

MANIPAL UNIVERSITY

FIRST YEAR B. PHARM. DEGREE EXAMINATION – JULY 2015

SUBJECT: ANATOMY AND PHYSIOLOGY (PHA 102T)
(2014 REGULATION)

Monday, July 20, 2015

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ Answer ALL the questions.

✍ Long Answer Questions:

1. Define cardiac output. Explain the factors regulating cardiac output. (2+8 = 10 marks)
2. With a neat, labeled diagram, describe the anatomy of the eye ball. (10 marks)
3. Discuss the various stages of female reproductive cycle. Describe the process of oogenesis. (5+5 = 10 marks)

4. Short Answer Questions:

- 4A. With suitable examples, explain the various types of feedback systems responsible for homeostasis.
- 4B. Discuss the principle involved in blood grouping.
- 4C. Compare and contrast the different types of muscular tissue.
- 4D. Explain the internal anatomy kidney.
- 4E. With suitable examples, explain the anatomy of various types of cell junctions.
- 4F. Explain the physiology of gastric acid secretion. (5 marks × 6 = 30 marks)

5. Give reasons for the followings:

- 5A. Pancreas regulates carbohydrates homeostasis.
- 5B. The following sequence of hormones is not correct: GHRH → ACTH → T₃ → T₄
- 5C. Differences in sports performance exist between male and female athletes.
- 5D. The sperm, which undergoes capacitation can only fertilize the oocyte.
- 5E. Vital capacity is different from total lung capacity. (2 marks × 5 = 10 marks)



MANIPAL UNIVERSITY

FIRST YEAR B. PHARM. DEGREE EXAMINATION – JULY 2015

**SUBJECT: PHARMACEUTICAL INORGANIC CHEMISTRY (PCH 104)
(CREDIT BASED SYSTEM)**

Monday, July 20, 2015

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

✍ **Answer all the questions.**

✍ **Long Essays:**

1A. Explain in detail the method of preparation and assay of Sodium phosphate.
 1B. Explain in detail the method of preparation and assay of Calcium gluconate.
(4+4 = 8 marks)

2A. Define Astringents. Give the preparation and uses of Zinc chloride.
 2B. How will you assay hydrogen peroxide?
 2C. Write the method of preparation and uses of Sodium hypochlorite.
(4+2+2 = 8 marks)

3A. Define the following terms:
 i) Expectorant ii) Pharmacopoeia iii) Assay iv) Limit test
 3B. How will you assay oxygen? Explain.
 3C. Why ammonia solution is used in the limit test for Iron?
(4+3+1 = 8 marks)

4. **Short Essays:**

4A. How will you prepare and assay Ferrous gluconate?
 4B. Explain in detail the method of preparation and assay of Magnesium hydroxide.
 4C. Write the principle involved in the limit test for heavy metals with reactions.
 4D. How will you prepare and assay Ammonium chloride? Explain.
(4 marks × 4 = 16 marks)

5. **Short Answers:**

5A. Give the uses of the following: i) Activated charcoal ii) Bismuth subnitrate
 5B. Explain the physiological role of phosphate.
 5C. Define Roentgen and Curie.
 5D. Write the preparation and uses of Antimony potassium tartarate.
 5E. Mention four diagnostic applications of radioactive isotopes.
(2 marks × 5 = 10 marks)



MANIPAL UNIVERSITY**FIRST YEAR B. PHARM. DEGREE EXAMINATION – JULY 2015****SUBJECT: BIOCHEMISTRY (PBT 103T)
(2014 REGULATION)**

Wednesday, July 22, 2015

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

Answer ALL the questions.

Long Essay Questions:

1. Explain the reactions of EMP Pathway and discuss ATP generation.
2. Define β -Oxidation. Explain the process of β -Oxidation of a fatty acid containing 16 carbon atoms.
3. Explain the events occurring at replication fork. Add a note on the statement 'DNA replication is semiconservative'.

(10 marks \times 3 = 30 marks)

Short Essay Questions:

- 4A. Write short notes on the following:
 - i) Diagnostic enzymes
 - ii) Effect of substrate concentration on enzyme activity
- 4B. Differentiate between competitive and non-competitive inhibition. Give one suitable example for each.
- 4C. Explain the process of HEME degradation.
- 4D. Write the enzyme defect, biochemical manifestation, diagnosis and treatment associated with Alkaptonuria.
- 4E. Define and classify vitamins. Explain the importance of vitamin A in vision.
- 4F. Write a note on primary gout.

(5 marks \times 6 = 30 marks)

Give reasons for the following:

- 5A. Water is regarded as the solvent of life.
- 5B. Malate aspartate shuttle system is utilized for transport of reducing equivalent.
- 5C. Purple colour intensifies in biphasic van den Bergh reaction.
- 5D. Phenylalanine is both glucogenic and ketogenic in nature.
- 5E. Translation inhibitors are used as antibiotics.

(2 marks \times 5 = 10 marks)



MANIPAL UNIVERSITY

FIRST YEAR B. PHARM. DEGREE EXAMINATION – JULY 2015

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

Wednesday, July 22, 2015

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

✍ **Answer all the questions.**

✍ **Long Essays:**

- 1A. Explain the mechanism of Benzoin condensation and mention its synthetic applications.
1B. Explain the mechanism of S_N2 reaction with suitable example. (5+3 = 8 marks)
- 2A. Explain the Bimolecular displacement mechanism for Nucleophilic Aromatic Substitution.
2B. Give the method of preparation and assay of Benzocaine. (4+4 = 8 marks)
- 3A. Discuss about Isotope effect and element effect in E2 reaction.
3B. Give any two methods of preparation and reactions of carboxylic acids. (4+4 = 8 marks)

4. **Short Essays:**

- 4A. What is meant by bonding and antibonding orbitals? Explain.
4B. Explain the four methods used for the separation of a racemic mixture.
4C. Write any four reactions of phenol.
4D. Explain the mechanism nitration of benzene. (4 marks × 4 = 16 marks)

5. **Short Answers:**

- 5A. With suitable example, explain peroxide effect.
5B. Arrange the following in increasing order of basicity: NH_3 , CH_3NH_2 , $C_2H_5NH_2$.
5C. With suitable examples, give the specific uses of NBS.
5D. Give the structure and medicinal uses of Lactic acid.
5E. Mention the IR absorption bands for ketones and amine. (2 marks × 5 = 10 marks)



MANIPAL UNIVERSITY**FIRST YEAR B. PHARM. DEGREE EXAMINATION – JULY 2015****SUBJECT: PHARMACEUTICAL ANALYSIS-I (PQA 104T)
(2014 REGULATION)**

Friday, July 24, 2015

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✗ **Answer ALL the questions.**✗ **Draw chemical reactions and neatly labelled diagrams wherever necessary.**✗ **Long Answer Questions:**

1. How can the systematic error be reduced?

(10 marks)

2. How does an acidic buffer and an alkaline buffer resist small changes in pH? Explain with suitable examples.

(10 marks)

3A. What are redox indicators? Classify and explain.

3B. What is Iodate titration? Explain with example.

(5+5 = 10 marks)

4. **Short Answer Questions:**

4A. Explain the preparation and standardization of 1000 ml of 0.05M disodium edetate solution.

(5 marks)

4B. Explain the principle of Mohr's method for the estimation of chloride.

(5 marks)

4C. Write the advantages and disadvantages of organic precipitants in gravimetry.

(5 marks)

4D. What is Ostwald's dilution law? Derive an equation for the same.

(5 marks)

4E. Explain the limit test for iron.

(5 marks)

4F. i) Explain the principle for the estimation of halogen acid salts of bases by non-aqueous titration with an example.

ii) Write the application of diazotization titration.

(3+2 = 5 marks)

5. **Short Answer Questions:**

- 5A. Explain the effect of solvent on the solubility of the precipitate in brief.
- 5B. Give examples. What are the classes of systematic or determinate errors?
- 5C. Why modification is required in the limit test for chloride for potassium permanganate and aspirin?
- 5D. Why the potassium permanganate titration is widely used in acid solution than that of either neutral or alkaline solution?
- 5E. Why water is not used as a solvent in the assay of weakly basic drugs by of non-aqueous titration?

(2 marks \times 5 = 10 marks)



MANIPAL UNIVERSITY

FIRST YEAR B. PHARM. DEGREE EXAMINATION – JULY 2015

**SUBJECT: PHARMACEUTICAL ORGANIC CHEMISTRY (PCH 105T)
(2014 REGULATION)**

Monday, July 27, 2015

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ **Answer ALL the questions.**

✍ **Long Answer Questions:**

- 1A. What is Absolute configuration? Explain the sequence rules to determine the absolute configuration of a molecule.
- 1B. Explain sp² and sp³ hybridization with suitable examples. (5+5 = 10 marks)
- 2A. Explain the reaction of aniline with bromine with mechanism.
- 2B. Explain Elimination-addition reaction with mechanism. (6+4 = 10 marks)
- 3A. Explain the methods of generation and reactions of nitronium ions.
- 3B. Explain the free radical addition mechanism of the peroxide initiated addition of HBr to alkenes. (4+6 = 10 marks)

4. **Short Answer Questions:**

- 4A. What is Benzoin condensation? Explain with mechanism.
- 4B. Explain two methods of preparation and reactions of aldehydes.
- 4C. Discuss the mechanism, stereochemistry and kinetics involved in S_N1 reactions.
- 4D. Give the specific uses of the following reagents in organic synthesis:
i) Aluminium isopropoxide ii) N-bromosuccinimide
- 4E. Explain the methods of preparation of carboxylic acids.
- 4F. Discuss about the stability of allyl cation. (5 marks × 6 = 30 marks)

5. **Give reasons for the following:**

- 5A. Methyl halide is not the best substrate for E1 reactions.
- 5B. 2,3-dichlorobutane is optically inactive.
- 5C. Allyl carbonium ion is more stable than propyl carbonium ion.
- 5D. Aniline is less basic than methylamine.
- 5E. Aldehydes are more reactive than ketones towards nucleophilic addition. (2 marks × 5 = 10 marks)



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FIRST YEAR B. PHARM. DEGREE EXAMINATION – JULY 2015

SUBJECT: PHARMACOGNOSY-I (PCO 106T)
(2014 REGULATION)

Wednesday, July 29, 2015

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ **Answer ALL questions.**

✍ **Long Answer Questions:**

1A. Define and classify proteins with examples.

1B. Write a note on collagen and spirulina.

(10 marks)

2. Pharmacognosy of honey.

(10 marks)

3A. Polyploidy

3B. Explain various methods of adulteration with examples.

(5+5 = 10 marks)

4. **Short Answer Questions:**

4A. Discuss various methods of pest control

4B. Basic principles involved in Ayurvedic system of medicine

4C. Give source, chemical constituents and uses of Ashoka and Arjuna

4D. Short note on various methods of drying of crude drugs

4E. Pharmacological evaluation of crude drugs

4F. Give source, method of preparation, chemical constituents and uses of wool fat

(5 marks × 6 = 30 marks)

5. **Give reasons for the following:**

5A. Auxin is an very important phytohormone

5B. Gelatin answers Millons test

5C. Fixed oil analysis is required

5D. Rhubarb is not collected in winter

5E. Roots and rhizomes are sliced and dried

(2 marks × 5 = 10 marks)



MANIPAL UNIVERSITY**FIRST YEAR B. PHARM. DEGREE EXAMINATION – JULY 2015****SUBJECT: ENVIRONMENTAL SCIENCE AND ETHICS (PMA 107T)
(2014 REGULATION)**

Friday, July 31, 2015

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ **Answer ALL the questions.**

✍ **Long Answer Questions:**

1. What various values are associated with biodiversity? Discuss in detail. Add a note on biodiversity at global, national and local levels.
2. Discuss various issues associated with environmental ethics.
3. Discuss principles of Situation Ethics.

(10 marks × 3 = 30 marks)

4. **Short Answer Questions:**

- 4A. What are the limitations of Kantianism?
- 4B. Discuss the natural rights theory.
- 4C. Explain various renewable Natural Resources through which power/energy is generated.
- 4D. Write a note on structural and functional aspects of an ecosystem. Describe various functions of an ecosystem.
- 4E. What is solid waste? Classify various types of solid waste. Add a note on role of an individual in prevention of pollution.
- 4F. Describe various adverse effects of environment on Human Health.

(5 marks × 6 = 30 marks)

5. **Give reasons for the following:**

- 5A. Why health care law and health care ethics sometimes conflict?
- 5B. Why rationing of health care services is a contemporary ethical question?
- 5C. What is meant by Informed Consent?
- 5D. Principle of autonomy
- 5E. Why is there a need for creating public awareness about environmental science?

(2 marks × 5 = 10 marks)

