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Reg. No.										

MANIPAL UNIVERSITY

FIRST YEAR PHARM D. DEGREE EXAMINATION – MAY 2015

SUBJECT: PHA 1.1T: HUMAN ANATOMY AND PHYSIOLOGY

(2014 REGULATION)

Monday, May 04, 2015

Time: 10:00 – 13:00 Hrs. Max. Marks: 70

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

Long Answer Questions:

1. Discuss the neural and hormonal regulations of blood pressure.
2. Discuss factors affecting external respiration and its regulations.
3. Compare and contrast sympathetic and parasympathetic nervous systems.

(10 marks × 3 = 30 marks)

4. **Short Answer Questions:**

4A. Discuss the morphological structure, properties and functions of RBC.

(5 marks)

4B. Explain the sliding filament mechanism of skeletal muscle contraction.

(5 marks)

4C. Discuss any five functions of liver.

(5 marks)

4D. Describe, with a diagram, the structure of a nephron. Explain the mechanism of actions of antidiuretic hormone (ADH).

(3+2 = 5 marks)

4E. List the hormones of pituitary gland. Explain the functions of gonadotropin. How is its release regulated?

(5 marks)

4F. Discuss the regulation of pH of body fluids.

(5 marks)

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

5A. Contraction of uterus and the child birth is because of positive feedback mechanism.

5B. Heart beats about 100,000 times every day, which adds up to about 35 million beats in a year, and approximately 2.5 billion times in the average lifetime of a normal person but, it never becomes fatigued unlike skeletal muscles.

5C. When a bright light is flashed on the eye the pupil size decreases.

5D. Enteric nervous system is called as "brain of the gut".

5E. Spleen is called as grave yard of RBCs in adults.

(2 marks × 5 = 10 marks)

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MANIPAL UNIVERSITY

FIRST YEAR PHARM D. DEGREE EXAMINATION – MAY 2015

SUBJECT: PCE 1.2T: PHARMACEUTICS
(2014 REGULATION)

Wednesday, May 06, 2015

Time: 10:00 – 13:00 Hrs. Max. Marks: 70

✍ **Answer ALL the questions.**

✍ **Long Answer Questions:**

1. Compare and contrast Medical and surgical dusting powders, and Flocculated and deflocculated suspensions.
2. Define Galenicals. Explain briefly multiple maceration process. Explain the need of Size reduction and Moistening in a percolation process.
3. Define Prescription. Write in detail about the various parts of prescriptions.

(10 marks × 3 = 30 marks)

4. **Short Answer Questions:**

4A. Explain creaming and cracking of emulsions.
4B. Write short notes on cocoa butter and its uses.
4C. Explain sterilization by heat method for catgut.
4D. Enlist any five salient features of current Indian Pharmacopoeia (IP).
4E. What is therapeutic incompatibility? How do you overcome it?
4F. Calculate the percentage of zinc oxide in an ointment prepared by mixing 100 g of 8 %w/w ointment, 25 g of 10 %w/w ointment and 50 g of 4 %w/w ointment.

(5 marks × 6 = 30 marks)

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

5A. Why liniments should not be applied on broken skin?
5B. Why collodions are highly inflammable?
5C. Why throat paint should not be taken along with water?
5D. Why the branded formulations are more popular and costlier than the generic dosage forms?
5E. Age of the patient is an important factor for deciding the dose of a drug. Why?

(2 marks × 5 = 10 marks)

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MANIPAL UNIVERSITY

FIRST YEAR PHARM D. DEGREE EXAMINATION – MAY 2015

SUBJECT: PBT 1.3T: MEDICINAL BIOCHEMISTRY
(2014 REGULATION)

Friday, May 08, 2015

Time: 10:00 – 13:00 Hrs. Max. Marks: 70

✍ **Answer ALL questions.**

✍ **Draw neat labeled diagrams wherever necessary.**

✍ **LONG ESSAYS:**

1. Define gluconeogenesis. Explain how pyruvate and lactate serve as substrates for gluconeogenesis.
2. Discuss in detail the following:
   a) Atherosclerosis b) Obesity
3. Enlist various DNA damage and repair mechanisms. Discuss various types of mutations and its consequences.

(10 marks × 3 = 30 marks)

4. **Short Answer Questions:**

4A. Discuss the steps involved in Ornithine cycle.

4B. Give the enzyme defect, clinical manifestations, diagnosis and treatment associated with black urine disease.

4C. Write short notes on the following:
   i) Coenzymes ii) Nomenclature of enzymes

4D. Explain the Volhard's method used for estimation of chloride in body fluids.

4E. Explain the tests for assessing metabolic and detoxification functions of liver.

4F. Write a note on inhibitors of electron transport chain.

(5 marks × 6 = 30 marks)

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

5A. 'ATP acts as an energy link between catabolism and anabolism'. Justify.

5B. Why are ELISA and RIA called so?

5C. 'Increased anion gap occurs in renal failure'. Justify.

5D. Activation of fatty acid during β-oxidation is an irreversible step.

5E. Allopurinol is the drug of choice for the treatment of primary gout.

(2 marks × 5 = 10 marks)

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MANIPAL UNIVERSITY

FIRST YEAR PHARM D. DEGREE EXAMINATION – MAY 2015

SUBJECT: PCH 1.4T: PHARMACEUTICAL ORGANIC CHEMISTRY

(2014 REGULATION)

Wednesday, May 13, 2015

Time: 10:00 – 13:00 Hrs. Max. Marks: 70

✍ **Answer ALL the questions.**

✍ **Long Answer Questions:**

1A. Discuss with mechanism, nitration of bromobenzene.

1B. What are intermolecular forces?

(8+2 = 10 marks)

2A. Explain the theory of orientation and reactivity of alkenes in free radical substitution.

2B. Give any four methods of preparations of cycloalkanes.

(5+5 = 10 marks)

3. Give the method of preparation, assay and uses of the following:

a) Salicylic acid b) Benzyl benzoate

(10 marks)

4. **Short Answer Questions:**

4A. List out the solvents used for nucleophilic substitution reactions. Propose a suitable solvent for S_N2 reactions, giving justification.

4B. What is hyperconjugation? What is its effect on the stabilization of alkyl radical?

4C. Differentiate the mechanism between E1 and E2. Give any two evidences for each reaction.

4D. Explain the reaction mechanism involved in the preparation of β-hydroxy butyraldehyde.

4E. Explain the bimolecular displacement mechanism in nucleophilic aromatic substitution reactions.

4F. Explain with mechanism the Michael addition reaction.

(5 marks × 6 = 30 marks)

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

5A. Tertiary and secondary alkyl halides are the best substrates for E1 reactions

5B. Trans-2-butene is more stable than cis-2-butene

5C. Bute-2-ene does not undergo Markovnikov's addition with HBr

5D. Ethane is a gas, where as hexane is a liquid at room temperature

5E. Toluene is a moderate ortho- and para- directing activator

(2 marks × 5 = 10 marks)

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MANIPAL UNIVERSITY

FIRST YEAR PHARM D. DEGREE EXAMINATION – MAY 2015

SUBJECT: PD 1.4: PHARMACEUTICAL ORGANIC CHEMISTRY
(OLD REGULATION)

Wednesday, May 13, 2015

Time: 10:00 – 13:00 Hrs. Max. Marks: 70

✍ **Answer all questions.**

✍ **Long Essays:**

1A. Explain the mechanism involved in nucleophilic addition of Amines to Aldehydes and Ketones.

1B. Explain the mechanism involved in Wolf-Kishner reduction.

(5+5 = 10 marks)

2A. Discuss in detail the effect of substituent groups on electrophilic aromatic substitution.

2B. Give the mechanism involved in the halogenation of benzene.

(5+5 = 10 marks)

3. Give method of preparation and uses of following:

i) Chlorobutol ii) Mephensin iii) Aspirin iv) Methyl Salicylate

(2½ marks × 4 = 10 marks)

4. **Short Essays:**

4A. Write briefly on unimolecular and bi molecular eliminations.

4B. Explain 1,2 and 1,4 addition of conjugated dienes.

4C. Explain the role of pyridinium chlorochromate (PCC) in the oxidation of alcohols.

4D. Write a note on hydrogen bonding and inter molecular forces.

4E. How will you convert phenol to salicylic acid? Explain.

4F. Explain the mechanism involved in Perkins reactions.

(5 marks × 6 = 30 marks)

5. **Short Answers:**

5A. Write the structural formula of: i) 2- chloro-3-methyl pentane ii) 1-chloro-2-butene

5B. How will you convert allyl alcohol to Dimercaprol?

5C. What are ring deactivators? How will you classify them?

5D. Carboxylic acids are unreactive towards nucleophilic acyl substitution. Why?

5E. How will you assay Citric acid?

(2 marks × 5 = 10 marks)

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MANIPAL UNIVERSITY

FIRST YEAR PHARM D. DEGREE EXAMINATION – MAY 2015

SUBJECT: PD 1.5: PHARMACEUTICAL INORGANIC CHEMISTRY
(NEW REGULATION – 2013-14 BATCH)

Monday, May 11, 2015

Time: 10:00 – 13:00 Hrs. Max. Marks: 70

✍ **Answer ALL the questions.**

✍ **Long Essay Questions:**

1. Define acidifiers. Give the preparation and uses of Ammonium chloride. Explain the principle involved in the limit test for sulphates and give the reaction equation. What modification has to be adopted for sodium benzoate?
2. Give the method of preparation, assay and uses of calcium carbonate. Explain mucosal block hypothesis of iron absorption. Mention the uses of Potassium permanganate.
3. Define Germicides, Sanitizers, Disinfectants. Explain the three mechanism of action of antimicrobial agents. Give the preparation and assay of potassium permanganate.

(10 marks × 3 = 30 marks)

4. **Short Essay Questions:**

4A. Explain the two theories of indicators with an example.
4B. Explain Fajan's method of precipitation titrations.
4C. Define antidotes. Give the preparation and assay of Sodium thiosulphate.
4D. Define titrant and titrand. What are the primary requirements of a titrimetric analysis?
4E. Give the preparation of Oxygen and Carbon dioxide.
4F. What are the advantages offered by titration in non-aqueous media?

(5 marks × 6 = 30 marks)

5. **Short Answers Questions:**

5A. List out various steps involved in the gravimetric method of analysis.
5B. List out two major differences between absolute error and relative error.
5C. List out the constituents of oral rehydration salts.
5D. Give any two physiological roles of Iodine.
5E. Define Laxatives with suitable example.

(2 marks × 5 = 10 marks)

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MANIPAL UNIVERSITY

FIRST YEAR PHARM D. DEGREE EXAMINATION – MAY 2015

SUBJECT: PCH 1.5T: PHARMACEUTICAL INORGANIC CHEMISTRY

(2014 REGULATION)

Monday, May 11, 2015

Time: 10:00 – 13:00 Hrs. Max. Marks: 70

✍ **Answer ALL the questions.**

✍ **Long Answer Questions:**

1. With reactions, explain the principle involved in the limit test for Iron.
   Give the preparation and assay of Sodium citrate.
   List out four important physiological roles of Iron.

2. Explain the various steps involved in the Gravimetry.
   Give the preparation, assay and uses of aluminium sulphate.

3. Give the preparation and assay of nitrous oxide.
   Give the preparation and assay of Sodium bicarbonate.
   Classify dental products with suitable examples.

(10 marks × 3 = 30 marks)

4. **Short Answer Questions:**

4A. Define half-life. Give precautions for handling radiopharmaceuticals.
4B. Explain the quinonoid theory of indicators with an example.
4C. Give the preparation, assay and use of Zinc chloride.
4D. Define antidotes. Write the preparation and assay of Sodium nitrite.
4E. Explain three theories of acids and bases along with their limitations.
4F. Explain Fajan's method of precipitation titrations.

(5 marks × 6 = 30 marks)

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

5A. Acetic anhydride is used in the preparation of Perchloric acid.
5B. Lead acetate cotton is used in the limit test for arsenic.
5C. Ammonia ammonium chloride buffer is used in complexometry.
5D. Chromium is an essential and trace element.
5E. ORS is given in the case of dehydration.

(2 marks × 5 = 10 marks)