

Reg. No.

MANIPAL UNIVERSITY

FIRST YEAR B.Sc. M.L.T./B.Sc. N.M.T./B.Sc. R.T./B.Sc. M.R.T./B.Sc. M.I.T./ B.Sc. C.V.T./
B.Sc. R.R.T & D.T./M.Sc. N.M.T. DEGREE EXAMINATION – JUNE 2015

SUBJECT: ANATOMY

Tuesday, June 02, 2015

Time: 10.00-11.30 Hrs.

Max. Marks: 40

Answer ALL the questions.

1. Name the parts of urinary system. Describe the right kidney.

(5+5 = 10 marks)

2. **Write short notes on:**

2A. Spinal cord

2B. Vas deferens

2C. Typical synovial joint

2D. Nasal septum

2E. Ovary

2F. Maxillary air sinus

(5 marks × 6 = 30 marks)



MANIPAL UNIVERSITY

FIRST YEAR BOT/B.Sc. MLT/B.Sc. CVT/B.Sc. MIT/B.Sc. RT/B.Sc. NMT/
B.Sc. RRT & DT/B.Sc. MRT/M.Sc. NMT DEGREE EXAMINATION – JUNE 2015

SUBJECT: PHYSIOLOGY

Thursday, June 04, 2015

Time: 10.00-11.30 Hours.

Max. Marks: 40

☞ Answer ALL questions. Draw diagrams wherever necessary.

1. Essay Questions:

- 1A. Explain the chemical regulation of respiration.
- 1B. Draw and label an electrocardiogram (ECG) from limb lead II. Indicate any two intervals of ECG. Mention any two uses of ECG.
- 1C. Mention any two functions of cerebellum. List any three features of cerebellar lesion.
- 1D. Mention any two actions of growth hormone. List any three clinical features of acromegaly.

(5 marks × 4 = 20 marks)

2. Write short answers for the following:

- 2A. List any two functions of hemoglobin.
- 2B. List any two functions of white blood cells.
- 2C. Write a note on achalasia cardia.
- 2D. Name the parts of the vestibular apparatus and mention one function of vestibular apparatus.
- 2E. Define blood pressure. Mention the normal systolic and diastolic blood pressure range in a normal adult, at rest.
- 2F. Mention any two functions of skin.
- 2G. Name two indicators of ovulation.
- 2H. Mention two differences between facilitated diffusion and active transport mechanism.
- 2I. Mention two differences between skeletal and cardiac muscles.
- 2J. Give any two differences between rods and cones.

(2 marks × 10 = 20 marks)



MANIPAL UNIVERSITY**FIRST YEAR B.Sc. M.R.T. DEGREE EXAMINATION – JUNE 2015****SUBJECT: RADIOBIOLOGY
(2011 SCHEME)**

Saturday, June 06, 2015

Time: 10:00-11:30 Hrs.

Max. Marks: 40

1. Answer all the following questions:

- 1A. Write a short note on LD₅₀₍₃₀₎ for gamma radiation- describe the experiment how it is derived?
- 1B. **Write a short note on:**
- Genetically significant dose (GSD)
 - SLD and PLD damage and repair
- 1C. Briefly explain the effect of radiation on cell cycle.
- 1D. Describe the various chemical reactions and the consequences of radiolysis of water.
(5 marks × 4 = 20 marks)

2. Answer the following:

- 2A. Describe the effect of radiation on:
- Intestine
 - Bone marrow
- 2B. Radiation induced chromosomal aberrations - describe with suitable diagrams.
(10 marks × 2 = 20 marks)



MANIPAL UNIVERSITY

FIRST YEAR B.Sc. M.R.T. DEGREE EXAMINATION – JUNE 2015

**SUBJECT: BASIC AND APPLIED MATHEMATICS
(2011 SCHEME)**

Tuesday, June 09, 2015

Time: 10:00-13:00 Hrs.

Max. Marks: 80

Answer any FIVE full questions.

- 1A. Find the Values of $\sin 75^\circ$, $\tan 75^\circ$
- 1B. Evaluate: i) $\int \sin 3x \cos 2x dx$ ii) $\int x^2 \log x dx$
- 1C. Solve the equation $x^4 - 2x^3 + 4x^2 + 6x - 21 = 0$ given that sum of two of its roots is zero.
(4+6+6 = 16 marks)
- 2A. Define circumference of a circle. A circular swimming pool has a radius of 12 m. Find the circumference of the pool.
- 2B. If $A = \{x/x \in \mathbb{N}, x < 5\}$ and $B = \{x/x^2 - 16 = 0 \text{ and } x < 0\}$ find: i) $A \times B$ ii) $A \cap B$
- 2C. Evaluate: i) $\lim_{x \rightarrow 1} \frac{x^4 3x^2 - 2x + 1}{x^3 - 3x + 3}$ ii) $\lim_{n \rightarrow \infty} \frac{n(n+1)(3n-2)}{n^2(n^2 + 4n + 5)}$
(4+6+6 = 16 marks)
- 3A. In $\triangle ABC$, $B = 90^\circ$, $AB = 5\text{cms}$, $BC = 12\text{cms}$ find AC .
- 3B. State Rolles theorem and verify the theorem for $f(x) = \frac{\sin x}{e^x}$ in the range $[0, \pi]$
- 3C. Differentiate: i) $y = \frac{x^{1/2}(1-2x)^{2/3}}{(2-3x)^{3/4}(3-4x)^{4/5}}$ ii) $y = \frac{x^2 e^{3x}}{\log(5x-8)}$
(4+6+6 = 16 marks)
- 4A. Solve $\frac{dy}{dx} = \frac{x(2 \log x + 1)}{\sin y + y \cos y}$
- 4B. In a college, there are 200 students. It is found that 120 students study mathematics, 90 study Physics, 70 study chemistry, 40 study both mathematics and physics, 30 study physics and chemistry, 50 study chemistry and mathematics and 20 study none of these subjects. Find the number of students who study all the three subjects.

4C. Find Graphically an approximate value of root of the equation $x^3 - 6x^2 + 9x - 3 = 0$
(4+6+6 = 16 marks)

5A. Solve $(x^2 + y^2)dx = 2xydy$

5B. i) Define increasing and decreasing function.
ii) Solve the quadratic equation $6x^2 + 2x + 8 = 88$

5C. Find the value of $\cos(570^\circ)\sin(30^\circ) - \cos(-390^\circ)\sin(-30^\circ)$
(6+4+6 = 16 marks)

6A. i) Find the area of triangle when the base is 12cm and height is 8cm.
ii) Find the volume of the sphere when the radius is 3cm.
iii) Find the volume of the cylinder when the radius is 3cm and height is 2cm.

6B. Find the derivative of the standard function of

i) $y = \frac{1}{x}$ ii) $y = uv$

6C. Integrate: $\int e^{3x}\sin 6x dx$
(6+6+4 = 16 marks)



MANIPAL UNIVERSITY

FIRST YEAR B.Sc. M.R.T. DEGREE EXAMINATION – JUNE 2015

SUBJECT: FUNDAMENTALS OF COMPUTERS AND COMPUTER APPLICATIONS (2011 SCHEME)

Thursday, June 11, 2015

Time: 10:00-11:30 Hrs.

Max. Marks: 40

✍ **Answer any FOUR full questions.**

- 1A. Write any four advantages and two disadvantages of digital cameras.
- 1B. Compare Analog and Digital computers (in tabular form) based on 8 different factors.
(6+4 = 10 marks)
- 2A. Explain modifier key and special-purpose keys in a standard keyboard.
- 2B. Explain how computer accepts input from the keyboard with matrix of key switches diagram.
- 2C. Write a note on CRT monitor with a neat diagram.
(3+3+4 = 10 marks)
- 3A. In MS Word, write the steps to do the following:
- i) Creating new bulleted list, adding bullets to existing text
 - ii) Nested list
 - iii) Formatting lists
 - iv) Change case, strike through, superscript and underline
- 3B. Explain how to create drop cap and adding a comment to a text in the MS Word document.
(8+2 = 10 marks)
- 4A. Write the steps to create a database named “ABC Company” in MS Access, and a table named EMP with following columns:
- | ColumnName | Data type | Field property | Size of field |
|------------|-----------|----------------|---------------|
| EMPNO | Number | Primary key | Size 5 |
| NAME | Text | | Size-10 |
| Birthdate | Date | | |
| SALARY | Currency | | |
- Impose $SALARY > 15000$ and $SALARY < 99000$ validation rule on SALARY column.
- 4B. Write the syntax and description of **SUMIF** formula.
(8+2 = 10 marks)
- 5A. What are the three basic kinds of hypertext links?
- 5B. Explain the *definition list tag* and write an HTML code to demonstrate.
- 5C. Write an HTML code to display four names in different lines and display 1st name in bold, 2nd as strike through, 3rd as italic, 4th as superscript.
(3+4+3 = 10 marks)

