and classify Isomerism. Explain structural isomerism in detail. (15)

Q.7 a) Give method of generation and reactions of carbon radicals and Benzyne. (10)

b) What is collision theory? (05)

Q.8 Write short notes on any THREE of the following: (15)

a) Transition state theory

b) Nitration reactions

c) Nitrenes

d) Friedel craft reactions

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PURUS – I (CBCS): SUMMER – 2016 (2015 Course)
SUBJECT : PHARMACEUTICAL CHEMISTRY – I (INORGANIC)

Day : Friday
Date : 22-04-2016

Time : 10:00 AM TO 1:00 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** Attempt **ANY FIVE** of the following: [10]
- a) Write principle in the assay of sodium citrate.
 - b) Define pharmacopoeia and monograph.
 - c) Write the principle and reaction involved in the limit test for sulphate.
 - d) Write the principle and reaction involved in the limit test for chloride.
 - e) Define the terms assay with its significance.
 - f) How to observe the color intensity in heavy metal limit test.
- Q.2** a) Write note on limit test for arsenic. [07]
b) Enlist contents of official monograph. [03]
- Q.3** a) Write note on electrolytes used in acid-base balance. [07]
b) Write factors affecting on purity of pharmaceutical. [03]
- Q.4** Write short notes on **ANY TWO** of the following: [10]
- a) Limit test for iron
 - b) Sources of impurities
 - c) Electrolytes used in replacement therapy

SECTION – II

- Q.5** Attempt **ANY FIVE** of the following: [10]
- a) Why particle size of protectives is important? Give examples of protective.
 - b) Give the mechanism of action of saline cathartics.
 - c) Compare advantages and disadvantages of systemic and non-systemic antacids.
 - d) Define bulk purgatives and lubricants.
 - e) Explain the reaction involved in the assay of potassium iodide.
 - f) Give classification of antacids with suitable examples.
 - g) Give assay of aluminum hydroxide gel.
- Q.6** a) What are gastrointestinal protective adsorbents? Discuss bismuth containing compounds as protective and adsorbents. [07]
b) Explain how acid neutralizing capacity of an antacid is evaluated? [03]
- Q.7** a) What are essential and trace elements? Discuss absorption, distribution and physiological role of iron. [07]
b) Give the properties and uses of zinc sulphate. [03]
- Q.8** Write short notes on **ANY TWO** of the following: [10]
- a) Combination antacids
 - b) Kaolin
 - c) Magnesium Sulphate as cathartics

PURUS – I (CBCS) (2015 COURSE): SUMMER – 2016
SUBJECT: MODERN DISPENSING PHARMACY

Day: **Saturday**
Date: **30-04-2016**

Time: **10:00AM TO 1:00PM**
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) 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 following: **(10)**
- a) Define the term compounding and dispensing.
 - b) What is the proof strengths of 70% v/v and 45% v/v of ethanol?
 - c) How many grams of sodium chloride will be required to prepare 1 L of 3 % solution?
 - d) Enlist the importance of pictograms.
 - e) Classify the methods of dispensing.
 - f) Define the following terms:
 - i) Tolerance
 - ii) Antagonism
- Q.2** Define posology. Explain in detail various factors considered for the dose selection. **(10)**
- Q.3**
- a) Write in detail about the handling of the prescription. **(06)**
 - b) Explain in detail role and responsibilities of community pharmacist. **(04)**
- Q.4** Write short notes on any **TWO** of the following: **(10)**
- a) Degradation pathways of various pharmaceutical ingredients
 - b) Developmental changes of Indian pharmacopoeia.
 - c) pricing of the prescription

SECTION-II

- Q.5** Solve any **FIVE** of the following: **(10)**
- a) Define and classify emulsion.
 - b) Differentiate between the mouthwash and gargles.
 - c) Enlist the advantages of granules over the powders.
 - d) What are the ideal properties of sutures?
 - e) Explain the importance of calibration of suppository moulds.
 - f) Define and classify the term extraction.
- Q.6** Write in detail the steps involved in the preparation of suppository by moulding method. **(10)**
- Q.7**
- a) Explain in detail factors affecting the rate of extraction. **(06)**
 - b) What are the ideal properties for the ointment bases? **(04)**
- Q.8** Write note on any **TWO** of the following: **(10)**
- a) Absorbable sutures

PURUS-I (2015 COURSE) (CBCS): SUMMER-2016
SUBJECT: PHARMACEUTICAL ENGINEERING-I

Day: **Tuesday**
Date: **03-05-2016**

Time: **10:00AM TO 1:00 P.M.**
Max. Marks: **60**

N.B:

- 1) **Q. No.1 and Q. No.5 are COMPULSORY.**
- 2) Solve **ANY TWO** questions from each section from the remaining.
- 3) Draw neat diagram **WHEREVER** necessary.

SECTION-I

Q.1 Solve **ANY FIVE:** (10)

- a) What is significance of particle size reduction?
- b) What are applications of triangular diagrams in extraction?
- c) Explain mechanism of size separation.
- d) What types of mill is required for fibrous solids?
- e) What are differential pressure flow meters?
- f) Give principle of Rotameter.

Q.2 a) Draw a neat labelled diagram of Rotocel extractor and explain its working. (06)
b) Explain factors affecting size separation. (04)

Q.3 a) Explain working and factors affecting hammer mill. (06)
b) What is effleurance? Give its process with applications. (04)

Q.4 Write short notes on (**ANY TWO**): (10)

- a) Fluid energy mill
- b) Solid liquid extraction
- c) Tumbling mill

SECTION-II

Q.5 Solve **ANY FIVE:** (10)

- a) Enlist mixers useful in tablet preparation.
- b) What is significance of filtration in pharmacy?
- c) Name the instrument used for measurement of fluid flow.
- d) What are mechanisms of mixing?
- e) What are advantages of automated process control systems?
- f) What is role of baffles in mixing?

Q.6 a) Explain construction and working of jet mixer. (06)
b) Explain in brief method for air filtration. (04)

Q.7 a) Explain construction and working of sigma blade mixer. (06)
b) Explain factors affecting power requirement of mixers. (04)

Q.8 Write short notes on (**ANY TWO**): (10)

- a) HEPA filter
- b) Wet scrubbers

