

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-III (New) EXAMINATION – WINTER 2018****Subject Code: 2130304****Date: 01/12/2018****Subject Name: Human Anatomy & Physiology****Time: 10:30 AM TO 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

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|------------|---|-----------|
| <b>Q.1</b> | (a) Explain the terms: (1) Homeostasis, (2) Physiology, (3) Interstitial fluid.   | <b>03</b> |
|            | (b) Describe the structure of Plasma membrane with neat diagram.  | <b>04</b> |
|            | (c) Explain structure and functions of Granulocytes and Agranulocytes with neat diagram.  | <b>07</b> |
| <b>Q.2</b> | (a) Enlist the function of Epithelial tissues.  | <b>03</b> |
|            | (b) With neat diagram describe the structure and properties of neurons.   | <b>04</b> |
|            | (c) Describe mechanism of respiration. Write about the properties and role and movement of muscles involved in respiration.                     | <b>07</b> |
| <b>OR</b>  |   |           |
| <b>Q.3</b> | (c) Explain the structure and interior of the heart with layers of heart wall.  | <b>07</b> |
|            | (a) Describe the mechanism of control of blood vessel diameter.   | <b>03</b> |
|            | (b) Explain conducting system of the heart with neat diagram. Draw electrocardiogram of one cardiac cycle and explain its components.           | <b>04</b> |
|            | (c) Draw and explain the cerebrum showing the main functional areas.  | <b>07</b> |
| <b>OR</b>  |   |           |
| <b>Q.3</b> | (a) Describe the main mechanism in blood pressure control.  | <b>03</b> |
|            | (b) Enlist and define Lung volumes and capacities.  | <b>04</b> |
|            | (c) Explain the stages of development of a long bone with neat diagrams. Enlist the hormones that regulate the growth, size and shape of bones. | <b>07</b> |
| <b>Q.4</b> | (a) Write a note on Cerebrospinal Fluid (CSF). Enlist its functions.  | <b>03</b> |
|            | (b) Explain the basic structure of Synovial joint with neat diagram.  | <b>04</b> |
|            | (c) Explain in brief anatomy of Ear with diagram. Describe mechanism of hearing.  | <b>07</b> |
| <b>OR</b>  |   |           |
| <b>Q.4</b> | (a) Write functions of Bones.   | <b>03</b> |
|            | (b) Enlist the main organs of the Alimentary tract.   | <b>04</b> |
|            | (c) Explain the structure and functions of Skin.  | <b>07</b> |
| <b>Q.5</b> | (a) Explain the formation of urine.   | <b>03</b> |

- (b) Define the terms: Cardiac Output, Blood Pressure, Stroke Volume, Heart Rate **04**
- (c) Explain the structure of Skeletal muscle fibres. Describe the process of contraction of muscle fibres. **07**

**OR**

- Q.5** (a) Differentiate between Arteries and Veins. **03**
- (b) Enlist the functions of stomach in digestive system. **04**
- (c) Explain physiology of Micturition. Describe reflex control of micturition. **07**

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