

**Manipal College of Pharmaceutical Sciences
Manipal University, Manipal
I Year B Pharm Annual Examination April 2015
Subject: MAT 101 Mathematics
(Revised Regulations)**

Date: 25.04.2015

Time: 10 am – 1.00 pm

Max. Marks: 70

Instructions: Answer ALL questions.

I. Long Essay Questions (3 x 10 marks = 30 marks)

1A. Find the adjoint of $\begin{bmatrix} 1 & 2 & 2 \\ 1 & 3 & 4 \\ 1 & 4 & 3 \end{bmatrix}$ 4 marks

1B. Find the equation of the circle passing through these points (1,1) (-2, 2) (-6, 0) 4 marks

1C. Show that the points (2, 4) (2, 6) $(2+\sqrt{3}, 5)$ are the vertices of an equilateral triangle 2 marks

2A. Solve by Cramer's Rule 5 marks
 $2x - y + z = 2$ $x + 2y - z = 2$
 $x + y - 2z = 0$

2B. Find the equation of the sides formed by the points (-3, 7) (7,9) and (-3, 3) of a triangle 5 marks

3A. Differentiate i) $\cos x$ and ii) difference of two functions of x w.r.t x from first principles 3+2= 5 marks

3B. Differentiate the following w.r.t x i) $\tan^{-1}x$ ii) x^x iii) $\sqrt{1-x^2}$ iv) $(1-x+x^2)^3$ $1\frac{1}{2} + 1\frac{1}{2} + 1 + 1 = 5$ marks

II. Short Essay Questions (6x5 marks = 30 marks)

4A. Find the characteristic equation and roots of the matrix $\begin{bmatrix} 1 & 2 \\ 2 & 1 \end{bmatrix}$ 3 marks

4B. If $A = \begin{bmatrix} 2 & -3 \\ 4 & 5 \end{bmatrix}$ find $\det A^{-1}$ 2 marks

5A. If $A = \begin{bmatrix} 1 & 3 \\ 1 & 0 \end{bmatrix}$ prove that $A^2 - A - 3I = 0$ 3 marks

5B. ABC is a triangle in which A (0,2) and B(4, 0) If (4,4) is the midpoint of AC, what is mid point of BC? 2 marks

6. Find i) $\lim_{x \rightarrow 2} \frac{x^3 + 8}{x + 2}$ ii) $\lim_{x \rightarrow 0} \frac{e^x - 1}{x}$ iii) $\lim_{x \rightarrow 2} \frac{x^2 - 4}{\sqrt{x+2} - \sqrt{3x-2}}$ 1+2+2=5 marks

7A. Show that the equation $x^2 + y^2 + 2gx + 2fy + c = 0$ always represents a circle 3 marks

7B. Derive an equation for slope of a line passing through 2 points 2 marks

8. Prove that the points (8, 4) (5, 7) (-1, 1) and (2, -2) form a rectangle. Find its area. 5 marks

9A. If $A = \begin{bmatrix} -1 & 2 \\ 2 & 4 \end{bmatrix}$ $B = \begin{bmatrix} 3 & 5 \\ 6 & -7 \end{bmatrix}$ show that $AB^T = B^T A^T$

9B. Find the angle between the lines $5x + 6y - 1 = 0$ and $x - 11y + 8 = 0$

III. Short Answer Questions (5 x 2 = 10 marks)

10. Find $\lim_{\theta \rightarrow 0} \frac{1 - \cos \theta}{\theta}$

11. Solve for x $\begin{vmatrix} 2 & -3 & 1 \\ x & 2 & 5 \\ 1 & 3 & 4 \end{vmatrix} = 0$

12. If $A = \begin{bmatrix} 9 & -8 & 7 \\ -6 & 5 & -4 \\ 3 & -2 & 1 \end{bmatrix}$ $B = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ find AB

13. Show that the lines $4x + 8y - 1 = 0$ and $2x - y + 1 = 0$ are perpendicular.

14. Find the equation of the circle if the ends of the diameter are (-3, 6) and (1, -2)

Manipal College of Pharmaceutical Sciences
Manipal University, Manipal
I Year B.Pharm Annual Examination, April 25, 2015
Subject: PCO 101T. Biology

Date: 25-04-2015

Time: 10:00 am - 13:00 hrs

Max. Marks: 70

Instructions: Answer ALL questions.

(Draw neat labelled diagrams wherever necessary)

Section A. Long Essay Questions

(3x10=30 marks)

1. Differentiate monocotyledons from dicotyledons and meristematic from permanent tissues.
2. Describe the digestive system of frog and add a note on digestion, absorption and assimilation.
3. Describe different parts of a maize seed. Define endospermic, non-endospermic and descriptive terms of seed.

Section B. Short Essay Questions

(6x5= 30 marks)

4. Give distinguishing characters of family Liliaceae.
5. Write general characters of class Mammalia.
6. Define phyllotaxy and mention various types .
7. Give an account of excretory system in the frog.
8. Describe various parts of an Angiospermic plant with a well labeled diagram.
9. Describe the pulmonary respiration in frog.

Section C. Give reasons for the following

(5× 2= 10 marks)

10. Hypogynous flower differs from epigynous flower.
11. Function of endoplasmic reticulum differs from that of plasma membrane.
12. Function of respiratory roots is not same as that of other roots.
13. Sinoauricular valve differs from auriculoventricular valve.
14. Reflex action is involuntary.

**Manipal College of Pharmaceutical Sciences
Manipal University, Manipal**

First Year BPharm Annual Examinations, April 2015

Subject: PCE 106. Computer Science and Statistics

Date: 27-04-2015

Time: 10:00 am - 1:00 pm

Max. Marks: 50

Instructions: Answer ALL questions.

I. Long Essay Questions (3 × 8 marks = 24 marks)

1. Discuss the generations of computers. 8 marks
2. Discuss the features of MS-Word 8 marks
3. Find mean deviation for the following data; 8 marks

C.I	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110
f	15	18	22	24	26	32	39	35

II. Short Essay Questions (4 × 4 marks = 16 marks)

4. Mention the applications of Internet. 4 marks
5. Describe the steps to create a graph in MS-Excel 4 marks
6. Draw frequency polygon and histogram for the following data. 4 marks

Class interval	Frequency
<20	12
<40	10
<60	11
<80	14
<100	09

7. Find the geometric mean 4 marks

x	110	115	118	119	120
f	4	11	21	6	2

III. Short Answer Questions (5 × 2 marks = 10 marks)

8. Mention FOUR features of Operating System. 2 marks
9. What are the features of MS-PowerPoint? 2 marks
10. What are the parts of a digital computer? 2 marks
11. Define the types of correlation. 2 marks
12. What is the relation between correlation coefficient and regression? 2 marks

"End of question paper"

MANIPAL UNIVERSITY

FIRST YEAR B. PHARM. DEGREE EXAMINATION – MAY 2015

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

Monday, May 04, 2015

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ **Answer ALL the questions.**

✍ **Long Answer Questions:**

1. Describe hemostasis. Explain the intrinsic and extrinsic pathways of blood coagulation.
(4+6 = 10 marks)
2. Write the details of the microscopic anatomy of ovary. Correlate the events of uterine cycle with the events of ovarian cycle in the female reproductive system.
(10 marks)
3. Compare and contrast sympathetic and parasympathetic nervous systems.
(10 marks)

4. **Short Answer Questions:**

- 4A. Explain baroreceptor and chemoreceptor mechanisms of blood pressure regulation.
- 4B. Discuss the neural regulation of respiration.
- 4C. Explain the phases of digestion and absorption.
- 4D. With a flow chart, explain the organization of nervous system.
- 4E. Enumerate the mechanisms of reabsorption and secretion in renal tubules.
- 4F. Discuss the functions of oxytocin and ADH.
(5 marks × 6 = 30 marks)

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

- 5A. Blood cells kept in hypotonic solution burst and rupture.
- 5B. Male urethra is lengthier than the female urethra.
- 5C. Hormones, FSH and LH, differ in functions in male and female though they are present in both.
- 5D. Copper-T contraceptive device is the most appropriate after first pregnancy.
- 5E. A small amount of methyl mercaptan is added to natural gas cylinder used for cooking.
(2 marks × 5 = 10 marks)



MANIPAL UNIVERSITY

FIRST YEAR B. PHARM. DEGREE EXAMINATION – MAY 2015

SUBJECT: BIOCHEMISTRY (PBT 103T)
(2014 REGULATION)

Wednesday, May 06, 2015

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ Answer ALL the questions.

✍ Long Essay Questions:

1. Define gluconeogenesis. Explain how gluconeogenesis takes place from pyruvate.
2. Explain in detail the following:
a) Obesity b) Atherosclerosis
3. Define mutation. Explain various types and its consequences. Add a note on the types of DNA damage.

(10 marks × 3 = 30 marks)

4. Short Essay Questions:

- 4A. Define enzymes. Enlist their properties and write briefly on their nomenclature.
- 4B. Explain the effect of temperature and pH on enzyme activity.
- 4C. Explain in detail the synthesis of HEME from succinyl CoA.
- 4D. Discuss in detail the urea cycle.
- 4E. Write short notes on folic acid.
- 4F. 'Primary gout is a metabolic disorder'. Justify.

(5 marks × 6 = 30 marks)

5. Give reasons for the following:

- 5A. Peripheral membrane proteins can easily be separated from the membrane.
- 5B. ATP is the connecting link between anabolism and catabolism.
- 5C. Deficiency of uroporphyrinogen I synthase causes acute intermittent porphyria.
- 5D. Cause for primary hyperoxaluria.
- 5E. Ketone bodies are not utilized by liver.

(2 marks × 5 = 10 marks)



MANIPAL UNIVERSITY

FIRST YEAR B. PHARM. DEGREE EXAMINATION – MAY 2015

SUBJECT: PHARMACEUTICAL ANALYSIS-I (PQA 104T)
(2014 REGULATION)

Friday, May 08, 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. Explain various correction factors employed in calibration of a glass apparatus.
2. Write a note on indicator errors in neutralization titrations.
3. What are Iodometry titration and Iodimetry titrations? Explain the conditions involved in the Iodometric determination.

(10 marks × 3 = 30 marks)

4. Short Answer Questions:

- 4A. Explain different types of masking. (5 marks)
- 4B. Explain principle of Volhard's method for the estimation of chloride. (5 marks)
- 4C. Explain the steps of gravimetry in brief. (5 marks)
- 4D. How to prepare 10L of 0.045M phosphate buffer of pH 7.5? pKa is 7.2. (5 marks)
- 4E. List the ideal characteristic of quality drug and explain the principle of the limit test for chloride. (5 marks)
- 4F. i) Name the solvent, titrant and indicator used for assaying weak acidic and weak basic drug by non- aqueous titrations.
ii) Explain the detection of end point in diazotization titration using external indicator. (3+2 = 5 marks)

5. Short Answer Questions:

- 5A. Why Mohr's method for the estimation chloride is to be carried out in neutral condition?
- 5B. Express the following result in correct number of significant figures:

i)
$$\frac{35.63 \times 0.5418 \times 0.0530 \times 100}{1.1688} =$$

$$\begin{array}{r} \text{ii) } 6.6 \\ +18.74 \\ +0.766 \\ \hline \hline \end{array}$$

- 5C. Why thioglycollic acid added in limit test for iron?
- 5D. Why HCl is avoided in titration of FeSO_4 against potassium permanganate?
- 5E. Why acetic anhydride used in the preparation of standard acetous perchloric acid?

(2 marks \times 5 = 10 marks)



MANIPAL UNIVERSITY

FIRST YEAR B. PHARM. DEGREE EXAMINATION – MAY 2015

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

Friday, May 08, 2015

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

✍ **Answer all the questions.**

✍ **Long Essays:**

- 1A. Explain the preparation and assay of Sodium hypochlorite.
1B. Give method of preparation of Sodium metaphosphate and Hydrogen peroxide. (4+4 = 8 marks)
- 2A. Explain the method of determination of acid neutralizing capacity of antacids.
2B. Write in detail about the assay of:
i) Sodium acid phosphate ii) Sodium bicarbonate (4+4 = 8 marks)
- 3A. What is Pharmacopoeia? List down different pharmacopoeias.
3B. Give two identification tests and uses of oxygen.
3C. Give the composition of Barium sulphate reagent mentioning their role in the limit test. (3+3+2 = 8 marks)

4. **Short Essays:**

- 4A. Give principle involved in the limit test for iron giving reactions. (4 marks)
4B. Give the preparation and assay of ferrous sulphate. (4 marks)
4C. How will you prepare the following?
i) Sodium bromide ii) Ammonium chloride (2+2 = 4 marks)
4D. Explain in detail the method of preparation and assay of Magnesium carbonate. (4 marks)

5. **Short Answers:**

- 5A. Give the storage conditions for the following:
i) Ammonium chloride ii) Magnesium chloride
5B. Draw the structures and mention use of following:
i) Calcium gluconate ii) Sodium lactate
5C. Define Radioactive decay with equation.
5D. Give the uses and physical properties of Titanium dioxide.
5E. Give the therapeutic applications of Radioisotopes. (2 marks × 5 = 10 marks)



MANIPAL UNIVERSITY

FIRST YEAR B. PHARM. DEGREE EXAMINATION – MAY 2015

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

Monday, May 11, 2015

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ Answer ALL the questions.

✍ Long Answer Questions:

1A. Discuss about chlorination of nitrobenzene with mechanism.

1B. Give the specific uses of N-bromosuccinimide in organic synthesis.

(6+4 = 10 marks)

2A. What are carbenes? How are they generated? Explain the applications.

2B. What is Crossed Cannizzaro reaction? Explain with mechanism.

(5+5 = 10 marks)

3A. Write a note on Bronsted Lowry and Lewis theory of acids and bases.

3B. Mention the steps involved in the conversion of a D and L configuration to R and S configuration.

(6+4 = 10 marks)

4. Short Answer Questions:

4A. Classify the solvents used in nucleophilic substitution reactions. Propose an ideal solvent for S_N2 reactions. Justify.

4B. What is Zaitsev's rule? Explain with example.

4C. What is hyperconjugation? Explain the stabilisation of alkyl radical with proper illustrations.

4D. What are carbonyl compounds? Explain two methods of preparation and reactions of ketones.

4E. Explain two methods of preparation of phenols.

4F. Explain the mechanism of 1,4 and 1,2 addition of conjugated dienes.

(5 marks \times 6 = 30 marks)

5. Give reasons for the following:

5A. The dipole moment of NF_3 is lesser than NH_3 .

5B. Sodium chloride has high melting point.

5C. In the presence of peroxide, HI does not give anti-markovnikov's product.

5D. Sodium borohydride is a selective reducing agent.

5E. Strong base is used in E2 reactions.

(2 marks \times 5 = 10 marks)



MANIPAL UNIVERSITY**FIRST YEAR B. PHARM. DEGREE EXAMINATION – MAY 2015****SUBJECT: PHARMACOGNOSY-I (PCO 106T)
(2014 REGULATION)**

Wednesday, May 13, 2015

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ **Answer ALL the questions.**

✍ **Long Answer Questions:**

- 1A. What are lipids? Classify them with examples.
1B. Write general account of fixed oil. Describe the chemical test for the same.
(5+5 = 10 marks)

- 2A. Briefly explain polyploidy and hybridization with its applications.
2B. Abscisic acid
(8+2 = 10 marks)

3. What are carbohydrates? Classify with examples. Give important identification tests.
(1+5+4 = 10 marks)

4. **Short Answer Questions:**

- 4A. What are stomata? Classify with examples.
4B. Source, Chemical constituents, chemical tests and uses of pale catechu
4C. Chemical classification of crude drugs with examples
4D. What are proteins? Write various general tests for proteins
4E. Add a note on Ash values
4F. Write a short note on Cotton
(5 marks × 6 = 30 marks)

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

- 5A. Agar answers Barium chloride test
5B. Skilled workers are required for collection of crude drugs
5C. Day length and day light affects the cultivation of crude drugs
5D. Natural drying is preferred over artificial one for cardamom
5E. Fehling's test is positive for acacia
(2 marks × 5 = 10 marks)



MANIPAL UNIVERSITY

FIRST YEAR B. PHARM. DEGREE EXAMINATION – MAY 2015

SUBJECT: ENVIRONMENTAL SCIENCE AND ETHICS (PMA 107T) (2014 REGULATION)

Friday, May 15, 2015

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ **Answer ALL the questions.**

✍ **Long Answer Questions:**

1. What are the causal factors of threat to biodiversity? Describe. Write a note on ex-situ and in-situ strategies of biodiversity conservation.
2. How can we move from unsustainable to sustainable development? What are the causes of unsustainable development? Explain measures for true sustainable development.
3. Discuss how pragmatism influences ethics practice.

(10 marks × 3 = 30 marks)

4. Short Answer Questions:

- 4A. Explain how moral rights and legal rights to healthcare differ.
- 4B. State what rights patients possess.
- 4C. What are the problems associated with Natural Resources? Explain.
- 4D. Discuss in detail Producers, Consumers and Decomposers as a part of ecosystem.
- 4E. Discuss various causes of Soil Pollution. How to control soil pollution?
- 4F. Write a brief note on environmental issues such as equity, nutrition and health, and intellectual property rights and community biodiversity registers, linked to human rights.

(5 marks × 6 = 30 marks)

5. Give Reasons for the Following:

- 5A. What is Fidelity?
- 5B. Write a brief note on distributive justice.
- 5C. Write a note on principle of Beneficence
- 5D. What are Teleological (consequentialist) theories?
- 5E. Productive/Aesthetic/Option value of nature.

(2 marks × 5 = 10 marks)

