Reg. No.										

MANIPAL UNIVERSITY

SECOND YEAR B. PHARM. DEGREE EXAMINATION – MAY 2009

SUBJECT: PHARMACEUTICAL ORGANIC CHEMISTRY

(RGUHS SYLLABUS)

Tuesday, May 05, 2009

Time: 10.00-13.00 Hrs. Max. Marks: 80

1. Long Essays: (Answer any TWO)

1A. i) What is geometrical isomerism? Discuss various methods for determining the configuration of geometrical isomers.

ii) Discuss the stereochemistry of addition of halogen to alkenes.

(5+5 = 10 marks)

1B i) Discuss the synthesis of naphthalene.

ii) Give the chemical properties of anthracene.

(5+5 = 10 marks)

1C. How is pyridine prepared? How can it be converted into

a) pyridine sulphonic acid b) piperidine

c) 2-aminopyridine. Give its chemical equations.

(3+7 = 10 marks)

2. Short Essays: (Answer any EIGHT)

2A. Explain the stereochemistry of nucleophilic substitution reactions.

2B. Give the important general reaction of carbohydrates.

2C. Explain the basicity and reactivity of pyridine.

2D. What are oils, fats and waxes? Explain the procedure of Iodine value determination and mention its significance.

2E. Discuss briefly the chemistry of Quinoline and Isoquinoline.

2F. Discuss the structure of Anthracene.

2G. Show the steps involved in the synthesis of Furan from aldopentose.

2H. Discuss the stereochemistry of Cyclohexane.

2I. Write the reaction of diphenylmethane and triphenylmethane.

2J. Write the resonance structures of Furan.

(5×8 = 40 marks)

3. Short Answers: (Answer ALL questions)

3A. Give the structure of oxepine and azepine.

3B. What are peptides? Give classifications.

3C. Give absolute configuration of tartaric acid.

3D. Illustrate E and Z forms with example.

3E. Name any two derivatives of indole.

3F. How will you synthesize Glucose and Fructose?

3G. Explain Meso compound with example.

3H. How is phenoxazine prepared?

3I. What are amino-acids? Give their biological importance.

3J. Give the structure of one purine derivative with its medicinal use.

(2×10 = 20 marks)

Reg. No.										

MANIPAL UNIVERSITY

SECOND YEAR B. PHARM. DEGREE EXAMINATION – MAY 2009

SUBJECT: PATHOPHYSIOLOGY (PTH 201)
(CREDIT BASED SYSTEM)

Tuesday, May 05, 2009

Time: 10.00-13.00 Hrs. Max. Marks: 50

✍ **Answer all questions.**

✍ **Long Essays:**

1A. Explain the etiology of cancer.

1B. Explain the cell cycle and pathogenesis of cancer.

1C. Explain the difference between malignant and benign cancer.

(2+4+2 = 8 marks)

2A. Differentiate the four types of hypersensitivity reactions.

2B. Explain the role of cytokines in immune system.

2C. Describe the role of HLA genes in immune system.

(3+3+2 = 8 marks)

3A. Explain the etiopathogenesis of Parkinsonism.

3B. Describe the clinical features of Parkinsonism.

(5+3 = 8 marks)

4. Short Essays:

4A. Enumerate four causative factors and any four clinical symptoms of hyperthyroidism.

4B. Explain the pathogenesis of atherosclerosis and enumerate four clinical symptoms.

4C. Explain the cellular events during degeneration of cell injury.

4D. Describe the types and enumerate the clinical symptoms of chronic obstructive pulmonary disease.

(4×4 = 16 marks)

5. Short Answer:

5A. Explain the sequesteration mechanism of autoimmune disease.

5B. Differentiate necrosis and apoptosis.

5C. Enumerate four chemical mediators of acute inflammation.

5D. Classify necrosis with one example for each.

5E. Enumerate four causes of metastatic calcification.

(2×5 = 10 marks)

Reg. No.										

MANIPAL UNIVERSITY

SECOND YEAR B. PHARM. DEGREE EXAMINATION – MAY 2009

SUBJECT: PHARMACEUTICAL MICROBIOLOGY (PBT 202)
(CREDIT BASED SYSTEM)

Thursday, May 07, 2009

Time: 10.00-13.00 Hrs. Max. Marks: 50

✍ **Answer all the questions. Put question numbers properly.**

✍ **Long Essay:**

1. Differentiate between Phenotype and Genotype. Discuss in detail the phenotypic modifications.

2. Discuss sterilization by filtration as under:
   Stages involved in the process – Advantages, differences between depth filters and screen filters.

3. Define and classify Immunity and explain fluorescent antibody technique with its specific application.

(8×3 = 24 marks)

✍ **Short Essay:**

4A. Briefly explain the different morphological forms of animal viruses.

4B. Enlist the various factors affecting the course of disinfection process and explain the effect of presence of organic matter.

4C. Write short note on normal microbial flora of humans.

4D. Write the causative organism, route of infection, symptoms and treatment of infective Hepatitis.

(4×4 = 16 marks)

✍ **Short Answers:**

5A. Mention Robert Koch's postulates.

5B. Simple staining can differentiate Staphylococci from Streptococci but to differentiate B. subtilis from E. coli, Gram Staining is needed. Why?

5C. Culture Media containing thermolabile ingredients like Gelatin can be sterilized by tyndallisation but not the injections containing thermolabile medicaments. Why?

5D. Write the mode of action of mercurial compounds.

5E. What are the specifications for potable water?

(2×5 = 10 marks)

Reg. No.										

MANIPAL UNIVERSITY

SECOND YEAR B. PHARM. DEGREE EXAMINATION – MAY 2009

SUBJECT: APPLIED BIOCHEMISTRY

(RGUHS SYLLABUS)

Thursday, May 07, 2009

Time: 10.00-13.00 Hrs. Max. Marks: 80

1. Answer any TWO questions:

1A. Give the reactions of Kreb's cycle. Add a note on energetics.

1B. Discuss the features Watson-Crick model of DNA.

1C. Explain pyrimididne metabolism in detail. Add a note on salvage pathways.

(10×2 = 20 marks)

2. Answer any EIGHT of the following:

2A. Classify enzymes and give example for each group.

2B. Explain with examples: i) Covalent enzyme modification ii) Repression of enzyme

2C. Give the chemistry and functions of vitamin D.

2D. Give any five reactions requiring B_6 vitamin.

2E. Explain the action of paratharmone.

2F. Write a note on ▲G concept.

2G. Explain the role of carnitine in fat metabolism.

2H. Discuss the chemiosmotic theory in brief.

2I. How creatine is synthesised? Explain its significance.

2J. Write a note on post translational modifications.

(5×8 = 40 marks)

3. Answer all the questions:

3A. Give the principle and use of clearance tests.

3B. Write the structure of: i) cAMP ii) Thiamin

3C. Give the normal blood levels of: i) Bilirubin ii) Albumin

3D. Write the reaction catalysed by: i) Phosphofructokinase ii) Pyruvate carboxylase

3E. Give the enzyme defect in: i) Von-Gierke's disease ii) Gout

3F. Draw the structure of t-RNA and label the parts.

3G. Name four organic components of normal urine.

3H. What is translation? How amino acids are activated?

3I. How fructose is converted to glucose?

3J. What is ubiquinone? Give its significance.

(2×10 = 20 marks)

Reg. No.										

MANIPAL UNIVERSITY

SECOND YEAR B. PHARM. DEGREE EXAMINATION – MAY 2009

SUBJECT: PHARMACEUTICAL CHEMISTRY (PCH 204)
(CREDIT BASED SYSTEM)

Tuesday, May 12, 2009

Time: 10.00-13.00 Hrs. Max. Marks: 50

✍ **Long Essays:**

1A. Explain the stereochemistry of Biphenyl compounds.

1B. Explain briefly the stereochemistry of SN_2 reactions.

(5+3 = 8 marks)

2A. Define and classify glycosides.

2B. Write a brief note on cardiac glycosides giving one example.

2C. Explain briefly the structural elucidation of Vitamin A.

(2+3+3 = 8 marks)

3A. Discuss the cyclic structure of D-glucose.

3B. Describe the synthesis of glycine by Strecker synthesis.

(5+3 = 8 marks)

✍ **Short Essays:**

4A. i) Explain Fischer indole synthesis.

ii) Write the structure and uses of indomethacine.

(2½+1½ = 4 marks)

4B. i) Explain the behaviour of furan as a conjugated diene.

ii) How are 2-methyl imidazoles prepared from imidazole?

(2½+1½ = 4 marks)

4C. Describe the general reactions of fats and oils.

(4 marks)

4D. Explain briefly the various methods for the degradation of alkaloids.

(4 marks)

✍ **Short Answers:**

5A. Classify flavonoids giving general structure.

5B. Write the structures and biological importance of various coumarin derivatives.

5C. Write the structures of Vincristine and Vinblastine.

5D. Describe C-terminal residual analysis in protein.

5E. Explain Goldberg method for the preparation of acridine.

(2×5 = 10 marks)

Reg. No.										

MANIPAL UNIVERSITY

SECOND YEAR B. PHARM. DEGREE EXAMINATION – MAY 2009

SUBJECT: PHARMACOGNOSY - I (PCO 206)
(CREDIT BASED SYSTEM)

Thursday, May 14, 2009

Time: 10.00-13.00 Hrs. Max. Marks: 50

✍ **Answer all the questions. Draw neat labelled diagrams wherever necessary.**

✍ **Long Essays:**

1. Write the Pharmacognosy of Cotton with special reference to its collection and preparation.

2. Define tannins. Explain the chemistry of Hydrolysable and condensed tannins. Describe at least four methods of estimation of tannins.

3. Explain the method of preparation and uses of wool fat and spermaceti.

(8×3 = 24 marks)

4. Short Essays:

4A. Write the source, morphology and powder characteristics of fennel.

4B. What are growth inhibitors? Explain the roll of growth inhibitors in plant growth regulation taking Absaisic acid as an example.

4C. Write the method of preparation and chemical tests for gelatin.

4D. Describe with reactions and the steps involved in TCA cycle.

(4×4 = 16 marks)

5. Short Answers:

5A. Bentonite.

5B. Types of calcium oxalate crystals with example(s).

5C. Adulteration by Sophistication and inferiority.

5D. Azeotropic method for moisture analysis.

5E. Biuret test and its significance.

(2×5 = 10 marks)

Reg. No.										

MANIPAL UNIVERSITY

SECOND YEAR B. PHARM. DEGREE EXAMINATION – MAY 2009

SUBJECT: PHARMACEUTICAL ANALYSIS (PQA 205)
(CREDIT BASED SYSTEM)

Saturday, May 16, 2009

Time: 10.00-13.00 Hrs. Max. Marks: 50

✍ **Answer ALL questions. Draw neat and labelled diagrams wherever necessary.**

✍ **Long Essays:**

1A. Write the principle of redox titrations. Explain the factors affecting redox titrations.

1B. Explain the mechanism of action of internal, external and self redox indicators.

(4+4 = 8 marks)

2. Explain about co-precipitation, its types and causes for co-precipitation.

(8 marks)

3A. Explain following terms in relation to solubility product concept.

i) Common ion effect ii) Salt effect

3B. What is law of mass action? Derive an expression for Law of Mass Action taking into account 'activity' of the reacting substances.

(4+4 = 8 marks)

4. Short Essays:

4A. What is the primary standard? Give the ideal requirements for the same.

4B. Explain the principle involved in the estimation of sodium chloride by Volhards's method.

4C. Explain in detail about replacement complexometric titration with an example.

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

(4×4 = 16 marks)

5. Short answers:

5A. Write the Nernst Equation and explain its significance.

5B. Explain the role of Isomorphism in Co-Precipitation.

5C. What are the significant figures? Explain their importance.

5D. In diazotization titrations, how is the presence of excess of nitrous acid after the equivalence point by external indicator is determined?

5E. Define the terms: i) pH ii) Buffer capacity

(2×5 = 10 marks)