M.Sc. 3rd Semester Examination 2012

HUMAN PHYSIOLOGY

PAPER – PHY- 303

Full Marks : 40

Time : 2 hours

The figures in the right hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Illustrate the answers wherever necessary

UNIT – 29

Answer any *two* questions

1. (*a*) Define Fick's law of diffusion.

   (*b*) State the factors influencing the diffusing of lipid-insoluble solutes in the capillary. Mention the flow-limited and diffusion-limited transport across the capillary. $3 + 2 + (2\frac{1}{2} + 2\frac{1}{2})$

2. (*a*) What is autoregulation of peripheral blood flow ?

   (*b*) Citing proper example explain the myogenic mechanism for peripheral blood flow regulation. 4 + 6

3. (*a*) Discuss the respiratory centres.

   (*b*) Discuss how respiratory centres control the rate and depth of breathing in humans ? 4 + 6

4. (*a*) What is mucocilliary clearance system ? Describe the role of Lungs as a secondary lymphoid tissue.

   (*b*) Describe the endothelium-mediated vasodilation. (2 + 4) + 4

UNIT – 30

Answer any *two* questions

1. (*a*) What are the physiological effects of G_z forces on human body ?

   (*b*) What is space-adaptation syndrome (SAS) ?

   (*c*) Discuss the measures for the management of heat stress. 5 + 2 + 3

2. (*a*) What do you mean by "Redox homeostasis" ?

   (*b*) State the exogenous and endogenous sources of intracellular reactive O_2/N_2 species.

   (*c*) How redox homeostasis of cellular and nuclear DNA in affected by ROS/RNA ? $2 + 3 + (2\frac{1}{2} + 2\frac{1}{2})$

3. (*a*) What do you mean by hemostasis ?

   (*b*) Discuss the correlation between intrinsic and extrinsic mechanism during hemostasis.

   (*c*) Classify the types of hemostasis disorders.

   (*d*) Describe the mechanism of thrombo cytopenia. $1 + 2\frac{1}{2} + 2\frac{1}{2} + 4$

4. (*a*) Bile is secreted by liver in two stages – explain it.

   (*b*) Write the compositional differences between liver and gall bladder bile.

   (*c*) Describe the process of emptying of gall bladder bile. $4 + 2 + 4$
