

MANIPAL UNIVERSITY

FIRST YEAR PHARM D. DEGREE EXAMINATION – MAY 2011

SUBJECT: PD 1.1: HUMAN ANATOMY AND PHYSIOLOGY

Monday, May 02, 2011

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ **Answer all the questions.**

✍ **Long essay:**

1. Discuss the internal anatomy of heart with a labeled diagram. Describe different mechanism of blood pressure regulation. (5+5 = 10 marks)
2. Draw a diagram of stomach and label it. Explain about different layer of stomach. Discuss the functions of different specialized cells seen in mucosa of stomach. (4+2+4 = 10 marks)
3. What is the role of FSH, LH, testosterone and inhibin in the male reproductive system? How is secretion of these hormones controlled? (10 marks)

4. **Short Essays:**

- 4A. With a flow chart explain the formation of blood cells. (5 marks)
- 4B. Explain excitation-contraction coupling in skeletal muscle. (5 marks)
- 4C. Discuss any three functions of hypothalamus. Explain any two differences between somatic and autonomic nervous system. (3+2 = 5 marks)
- 4D. Explain the formation, circulation and any two functions of cerebrospinal fluid. (1+3+1 = 5 marks)
- 4E. Discuss about renin-angiotensin-aldosterone mechanism of kidney as a regulatory function. (5 marks)
- 4F. Explain any five contraceptive methods. (5 marks)

5. **Short Answers:**

- 5A. What is the function of iris and pupil in the eye? (2 marks)
- 5B. List the respiratory muscles. (2 marks)
- 5C. What is the main difference between female and male in athletes performance? (2 marks)
- 5D. Write about different layers of skin. What is the function of melanocyte? (1½+½ = 2 marks)
- 5E. List any four functions of plasma membrane. (2 marks)



MANIPAL UNIVERSITY**FIRST YEAR PHARM D. DEGREE EXAMINATION – MAY 2011****SUBJECT: PD 1.2: PHARMACEUTICS**

Wednesday, May 04, 2011

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

Answer ALL the questions.**Long Essays:**

1. Define incompatibility. Classify incompatibilities with suitable examples. Write a note on physical incompatibility.
2. Define "Extraction". Explain simple percolation process for extraction of drugs.
3. Define suppositories. Write its advantages and disadvantages. Explain the moulding method for preparation of suppositories.

(10×3 = 30 marks)

Short Essays:

- 4A. Write the historical background and development of profession of pharmacy in India.
- 4B. Define liniment. Give the method of preparation of turpentine liniment IP.
- 4C. Prepare 5000ml of 20% w/v sucrose solution from 40% w/v sucrose solution.
- 4D. Write a short note on classification of dosage forms.
- 4E. Explain various methods of sterilization of catgut.
- 4F. Differentiate O/W and W/O type of emulsions.

(5×6 = 30 marks)

Short Answers:

- 5A. Mention different parts of prescription.
- 5B. Difference between tincture and spirits.
- 5C. Define suspension and lotion.
- 5D. Give four examples for antioxidants.
- 5E. Define hypertonic and hypotonic solution.

(2×5 = 10 marks)



MANIPAL UNIVERSITY**FIRST YEAR PHARM D. DEGREE EXAMINATION – MAY 2011****SUBJECT: PD 1.3: MEDICINAL BIOCHEMISTRY**

Friday, May 06, 2011

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ **Answer ALL Questions.**

✍ **Long Essay:**

1. Explain in detail gluconeogenesis pathway.
2. Explain the process of initiation, elongation and termination of mRNA synthesis.
3. Explain in detail synthesis and utilization of ketone bodies.

(10×3 = 30 marks)

4. **Short Essays:**

- 4A. Explain pathway for the synthesis of bile pigments from HEME.
- 4B. Enlist the factors affecting enzyme activity. Explain any two with examples.
- 4C. Explain chemical coupling hypothesis and chemiosmotic hypothesis of oxidative phosphorylation.
- 4D. Explain the principle involved in urea clearance test with respect to kidney function test.
- 4E. What is hypercholesterolemia? Explain the principle involved in the determination of total cholesterol by Zak's method.
- 4F. Explain the physiological functions of sodium and potassium.

(5×6 = 30 marks)

5. **Short Answers:**

- 5A. Mention the function of ligase and topoisomerase enzymes.
- 5B. Define transmethylation reaction, with an example.
- 5C. What is malate shuttle?
- 5D. What is endocytosis? Give an example.
- 5E. Give examples of any four liver enzymes.

(2×5 = 10 marks)



MANIPAL UNIVERSITY

FIRST YEAR PHARM D. DEGREE EXAMINATION – MAY 2011

SUBJECT: PD 1.4: PHARMACEUTICAL ORGANIC CHEMISTRY

Monday, May 09, 2011

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ **Answer all Questions.**

✍ **Long Essays.**

1. Give the method of preparation and uses of the following:

- | | |
|-----------------------|-----------------------|
| i) Benzyl benzoate | ii) Lactic acid |
| iii) Saccharin sodium | iv) Methyl salicylate |

(10 marks)

2A. Discuss the mechanism of Friedel Craft's alkylation and acylation of benzene.

2B. Discuss in detail the theory of orientation in electrophilic aromatic substitution.

(5+5 = 10 marks)

3A. Explain the mechanism for E₁ and E₂ reactions and list the differences between them.

3B. Discuss hydrogen isotope effect in E₂ reaction.

(7+3 = 10 marks)

4. **Short Essays:**

4A. Discuss the *ortho*-, *meta*- and *para*- attack of an electrophile on phenol with reactions.

4B. Discuss the mechanism involved in the reduction of acids to alcohols.

4C. Explain the role of solvents in nucleophilic substitution reactions of alkyl halides.

4D. How will you convert: i) Allyl alcohol to Dimercaprol ii) Acetone to Chlorbutol.

4E. Explain the Basicity of pyridine, pyrrole and piperidine. Which is more basic and Why?

4F. Explain the following reactions with mechanism:

- | | |
|----------------------------|------------------------|
| i) Reimer-Tiemann reaction | ii) Aldol condensation |
|----------------------------|------------------------|

(5×6 = 30 marks)

5. **Short Answers.**

5A. Why is the boiling point of *n*-butyl alcohol much higher than that of diethyl ether?

5B. Define Dipole moment. Indicate the dipole moment of H₂O.

5C. Draw the structural formula for the following: a) 2-Methyl-1-butene b) 5-Oxohexanoic acid.

5D. How will you prepare Ethylene diamine?

5E. Give the uses of Methyl salicylate and Urea.

(2×5 = 10 marks)



MANIPAL UNIVERSITY

FIRST YEAR PHARM D. DEGREE EXAMINATION – MAY 2011

SUBJECT: PD 1.5: PHARMACEUTICAL INORGANIC CHEMISTRY

Wednesday, May 11, 2011

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ **Long Essays:**

- 1A. What is an antacid? Classify them by giving examples.
 1B. Explain the method of preparation and principle involved in the assay of Magnesium hydroxide. (2+(4+4) = 10 marks)
- 2A. Define saline cathartic with example. How saline cathartic acts?
 2B. Write the method of preparation and the principle involved in the assay of magnesium sulphate. (2+(4+4) = 10 marks)
- 3A. Explain the principle involved in the limit test for Arsenic, with reactions.
 3B. Describe the Gutzeit's apparatus with a neat labeled diagram. (5+5 = 10 marks)

4. **Short Essays:**

- 4A. Give the preparation, assay and use of Zinc Oxide.
 4B. Write a note on redox titrations. Mention few redox indicators.
 4C. What is Kaolin chemically? Mention its use. How do you test for its purity?
 4D. Give the applications of radiopharmaceuticals.
 4E. Write the principle and reactions involved in the limit test for heavy metals.
 4F. Write a note on:
 i) Ringer lactate infusion
 ii) Gravimetry. (5×6 = 30 marks)

5. **Short Answers:**

- 5A. What are the advantages of combination therapy of antacids?
 5B. Write the difference between Aluminium hydroxide and Dried Aluminium hydroxide.
 5C. Give one example each for the following:
 i) Dentifrice ii) Sedative iii) Emetic iv) Lubricant
 5D. Complete and balance the following equations

$$\text{AgNO}_3 + \text{NH}_4\text{SCN} \longrightarrow$$

$$\text{Al}(\text{OH})_3 + \text{HCl} \longrightarrow$$

 5E. How Sodium thiosulphate helps in the treatment of cyanide poisoning? (2×5 = 10 marks)



Manipal College of Pharmaceutical Sciences
Manipal University, Manipal
First year Pharm. D- Annual Examinations-April/May 2011
Subject: PD 1.6 Remedial Mathematics

Date: 29-04-2011

Time: 10.00 am – 01.00 pm.

Max. Marks: 70

Answer All the questions. Use log tables If required.

I. Long Essay. 3×10 = 30 marks

1. (a) Verify Cayley-Hamilton theorem for the matrix $A = \begin{pmatrix} 1 & 3 \\ 4 & 7 \end{pmatrix}$ and hence find the inverse of A.
1. (b) Find $\frac{dy}{dx}$, given that $\sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = a$ where 'a' is a constant.
2. (a) The equation of the line is $3x - 4y + 12 = 0$. It meets the x-axis at point A and the y-axis at point B. Find:
 - i) The coordinates of points A and B
 - ii) The slope of AB
 - iii) The length of AB.
2. (b) Differentiate $(\sin x)^x + x^{\sin x}$ w. r. to. 'x'
3. (a) Evaluate: $\int_0^{\pi/2} \frac{dx}{1 + \cot^3 x}$
- 3 (b) A circle has its centre on the x – axis and passes through (5, 1) and (3, 4). Find its equation.

II. Short Essay. 6×5 = 30 marks

4. Prove that $\int_0^a f(x) dx = \int_0^a f(a-x) dx$
5. Prove that the points A (1, -3), B (-3, 0) and C (4, 1) are the vertices of an isosceles right angled triangle. Find the area of the triangle.
6. Find the angle between the lines $2x - y + 3 = 0$ and $x - 3y + 2 = 0$.
7. Define continuity of a function. If $f(x) = \begin{cases} \frac{x^2 - 256}{x - 4} & \text{if } x \neq 4 \\ k & \text{if } x = 4 \end{cases}$ find k, given that f(x) is continuous at $x = 4$

8. Evaluate : $\lim_{n \rightarrow \infty} \left(\frac{1}{1-n^2} + \frac{2}{1-n^2} + \frac{3}{1-n^2} + \dots + \frac{n}{1-n^2} \right)$

9. Evaluate $\int x \log x dx$.

III. Short Answers. 5×2 =10 marks

10. Define symmetric and skew-symmetric matrices.

(2 marks)

11. A circle has its centre on the x – axis and passes through (5, 1) and (3, 4). Find its equation.

(2 marks)

12. If $f(x) = \sqrt{\sin \sqrt{x}}$, find $f'(x)$

(2 marks)

13. From the differential equation from $\sin^{-1} x + \sin^{-1} y = cx$ where c is a parameter

(2 marks)

14. Evaluate: $\int \sin^2 x \cos^2 x dx$

Manipal College of Pharmaceutical Sciences
Manipal University, Manipal
First year Pharm. D- Annual Examinations-April/May 2011
Subject: PD 1.6 Remedial Biology

Date: 29-04-2011

Time: 10.00 am – 01.00 pm.

Max. Marks: 70

Answer All the questions. Draw neat labelled diagrams wherever necessary.

I. Long Essay. (3×10 = 30 marks)

1. Describe the digestive system of frog and add a note on physiology of digestion.
2. Explain the photosynthesis process in plant.
3. Draw neat and well labeled diagrams of different types of shapes of lamina and leaf modification.

II. Short Essay. (6×5 = 30 marks)

4. Define fruit. Give the schematic representation of classification of fruits.
5. What do you know about muscular tissue? Draw a neat diagram of it.
6. Give the characters of the class mammalian.
7. Give an account of non-living cell inclusions.
8. What is venom? Write a note on symptoms of snake bite and its diagnosis and treatment.
9. Write a note on medicinal importance of pisces.

III. Short Answers. (5×2 =10 marks)

10. Aestivation
11. Legume or pod
12. Ciliated epithelium
13. Leaves
14. Lysosomes