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MANIPAL INSTITUTE OF TECHNOLOGY

(A constituent unit of MAHE, Manipal 576104)

I SEM M.Tech (BME) DEGREE END-SEMESTER EXAMINATIONS, NOV/DEC 2023

SUBJECT: HUMAN ANATOMY AND PHYSIOLOGY (BME 5115)
(REVISED CREDIT SYSTEM)

Thursday, 07th December, 2023, 9:30 AM to 12:30 PM

TIME: 3 HOURS

MAX. MARKS: 50

Instructions to Candidates:

1. Answer ALL questions.
2. Draw labeled diagram wherever necessary
3. Use separate answer book for Part-A and Part- B

PART-A: ANATOMY

(Use separate answer book for this part)

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| 1a | Classify epithelial tissue with one example of each category. | 3 |
| 1b | Write the differences among the types of muscular tissue in our body. | 3 |
| 1c | List the parts of the extrahepatic biliary apparatus. Add a note on the liver. | 4 |
| 2a | List the parts of the pharynx and write one important feature of each part. | 3 |
| 2b | Name three sensory cranial nerves. Write functions of each one of them. | 3 |
| 2c | Describe the layers of the eyeball. | 4 |
| 3a | Arrange the following chambers of the heart in the order of blood flow in them from superior vena cava to ascending aorta:
<div style="margin-left: 40px;"><div>i) Right ventricle</div><div>ii) Left ventricle</div><div>iii) Left atrium</div><div>iv) Right atrium</div></div> | 2 |
| 3b | Describe the features of spinal cord in brief. | 3 |

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PART-B: PHYSIOLOGY
(Use separate answer book for this part)

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| 3c | With the help of a neat labeled diagram, describe the ionic basis for different phases of the cardiac pacemaker action potential. | 5 |
| 4a | List any TWO factors affecting GFR. Describe any ONE. | 3 |
| 4b | With the help of line diagram, describe the cause and correction for the following refractory errors of the eye. | 3 |
| | a. Myopia | |
| | b. Hypermetropia | |
| 4c | Classify sensory receptors based on the location of stimulus. Give an example for each. | 4 |
| 5a | Write a note on pulmonary ventilation. | 3 |
| 5b | Classify body fluid compartments. Give the normal percentage of total body water in adults. Specify in which compartment the concentration of sodium is high. | 3 |
| 5c | Write any FOUR differences between skeletal and smooth muscles. | 4 |