2/1562 **1020E326** Candidate's Seat N

First M.B.B.S. (New Course) Examination
Physiology
Paper-I

Date : 21-10-2020, Wednesday] **[Max. Marks : 100**
[Time : 3 Hours

Instructions : (1) Answer to the point.
(2) Figure to the right indicates marks.
(3) Draw diagrams wherever necessary.
(4) Write legibly.
(5) Use separate answer books for each section.

SECTION-I

Q.1. Write the following Structured Long Question (any 1 out of 2) **1x10=10 marks**

1. Define Cardiac cycle. Enumerate phases of Cardiac Cycle and Describe Ventricular events in detail. How is Ejection Fraction calculated?
2. Define Blood Pressure and Enumerate the factors affecting Blood Pressure. Describe Baro-receptor Reflex in detail.

Q.2. (A) Write the following case-based scenario/ Applied short Notes (any 2 out of 3)

2x6=12 marks

1. A patient with long-standing pulmonary tuberculosis (TB) has a Residual volume of 500ml, Total Lung Capacity of 3200ml, and Peak Expiratory Flow Rate of200L/min:
   a) Which type of lung disease is the patient suffering from? (2marks)
   b) Define Timed Vital Capacity. (2marks)
   c) Write the significance of Timed Vital Capacity in the diagnosis of Lung disease. (2marks)
2. A 38 year old female suffered from malignancy of stomach and as a part of treatment, her stomach was removed. On examination, signs and symptoms of sub-acute combined degeneration of spinal cord were seen. Here blood report showed RBC: 3million/cu.mm., Hb: 9gm/dL, MCV: 130μm^3, MCHC: 36%. On giving vitamin B12, the patient has shown improvement.
   a) Identify the clinical condition in the given scenario. (2marks)
   b) Explain it's physiological basis. (2marks)
   c) Describe it's characteristic features. (2marks)
3. Describe the waves of a Normal Electrocardiogram mentioning the cause, duration and voltage of each.

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Q.2. (B) Write Short Notes (any 3 out of 4) **3x6=18 marks**

1. Describe Apoptosis with it's significance.
2. Differentiate between Active and Passive Transport processes.
3. Enumerate various T-cells and write functions of each.
4. Enumerate functions of Plasma Proteins.

Q.3. Answer in only 2-3 sentences (any 5 out of 6) **5x2=10 marks**

1. Define Cardiac output.
2. Write Normal A:G ratio.
3. Write function of Endoplasmic Reticulum.
4. What is Direct Cross-matching of blood?
5. Write the cause of 1^{st} and 2^{nd} Heart sounds
6. What is Sinus Arrhythmia?

SECTION-II

Q.4. Write the following Structured long Question (any 1 out of 2) **1x10=10 marks**

1. Define Lung Surfactant. Describe it's action. Write a note on Respiratory distress syndrome.
2. Enumerate the various Respiratory Centers. Describe Neural Control of Respiration. What is Apneustic Breathing?

Q.5. (A) Write short notes (any 2 out of 3) **2x6=12 marks**

1. Describe Heat gain and Heat loss mechanisms in our body.
2. Write any six changes in body occurring during exercise.
3. What is Homeostasis? Give 2 examples.

Q.5. (B) Write short notes (any 3 out of 4) **3x6=18 marks**

1. Enumerate functions of kidney.
2. Describe the factors affecting GFR.
3. Describe the components of Normal Cystometrogram.
4. Enumerate and describe the professional qualities and roles of a physician.

Q.6. Answer only in 2-3 sentences (any 5 out of 6) **5x2=10 marks**

1. Explain "splay" in renal absorption curve of glucose.
2. What is a diuretic? Give one example.
3. What is "mountain sickness"?
4. What is "dysbarism"?
5. What is Alveolar Ventilation?
6. Write the value of normal body temperature.