MANIPAL ACADEMY OF HIGHER EDUCATION

FIRST SEMESTER B.O.T./ B.Sc. M.L.T./ B.Sc. P.F.T./ B.Sc. E.S.S./ B.Sc. N.M.T./B. Opt./ B.Sc. H.I.M./ BPT/ B.Sc. M.R.T./B.Sc. C.V.T./B.Sc. R.T./ B.Sc. M.I.T./B.Sc. RRT&DT/M.Sc. M.R.P. DEGREE EXAMINATION - DECEMBER 2018
SUBJECT : ANATOMY/ANATOMY I
(ANAT 101/ANAT 103/BOPT 101/BHIM 101/ BMRT 101)
(2016 RV/2016 SCHEME)
Saturday, December 01, 2018 (14.00 - 16.00)

Answer ALL questions.

Marks: 50 **Duration: 120 mins.**

1)	Name the parts of the renal system. Describe the right and left kidneys in detail. (4+6 = 10 marks)	(10)
2)	Name the parts of the respiratory tract. Describe the nasal cavity in detail. (4+6 = 10 marks)	(10)
3A)	Right atrium of the heart	(5)
3B)	Pancreas	(5)
3C)	Testis	(5)
3D)	Midbrain	(5)
4A)	Classification (types) of epithelia	(2)
4B)	Uterus	(2)
4C)	Eyeball	(2)
4D)	Thyroid gland	(2)
4E)	Names of ventricles of the brain	(2)

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Question Paper

Exam Date & Time: 05-Dec-2018 (02:00 PM - 04:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

FIRST SEMESTER B.O.T./ B.Sc. M.L.T./ B.Sc. P.F.T./ B.Sc. E.S.S./ B.Sc. N.M.T./B. Opt./B.Sc. H.I.M./ BPT/ B.Sc. M.R.T./B.Sc. C.V.T./B.Sc. R.T./ B.Sc. M.I.T./B.Sc. RRT&DT/M.Sc. M.R.P. DEGREE EXAMINATION - DECEMBER 2018
SUBJECT : PHYS 101/BHIM 103/BRES 105/BMRT 103 - PHYSIOLOGY /PHYSIOLOGY - I
(2016 RV SCHEME/2016 SCHEME)
Wednesday, December 05, 2018 (14.00 - 16.00)

Answer ALL questions.

Marks: 50 **Duration: 120 mins.**

1A)	Define cardiac output. Give its normal value. Mention three conditions where cardiac output is increased.	(5)
1B)	List three properties of cardiac muscle. Explain any one.	(5)
2)	**Describe erythropoiesis under the following headings:** a) Definition b) Site of formation in adults c) Stages of erythropoiesis d) Developmental changes occurring during different stages e) Two factors regulating erythropoiesis	(10)
3A)	Describe the chemical regulation of respiration.	(5)
3B)	Draw a neat labeled diagram of neuromuscular junction. Describe the events that occur during neuromuscular transmission in the form of flow chart.	(5)
3C)	Draw a neat and labelled diagram of visual pathway and name the photoreceptors.	(5)
3D)	**Define the following:** a) Cyanosis b) Hypoxia c) Apnea d) Dyspnea e) Asphyxia	(5)
4A)	Mention two functions of middle ear.	(2)
4B)	Write two differences between simple diffusion and active transport.	(2)
4C)	**Define:** a) Residual volume b) Vital capacity	(2)
4D)	Write two differences between myelinated and unmyelinated nerve fibres.	(2)

4E) Mention two hazards of mismatched blood transfusion. (2)

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Question Paper

Exam Date & Time: 08-Dec-2018 (02:00 PM - 04:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

FIRST SEMESTER B.Sc. MEDICAL RADIOTHERAPY TECHNOLOGY DEGREE EXAMINATION - DECEMBER 2018
SUBJECT: BMRT 105/BRTT 101 - BASIC PHYSICS
(2016/2016 RV SCHEME)
Saturday, December 08, 2018 (14.00 - 16.00)

Answer all the questions.

Marks: 50 **Duration: 120 mins.**

1)	What is friction? Elucidate the types of friction.	(10)
2)	What are rectifiers? Explain the types and working of rectifiers.	(10)
3A)	State and explain Newton's first law of motion.	(5)
3B)	Write a note on electromagnetic spectrum.	(5)
3C)	What is self-induction? Derive an equation for self-induction.	(5)
3D)	Two ice hockey players suitably padded collide directly with each other and immediately become entangled. One has a mass of 110kg and is travelling at $4ms^{-1}$ while the other has a mass of 90kg and is travelling at $6ms^{-1}$ towards the first player. In which direction and at what speed do they travel after they become entangled?	(5)
4A)	Give any two examples of inertia.	(2)
4B)	What is fluorescence and phosphorescence?	(2)
4C)	Define mole.	(2)
4D)	What are the uses of heating effect of electric current?	(2)
4E)	Define radioactivity with example.	(2)

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Question Paper

Exam Date & Time: 11-Dec-2018 (02:00 PM - 05:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

FIRST SEMESTER B.Sc. MEDICAL RADIOTHERAPY TECHNOLOGY DEGREE EXAMINATION - DECEMBER 2018
SUBJECT: BMRT 107/BRTT 103 - BASIC AND APPLIED MATHEMATICS
(2016/2016 RV SCHEME)
Tuesday, December 11, 2018 (14.00 - 17.00)

Answer ALL questions.

Marks: 100 **Duration: 180 mins.**

1A) Let A={X: X is a natural number and a factor of 18} (7)
B={X: X is a natural number and less than 6}
Find:
i) A$\cup$B and A$\cap$B &
ii) A $\cup$B = A$\cap$B

1B) **Solve:** (7)
i) If sinA = $\frac{3}{5}$ and A is acute, find cosA.
ii) $(1-\tan\theta)^2 + (1+\tan\theta)^2 = 2\sec^2\theta$.

1C) If the sides of triangles are 7cm, 24cm, 25cm, then determine whether it is a right angle triangle or not. If so, find its hypotenuse. (6)

2A) Solve: (7)
$$i)\ \int(4x^3-1)\,dx; \quad ii)\ \int\left(\frac{1}{x}+e^x\right)dx$$

2B) Differentiate using first principle: $y=e^x$ (7)

2C) Define order and degree of a Differential equation. Give two examples. (6)

3A) Define Limit of a function and Find (5)
$$\text{Lim}_{x\to 0}\frac{4x^2+3x+1}{3x^2-4x-1}$$

3B) Check whether the following are quadratic equations: (5)
$$i)\ (x-2)^2+1=2x-3. \quad ii)\ x.(2x+3)=x^2+1.$$

4) Two Rails are represented by the equations x + 2y - 4 = 0 and 2x + 4y - 12 = 0. Represent this situation geometrically. (10)

5A) (5)
$$\text{Given that } \tan A=\frac{4}{3}, \text{Find } \sin A, \cos A, cotA, Sec\ A, Cosec\ A.$$

5B) Find the value of 'k' if the points A (2, 3), B (4, k) and C (6,-3) are collinear. (5)

5C) Define Constant function, Identity function, linear function with examples. (5)

5D) Form the differential equation of the following (5)
$$i)\ x^2+y^2=a^2 \qquad ii)\ y^2=4ax.$$

5E) Find the area of a sector of a circle having radius 6 cm and the angle subtended by the sector at the center of circle is 60° (5)

5F) Solve $3.e^x.tany.dx + (1 - e^x).sec^2y.dy = 0$ (5)

6A) Evaluate $3 * (4 + 8) + 6 * 4 - 8 / 2$ using the concept of BODMAS rule. (2)

6B) Define angle Radian. (2)

6C) Find the volume of right circular cone if its base area is 154 cm^2 and height 12 cm. (2)

6D) Find the roots of the equation using quadratic equation $3x^2 - 2\sqrt{6}.x + 2 = 0.$ (2)

6E) Solve $\int (4x^3 - 1)\, dx$ (2)

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Question Paper

Exam Date & Time: 13-Dec-2018 (02:00 PM - 04:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

FIRST SEMESTER B.Sc. MEDICAL RADIOTHERAPY TECHNOLOGY DEGREE EXAMINATION - DECEMBER 2018
SUBJECT: BMRT 109/BRTT 105 - FUNDAMENTALS OF COMPUTERS AND COMPUTER APPLICATIONS (2016/2016 RV SCHEME)
Thursday, December 13, 2018 (14.00 - 16.00)

Marks: 50 **Duration: 120 mins.**

Answer all the questions.

1) Explain the classification of computer software with examples. (10)

2) What are the functions of an Operating System? Explain the different types of Operating Systems with examples. (10)

3A) Explain the working of the mouse as a pointing device. (5)

3B) Explain the features of a Cathode Ray Tube (CRT) monitor with a neat diagram. (5)

3C) Compare the features and purpose of ROM and RAM. (5)

3D) Explain any two common protocols used in the Internet. (5)

4A) Write the steps in MS Excel to calculate the column "Price After Tax" (2)

	A	B	C
1	**Tax Rate**	1.15	
2			
3	**Item**	**Price**	**Price After Tax**
4	Mattress	3000	
5	desk	5000	
6	Lamp	2000	

4B) What does the resolution of a monitor indicate? (2)

4C) What is the difference between impact printers and non-impact printers? (2)

4D) Differentiate between the number and auto number data types in MS-Access. (2)

4E) Write the steps in MS Word to: (2)
i) Add a Header with the authors name & email address, centered.
ii) Add a footer with page number.

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