

001/19

The West Bengal University of Health Sciences
MBBS 1st Professional Examination, July 2019

Subject: Physiology
Paper: I

Full Marks: 50
Time: 2 ½ hours

Attempt all questions. The figures in the margin indicate full marks.

Group A

1. a) What are the different types of chemoreceptors regulating ventilation? How are they stimulated? List the pathways by which increased P_{CO_2} stimulates ventilation. 3+4+5
or
b) What are the two determinants of Cardiac Output? What do you understand by preload and afterload as applied to cardiac function? Mention the factors influencing them. What is ejection fraction? 2+4+4+2

Group B

2. Answer *any two* of the following:

2 X7

- a) Enumerate the muscle proteins. Explain briefly the sliding filament theory of muscle contraction. What is Rigor Mortis? 1+4+2
b) How is oxygen transported in blood? Explain with a diagram the effect of PO_2 on hemoglobin saturation. Comment on the effect of Carbon Monoxide on oxygen binding to hemoglobin. 2+3+2
c) Draw a flow chart showing different stages of erythropoiesis with diagrammatic representation. Add a note on erythropoietin. 5+2

Group C

3. Write a brief account on *any four*:

4X3

- a) Salivary secretion.
b) Rh incompatibility
c) Presynaptic inhibition
d) Pacemaker potential
e) Gastro-colic reflex

Group D

4. Give the physiological explanation of the following:

4x3

- a) Hypoproteinemia causes edema.
• b) Tetanus can be demonstrated easily in a skeletal muscles.
c) pH of urine rises after a heavy meal.
d) Subendocardial region of the left ventricle is specially vulnerable to ischemia.