M.Sc. 1st Semester Examination, 2010

HUMAN PHYSIOLOGY

PAPER—III

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—5

Answer any *two* questions

1. (*a*) What is Regression ?

   (*b*) What do you understand by 'criterion' and 'predictor' ?

(*c*) Deduce regression equation of plasma total cholesterol on blood glucose from the following data using any one formula for computation of byx :

Plasma total cholesterol/(mg/dl) : 205, 195, 220, 208, 221, 168, 155

Blood Glucose (mg/dl) : 170, 165, 190, 186, 195, 155, 130

$r = +0{\cdot}96$.

$2 + (1\frac{1}{2} + 1\frac{1}{2}) + 5$

2. (*a*) Discuss the assumptions for point biserial *r*.

(*b*) Workout a suitable correlation coefficient to find whether or not there is a significant correlation between sex and hemoglobin concentration in the following sample of humans. ($\alpha = 0{\cdot}01$)
Hemoglobin scores (g/dl)

Men : 14·0, 14·6, 14·0, 13·0, 15·0, 14·4, 13·8, 14·0

Women : 10·4, 10·0, 11·0, 10·0, 10·6, 10·0, 8·0, 10·0

Critical *t* scores :

$t_{0{\cdot}01\,(7)} = 3{\cdot}499$, $t_{0{\cdot}01\,(14)} = 2{\cdot}977$,

$t_{0{\cdot}01\,(15)} = 2{\cdot}947$, $t_{0{\cdot}01\,(6)} = 3{\cdot}707$.

4 + 6

3. (*a*) What is correlation and partial correlation ?

(*b*) What do you understand by First order and Second order partial r ? Give examples.

(*c*) Write down the formulae for both the partial r.

(*d*) How is the significance of first-order partial r tested ? $2 + (1\frac{1}{2} + 1\frac{1}{2}) + (1 + 1) + 3$

4. (*a*) What do you mean by a priori and a posteriori comparisons ?

(*b*) Describe Scheffe's F-test.

(*c*) How do you compute strength of association of Model I ANOVA ? $4 + 3 + 3$

UNIT—6

Answer any *two* questions

1. (*a*) What is machine language ? Explain the format of instruction used in machine language.

(*b*) How does assembly language differ from machine language ?

(*c*) State the difference between compiler and interpreter.

(*d*) What is mark-up language ? 4 + 2 + 2 + 2

2. (*a*) Compute the binary equivalent of the decimal number 38.

(*b*) Perform subtraction of the following binary numbers : 10110 — 11010.

(*c*) Correct the errors, if any, of the following :

(*i*) 50 LET N$ = 50

(*ii*) 100 IF X > Y GOTO 40

(*iii*) 70 READ A + B .

(*d*) Write the BASIC equivalent of the following expressions :

(*i*) $\frac{b^2 - 4ac}{k - 100XP}$

(*ii*) $X \geq Y$. 2 + 3 + 3 + 2

3. (*a*) Explain the following functions used in MS Excel :

(*i*) SUM

(*ii*) MIN.

(*b*) Write a program in BASIC to compute standard deviation of mean of heart rate values from N number of persons. 4 + 6

4. Write the brief answer of the following : $2\frac{1}{2} \times 4$

(*a*) How do you employ slide transition in MS PowerPoint ?

(*b*) How do you count the number of words and characters present in a paragraph of a MS Word document ?

(*c*) State the characteristic features of 3rd generation computer.

(*d*) What is bioinformatics ? State different components of bioinformatics.
