Manipal College of Pharmaceutical Sciences
Manipal University, Manipal
First year BPharm Annual Examinations-April 2013
Subject: MAT 101 Mathematics

Date: 26-04-2013
Time: 10.00 am – 1.00 pm   Max Marks: 50

Answer **ALL** the questions

I. Long Essays. ((3×8= 24 marks)

1A.   Find the centre and radius of the circle $3x^2 + 3y^2 - 6x + 27y - 2 = 0$.(2 Marks)

1B.   Find the derivative of $\log x$ with respect to x from first principle. (4 Marks)

1C.   Evaluate (i) $\int \tan^4 x\, dx$ (ii) $\int \sqrt{1 + \cos x}\, dx$. (4 Marks)

2A.   A circle has its centre on the x-axis and passes through (5,1) and (3,4). Find its equation.
(3 Marks)

2B.   Solve the equation using matrix method
$$\begin{aligned} x - y - 2z &= 3 \\ 2x + y + z &= 5 \\ 4x - y - 2z &= 1 \end{aligned}$$
.(7 Marks)

3A.   Solve the integral by substitution Method, $\int \sqrt{a^2 - x^2}\, dx$. (4 Marks)

3B.   If $A = \begin{bmatrix} 2 & 3 & 2 \\ 1 & 0 & 0 \\ 2 & 0 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} -1 & 2 & 1 \\ 2 & 3 & 4 \\ 1 & -2 & 3 \end{bmatrix}$, Find AB.   (6 Marks)

(P.T.O)

II. Short Essays (4×4=16 marks)

4. Find the equation of the circle passing through the points (0,1),(2,3) and (-2,5).

5. If $A = \begin{bmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{bmatrix}$, Show that $A^2 = 3A$.

6. Find $\dfrac{dy}{dx}$ where $y = \sqrt{\dfrac{a^2 - x^2}{a^2 + x^2}}$.

7. Evaluate: (i) $\lim_{x \to 5} \dfrac{\sqrt[3]{x} - \sqrt[3]{5}}{\sqrt{x} - \sqrt{5}}$ (ii) $\lim_{x \to 0} \dfrac{3^x - 1}{\sqrt{x+1} - 1}$.

III. Short Answers (5×2=10 marks)

8. Give the equation of the straight line passing through two points (X_1, Y_1) and (X_2, Y_2).

9. Find the equation of the circle with centre (0,7) and radius 5.

10. If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} -1 & 0 \\ 2 & 3 \end{bmatrix}$ find C=A+B.

11. Define a matrix and its order with an example.

12. Define composite function and implicit function and give example?

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FIRST YEAR B.PHARM SUPPLEMENTORY EXAMINATION – AUGUST, 2013
SUBJECT CODE: PCO 101: BIOLOGY
Monday August 05, 2013

Time: 10.00 -13.00 hours   Max. Marks: 50

Answer ALL the questions with neat labeled DIAGRAMS wherever necessary

I Long Essays: **3x8= 24 Marls**

1. A) Explain the digestive system of frog with a special note on its physiology of digestion.

    B) Write any eight general characters of class Mammalia..   6+2=8

2. A) Describe the various parts of tap root with their functions

    B) Differentiate monocotyledons from dicotyledons.   6+2=8

3. A) Describe the types of respiration in frog and explain the physiology of respiration.

    B) Write short note on V. S. Skin of frog.   5+3=8

II Short Essays: **4x4=16 Marks**

4. Describe various parts of a leaf. Mention different functions.

5. Write short note on Buccal Cavity of frog.

6. Give an account of typical parts of the flower with a neat labeled diagram.

7. Draw and label parts of Dorsal and Ventral view of the brain of frog.

III Short Answers: **5x2=10 Marks**

8. Define fruit. Briefly mention classification.

9. Draw a neat labeled diagram of neuron.

10. Sketch any two diagrams for different A) Leaf shapes B) Leaf bases.

11. Morula and Blastula

12. Define ergastic substances of plants. Name different types.

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FIRST YEAR B. PHARM. DEGREE EXAMINATION – APRIL/MAY 2013

SUBJECT: ANATOMY AND PHYSIOLOGY (APH 102)
(CREDIT BASED SYSTEM)

Tuesday, April 30, 2013

Time: 10:00 – 13:00 Hrs.   Max. Marks: 50

✍ **Answer ALL the questions.**

✍ **Long essay:**

1. Explain the production of blood cells with a flow chart. Discuss the role of erythropoietin.

(6+2 = 8 marks)

2. With a neat labeled diagram describe the signal transmission at chemical synapse. Explain the fate of neurotransmitter at synapse.

(6+2 = 8 marks)

3. Define internal and external respiration. Explain how the nervous system regulates breathing by cortical influences and chemoreceptor feedback mechanisms.

(2+6 = 8 marks)

4. **Short essay:**

4A. Explain the mechanisms of reabsorption of glucose, ammonia, calcium and water from the renal tubules.

(4 marks)

4B. Discuss the calcium homeostasis in bones.

(4 marks)

4C. Explain the actions of sympathetic and parasympathetic stimulations on eye. Draw the visual pathway.

(2+2 = 4 marks)

4D. Explain the hormonal control of spermatogenesis and actions of testosterone.

(4 marks)

5. **Short answers:**

5A. How does skin regulate the body temperature?

5B. What is bile? List any three functions of bile juice.

5C. Enumerate the functions of thyroid hormones.

5D. Locate the ependymal cells in the brain. What is its function?

5E. Mention one function each for monocytes, thrombocytes, lymph and CSF.

(2×5 = 10 marks)

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FIRST YEAR B. PHARM. DEGREE EXAMINATION – APRIL/MAY 2013

SUBJECT: BIOCHEMISTRY (PBT 103)
(CREDIT BASED SYSTEM)

Friday, May 03, 2013

Time: 10:00 – 13:00 Hrs.   Max. Marks: 50

✍ **Answer ALL the questions.**
✍ **Draw neat labeled diagrams wherever necessary.**

✍ **Long Essays:**

1. Phosphogluconate pathway is an alternative oxidative pathway to EMP and TCA cycle for metabolism of glucose. Explain.

2. Explain in detail about the following:
   i) Synthesis of β-hydroxybutyrate from acetyl CoA
   ii) Production of NADPH and malonyl CoA in fatty acid biosynthesis.

3. Explain the role of following with respect to DNA Replication:
   i) Polarity problem   ii) Replication fork and DNA synthesis
   iii) Supercoils and DNA topoisomerases   iv) Primers

                                                                (8×3 = 24 marks)

4. **Short Essays:**

4A. Define enzymes. With examples, give the IUB classification of enzymes.

4B. Explain van den Bergh reaction with respect to:
   i) Reagents used   ii) Formation of azobilirubin
   iii) Biphasic van den Bergh reaction   iv) Significance

4C. Enlist various disorders associated with tyrosine metabolism. Add a note on the enzyme defect, clinical manifestations, diagnosis and treatment of alkaptonuria.

4D. Enlist the contributors and explain the pathway in *De novo* synthesis of parent purine nucleotide.

                                                                (4×4 = 16 marks)

5. **Short Answers:**

5A. Mention the functions of Mitochondria.

5B. Define and classify high energy compounds.

5C. Classify vitamins.

5D. Enlist the ways by which ATP can be synthesized and differentiate between them.

5E. Write a short note on Richner-Hanhart syndrome.

                                                                (2×5 = 10 marks)

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FIRST YEAR B. PHARM. DEGREE EXAMINATION – APRIL/MAY 2013

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

Monday May 06, 2013

Time: 10:00 – 13:00 Hrs.   Max. Marks: 50

✍ **Answer ALL questions.**

1. **Long Essays:**

1A. How chemical instability during storage of pharmaceutical substances act as source of impurities? Explain.

1B. How will you assay Sodium thiosulphate and copper sulphate?

(4+4 = 8 marks)

2A. How will you prepare and assay Silver nitrate?

2B. Define dentifrices. Give two examples.

2C. Classify antimicrobials with examples.

(4+2+2 = 8 marks)

3A. Explain in detail the method of preparation and assay of Sodium acid phosphate.

3B. Explain in detail the method of preparation and assay of sodium citrate.

(4+4 = 8 marks)

4. **Short Essays:**

4A. Explain the determination of acid neutralizing capacity of antacids.

(4 marks)

4B. Write the principle involved in the limit test for sulphate with equations.

(4 marks)

4C. Explain the physiological role of Iron and copper.

(4 marks)

4D. i)   Give the precautions to be taken while handling Radiopharmaceuticals.

ii) Mention four commercially available Radiopharmaceuticals.

(2+2 = 4 marks)

5. **Short Answers:**

5A. Give two identification tests for nitrous oxide.

5B. What modification is done in the limit test for chloride for Potassium permanganate sample?

5C. What is the physiological role of Sodium?

5D. Mention the uses of Zinc oxide.

5E. Define adsorbents and protectives giving one example for each.

(2×5 = 10 marks)

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MANIPAL UNIVERSITY

FIRST YEAR B. PHARM. DEGREE EXAMINATION – APRIL/MAY 2013

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

Wednesday, May 08, 2013

Time: 10:00 – 13:00 Hrs.   Max. Marks: 50

✎   Answer all the questions.

✎   Long Essays:

1A.   Explain four methods of preparation of Alkanes with equations.

1B.   Discuss the electrophilic addition reaction of conjugated dienes with suitable examples.

(4+4 = 8 marks)

2A.   What is Absolute configuration? Explain sequence rules to give absolute configuration of a molecule.

2B.   Explain the mechanism of Benzoin condensation and mention its synthetic applications.

(4+4 = 8 marks)

3A.   Give two reactions of Carbocations and carbenes.

3B.   Give the method of assay of the following:

   i)   Benzocaine   ii)   Sodium-p-aminosalicylate

(4+4 = 8 marks)

4.   Short Essays:

4A.   How will you distinguish between 1°, 2° and 3° amines? Explain.

4B.   Explain the theory of orientation in Electrophilic aromatic substitution.

4C.   Explain the mechanism and stereochemistry of S_N2 reaction.

4D.   Give the mechanism and synthetic applications of Aldol condensation.

(4×4 = 16 marks)

5.   Short Answers:

5A.   How will you convert Benzene into Phenol by Cumene-Phenol process?

5B.   With suitable examples, give the specific uses of Aluminium isopropoxide.

5C.   Discuss the resonance stabilization of allyl cation.

5D.   Explain element effect in E2 reaction.

5E.   Give the structure and uses of citric acid.

(2×5 = 10 marks)

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Manipal College of Pharmaceutical Sciences
Manipal University, Manipal
First year BPharm-Annual Examinations–April 2013

Subject: PCE 106. Computer Science and Statistics

Date: 27-04-2013
Time: 10.00 am-01.00 pm   Max. Marks: 50

Answer **ALL** the questions. Use log tables if required.

I. Long essays. (3×8 = 24 marks)

1A. Explain any four types of computers.   **(4 marks)**

1B. Describe the following:

  (a) TCP   **(2 marks)**

  (b) HTML   **(2 marks)**

2A. Explain peripheral, port and terminal.   **(4 marks)**

2B. Find the quartile deviation and the co-efficient of quartile deviation for the following data: **(4 marks)**

Class	Less than 80	Less than 90	Less than 95	Less than 100	Less than 105	Less than 110	Less than 130
Frequency	2	16	33	55	77	95	100

3. A. Draw the ogives for the distribution given below and hence find the median. **(4 marks)**

Height (cm.)	140-150	150-160	160-165	165-170	170-180	180-190
No. of students	5	15	15	20	10	2

3 B. Calculate the product-moment co-efficient of correlation between x and y. **(4 marks)**

x	104	110	112	114	120
y	106	116	140	175	173

II. Short notes. (4×4 = 16 marks)

4. Write a short note on topologies.

5. Explain the functions of Operating Systems in larger systems.

(PTO)

6. Find the median of the following frequency distribution of monthly turnover of 326 business firms;

Monthly turnover (thousand rupees)	Less than 50	50 -80	80-100	100 and more
No. of firms	73	147	42	64

7. Find the geometric mean of;

x	124	129	134	139	144
f	7	17	16	7	3

III. Short answers. (5×2 = 10 marks)

8. Convert the decimal number 1090 into its binary equivalent.

9. With the help of a table show the messages given by 3 switches.

10. Multiply $(1011)_2$ with $(1111)_2$.

11. Define median and mode of a frequency distribution.

12. Define correlation of two variables.

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