



## MANIPAL UNIVERSITY

**FIRST YEAR B. PHARM. DEGREE EXAMINATION - MAY 2017**  
**SUBJECT: ANATOMY AND PHYSIOLOGY (PHA 102T)**  
**(2014 REGULATION)**  
**Thursday, May 04, 2017 (10.00 - 13.00 Hrs.)**

**Marks: 70**

**Duration: 180 mins.**

**Answer ALL the questions. Draw a labeled diagram wherever necessary.**

**Long Answer Questions:**

- 1) With a neat, labelled diagram, explain the mechanical and chemical processes of digestion in the small intestine. (10)  
(3+7 = 10 marks)
- 2) With a neat, labelled picture of a cell, explain the function of each cell organelle, (10)  
(2+8 = 10 marks)
- 3) With a flowchart, describe the various factors regulating blood pressure. (10)  
(3+7 = 10 marks)

**Short Essay:**

- 4A) Explain any five functions of skin (5)
- 4B) Describe the phenomenon of excitation-contraction coupling (5)
- 4C) Discuss the control of respiration by neural mechanisms (5)
- 4D) Elaborate on the functions of kidney (5)
- 4E) Explain the roles of blood and bone in calcium maintenance (5)
- 4F) Describe the phases of menstrual cycle (5)

**Give reasons for the following:**

- 5A) Sympathetic effects last longer than para-sympathetic actions (2)
- 5B) A scuba diver experiences symptoms of alcohol intoxication (2)
- 5C) Hemolytic disease of the newborn typically occurs during the second pregnancy (2)
- 5D) Electroencephalogram is of diagnostic value in brain abnormalities (2)
- 5E) When red blood cells are kept in a hypotonic sodium chloride solution, they swell (2)



## MANIPAL UNIVERSITY

**FIRST YEAR B. PHARM. DEGREE EXAMINATION - MAY 2017**  
**SUBJECT: PHARMACEUTICAL ANALYSIS-I (PQA 104T)**  
**(2014 REGULATION)**  
**Saturday, May 06, 2017 (10.00 - 13.00 Hrs.)**

**Answer ALL questions**

**Write balanced chemical reactions and draw neatly labelled diagrams wherever necessary**

**Use of scientific calculator is allowed**

**Marks: 70**

**Duration: 180 mins.**

**Long answer questions:**

- 1) Define Accuracy and Precision. (10)  
 Assay results of content of Paracetamol in given 500 mg Crocin tablets are as follows. As an analyst, justify which method is better for routine analysis.

Trial No.	Method A	Method B
1	500.00 mg	498.80 mg
2	493.80 mg	501.90 mg
3	490.00 mg	504.00 mg
4	505.80 mg	489.80 mg
5	488.10 mg	498.90 mg
6	504.10 mg	500.10 mg

- 2) Explain various theories of acid base indicators. (10)
- 3) What are Iodometry titration and Iodimetry titrations? Explain the conditions involved in the Iodometric titrations. (10)

**Short answer questions:**

- 4A) Explain the principle in direct and back titrations using disodium edetate as titrant. (5)
- 4B) Explain the principle for estimation of chloride using potassium chromate as an indicator. (5)
- 4C) Explain the filtering media used in gravimetric analysis in brief. (5)
- 4D) Derive the Henderson Hasselbalch equation. (5)
- 4E) i) Explain the principle of lead limit test. (5)  
 ii) How the manufacture hazards lead to contamination of

pharmaceutical preparations?

(3+2 = 5 marks)

- 4F) i) Explain the preparation of 0.1M perchloric acid. (5)  
ii) What is diazotisation titration? Name any two drugs determined by the same.  
(3+2 = 5 marks)

**Short answer questions**

- 5A) What is complexometric titration curve? Name its distinct regions. (2)  
5B) What is a random or indeterminate error? (2)  
5C) Why mercuric acetate is used in the estimation of halogen acid salts of bases by non-aqueous titration? (2)  
5D) Why potassium permanganate titration is generally carried out in acid solution than that of either neutral or alkaline solution? (2)  
5E) Why thioglycollic acid added in limit test for iron? (2)

**MANIPAL UNIVERSITY**

**FIRST YEAR B. PHARM. DEGREE EXAMINATION - MAY 2017**  
**SUBJECT: PHARMACEUTICAL ORGANIC CHEMISTRY (PCH 105T)**  
**(2014 REGULATION)**  
**Tuesday, May 09, 2017 (10.00 - 13.00 Hrs.)**

Marks: 70

Duration: 180 mins.

**Long Answer Questions:**

- 1A) Explain electrophilic addition to conjugated dienes with mechanism. (6)  
1B) Explain the mechanism involved in Benzoin condensation. (4)  
2A) Discuss the stability of cycloalkanes using Bayer's strain theory. (6)  
2B) Explain two methods of preparation and reactions of carboxylic acids. (4)  
3A) Explain nitration of chlorobenzene with mechanism. (5)  
3B) Discuss the mechanism and evidences for E2 reaction. (5)

**Short Answer Questions:**

- 4A) Explain the reactions of Amines. (5)  
4B) Explain dipole dipole interactions and Vander walls interactions. (5)  
4C) Give the specific use of the following reagents in organic synthesis: (5)  
i) Aluminium isopropoxide  
ii) Lithium aluminium hydride  
4D) What is Michael addition reaction? Explain with mechanism. (5)  
4E) Explain the methods of formation of carbocations. (5)  
4F) Discuss with mechanism and give any two evidences for SN1 reactions. (5)

**Give Reasons for the Following:**

- 5A) FeBr<sub>3</sub> is used as catalyst in bromination of benzene. (2)  
5B) Toluene as well as propyl benzene give benzoic acid as a product upon oxidation with potassium permanganate. (2)  
5C) Ethyl carbocation is less stable than benzyl carbocation. (2)  
5D) Amino group is a strongly activating group than methyl group towards electrophilic aromatic substitution. (2)  
5E) LiAlH<sub>4</sub> involving reduction must be carried out in solvent ether. (2)



## MANIPAL UNIVERSITY

### FIRST YEAR B. PHARM. DEGREE EXAMINATION – MAY 2017

#### SUBJECT: PHARMACEUTICAL ORGANIC CHEMISTRY (PCH 105) (CREDIT BASED SYSTEM)

Tuesday, May 09, 2017

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

✍ Answer ALL the questions.

✍ Long Essays:

- 1A. How will you differentiate aldehydes from ketones? Explain
- 1B. Explain the two methods of preparation of alkanes and alcohols with equations.
- 1C. Give any two reactions of Alkyl halides.

(2+4+2 = 8 marks)

2A. Explain the following:

- i) Mechanism of  $S_N1$  reaction
- ii) Formation of carbocations

2B. Explain Sacht-Mohr modification.

((2+2) +4 = 8 marks)

- 3A. What are Carbenes? Give the methods of their generation with applications.
- 3B. Give the method of preparation of benzocaine.
- 3C. How will you assay Chlorbutol?

(4+2+2 = 8 marks)

4. Short Essays:

- 4A. Explain the mechanism of nitration of benzene.
- 4B. Explain mechanism of Cannizzaro reaction and mention its synthetic applications.
- 4C. Explain the electrophilic addition mechanism with example.
- 4D. Discuss the orientation and reactivity in E2 reaction with suitable examples.

(4 marks  $\times$  4 = 16 marks)

5. Short Answers:

- 5A. How phenol is converted to salicylaldehyde? Explain
- 5B. Give the structure and medicinal uses of undecenoic acid.
- 5C. Why phenols are more acidic than alcohols?
- 5D. Enlist the conditions for a compound to show optical activity.
- 5E. Give specific uses of Aluminium isopropoxide with suitable examples.

(2 marks  $\times$  5 = 10 marks)



**MANIPAL UNIVERSITY****FIRST YEAR B. PHARM. DEGREE EXAMINATION - MAY 2017****SUBJECT: BIOCHEMISTRY (PBT 103T)****(2014 REGULATION)****Thursday, 11 May, 2017 (10.00 - 13.00 Hrs.)****Marks: 70****Duration: 180 mins.****Long answer questions:**

- 1) Explain the reactions of aerobic glycolysis. Give an account of ATP generation in the process. (10)
- 2) Name any two ketone bodies. Write in detail the synthesis and utilization of ketone bodies. (10)
- 3) With the help of a neat labeled diagram, explain DNA replication in prokaryotes. (10)

**Short answer questions:**

- 4A) Explain the effect of pH and substrate concentration on enzyme activity. (5)
- 4B) Define enzymes. Give the IUB classification of enzymes citing suitable example for each class. (5)
- 4C) Define and classify porphyrias. Enlist the characteristics of porphyria cutanea tarda. (5)
- 4D) Draw the structure of urea and write about the regulation, energetics and disorders associated with urea cycle. (5)
- 4E) Classify vitamins. Write short notes on the biochemical functions, RDA and deficiency symptoms associated with folic acid. (5)
- 4F) Explain the role of directly involved enzymes in the development of primary gout. Add a note on the drug of choice for its treatment. (5)

**Give reason for the following:**

- 5A) Peroxisomes protect the cell from toxic effects of hydrogen peroxide. (2)
- 5B) Mitochondria are regarded as power house of the cell. (2)
- 5C) Normal serum bilirubin levels do not give a positive van den Bergh reaction. (2)
- 5D) Urine of Alkaptonuric patients resemble coke in color. (2)
- 5E) Women are less prone to heart related disorders. (2)

**MANIPAL UNIVERSITY**

**FIRST YEAR B. PHARM. DEGREE EXAMINATION - MAY 2017**  
**SUBJECT: ENVIRONMENTAL SCIENCE & ETHICS (PMA 107T)**  
**(2014 REGULATION)**  
**Saturday, 13 May, 2017 (10.00 - 13.00 Hrs.)**

Marks: 70

Duration: 180 mins.

**Long Answer Questions:**

- 1) Define Biodiversity and discuss three levels of Biodiversity? Describe in detail biogeographical classification of India. (10)
- 2) How can we move from unsustainable to sustainable development? What are the causes of unsustainable development? Discuss climate change and its impact. (10)
- 3) Explain the value of research and what are the limitations of conducting research. Discuss three areas of ethical concerns in research. (10)

**Short Answer Questions:**

- 4A) Define Business Ethics. Discuss in brief the levels of Business Ethics. (5)
- 4B) Discuss in brief types of Virtues put forwarded by Aristotle. Add a note on criticisms of Virtue Ethics. (5)
- 4C) Define Natural resources. Classify renewable and non-renewable natural resources. Add a note on Non-renewable natural resources. (5)
- 4D) Discuss concept of Ecosystem. Explain natural and artificial ecosystems with examples of each. Schematically classify ecosystems. (5)
- 4E) (5)

Write a note on causes, effects and control of Noise Pollution.

- 4F) Describe population growth and variation among nations. Add a note on role of information technology in environment and human health. (5)

**Give Reasons for the Following:**

- 5A) What is Moral Theory? (2)
- 5B) Differentiate Pragmatism and Ethics. (2)
- 5C) What is Act Utilitarianism? (2)
- 5D) What is Duty Ethics? (2)
- 5E) What scientific disciplines are needed to study environmental sciences? (2)



**MANIPAL UNIVERSITY****FIRST YEAR B. PHARM. DEGREE EXAMINATION - MAY 2017****SUBJECT: PHARMACOGNOSY-I (PCO 106T)  
(2014 REGULATION)****Tuesday, May 16, 2017 (10.00 - 13.00 Hrs.)****Marks: 70****Duration: 180 mins.****Long Answer Questions:**

- 1) External factors affecting cultivation of crude drugs. (10)
- 2) Describe morphology and microscopy of root. (10)
- 3) Give the botanical source, method of preparation, chemical constituents and uses of tragacantha. (10)

**Short Answer Questions:**

- 4A) Definition, classification and general tests for tannins. (5)
- 4B) Time of collection of different parts of plants. (5)
- 4C) Define drug evaluation and discuss about chemical method of evaluation. (5)
- 4D) Define lipids and classify with examples. (5)
- 4E) Explain various chemical tests for proteins. (5)
- 4F) Write a note on plant hairs. (5)

**Give Reasons for the Following:**

- 5A) Stomatal index is used as one of the parameter to evaluate leaf drug. (2)
- 5B) Agar answers Barium chloride test and (2)

fehling's test.

- 5C) Tannins are used in leather industry. (2)
- 5D) Vanilla is dried slowly in controlled temperature. (2)
- 5E) Leaf, bark and roots are categorized as organized crude drugs. (2)