PG/IS/H.PHY-102/10

M.Sc. 1st Semester Examination, 2010

HUMAN PHYSIOLOGY

PAPER—II

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

Write the answers to questions of each Unit in separate books

UNIT—3

Answer any *two* questions

1. (*a*) Define critical velocity.

(*b*) Estimate the velocity of blood producing terbulance in an artery of 2·2 cm. diameter when the density and viscosity of blood are 1gm cm^{-3} and 0·03 poise respectively. 3 + 7

2. (*a*) What do you mean by voicing ?

(*b*) Discuss different theories of phonation.

(*c*) Write a brief note on ultrasound therapy. 1 + 5 + 4

3. In conformity with Henry-Dalton's law of partial pressure and Fick's law of diffusion, discuss "Gas exchange" (O_2 and CO_2) between (*a*) alveoli and pulmonary arterial blood and (*b*) arterial blood and tissue. 10

4. (*a*) Discuss the application of radioactivity in nuclear medicine.

(*b*) State the methods of investigation for the diagnosis and follow up of thyroid disorders by radioisotopic and scanning methods. 5 + 5

UNIT – 4

Answer any *two* questions

1. (*a*) Discuss with a suitable block diagram the signaling process of telemetry system.

(*b*) How does CMOS image sensor of wireless telemetry capsule act during the formation of image of GI tract. 5 + 5

2. (*a*) Describe the function of different parts of a hemodialyzer.

(*b*) What is bioengineered kidney ?

(*c*) Write the side effects and complications of haemodialysis. 5 + 2 + 3

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

(*b*) Describe different types of echocardiogram.

(*c*) Discuss the mechanism of image formation in echocardiography. 1 + 4 + 5

4. (*a*) Discuss briefly the principle of G.M counter and mention the limitations of the counter.

(*b*) Why and where the proportional counter is used for measuring radioactive decay.

(5 + 2) + 3