2009

M.Sc.

1st Semester Examination

HUMAN PHYSIOLOGY

PAPER—III

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

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

Illustrate the answers wherever necessary.

Unit—05

Answer any *two* questions.

1. (a) What is Simple Linear Regression?

(b) Discuss the properties for Simple Linear Regression.

(c) Deduce the Equation of Simple Linear Regression including formula for compulation of Regression Coefficient. 2+4+4

2. (a) What is Mann-whitney U Test? Where it is used?

(b) How the significance of U is tested in case of large samples? (3+2)+5

3. (a) Write down the general formula for Pearson's Product Moment Correlation Coefficient (r) ?

   (b) What does 'r' signify ?

   (c) How 'r' can be worked out using raw scores of variable ?

   (d) In a sample of 60 individuals the product moment r values between Atherogenic Index, plasma Low Density Lipoprotein Cholesterol (mg/dl) and Body Mass Index (BMI) has been found to be as follows : $r_{12} = +0{\cdot}78$, $r_{13} = +0{\cdot}49$ and $r_{23} = +0{\cdot}56$. Compute the partial correlation coefficient between Athogenic Index and plasma Low Density Lipoprotein Cholesterol, eliminating the effect of BMI, and test its significance.

   Critical t values of two tail t test :

   $t_{0{\cdot}05\ (57)} = 2{\cdot}002$, $t_{0{\cdot}01\ (57)} = 2{\cdot}665$, $t_{0{\cdot}001(57)} = 3{\cdot}470$

   1+2+2+5

4. (a) Describe briefly the assumptions of anova.

   (b) The following scores represent systolic blood pressure (mm Hg) of a group of human subjects before (x_1) and after (x_2) supplementation of a hypotensive drug.

x_1 :	128	124	129	135	132	128	118	123	117	133
x_2 :	118	115	122	128	125	117	110	116	108	126

   Apply one way anova to find whether there is any significant difference between two group means.

   Critical F scores :

   [$F_{0{\cdot}05}(1, 8) = 5{\cdot}32$, $F_{0{\cdot}05}(1, 9) = 5{\cdot}12$,

   $F_{0{\cdot}01}(1, 8) = 11{\cdot}26$, $F_{0{\cdot}01}(1, 9) = 10{\cdot}56$] 4+6

Unit—06

Answer any *two* questions.

1. (a) Distinguish between RAM and ROM. State the characteric features of different kinds of ROM.

   (b) Explain the functions of CU and ALU.

   (c) Point out two uses of computer in biological sciences.

   5+3+2

2. (a) What do you mean by WAN and LAN? Describe briefly different components required for internet.

   (b) Write the steps for making a table having 5 columns and 8 rows in Ms. Word. How do you insert a column in an existing table?

   4+6

3. (a) Make a comparison between INPUT and READ statements of BASIC programming.

   (b) Correct the errors, if any, of the followings:

   (i) 50 READ "put the values of height and weight", H, W.

   (ii) 100 FOR x = 1.5 To N step.

   (c) Write a computer program in BASIC to find the range of blood cholesterol values of a group of subjects.

   3+2+5

4. Write brief notes on the following : $2\frac{1}{2} \times 4$

(i) MAX function in MS Excel ;

(ii) OCR ;

(iii) Design template in MS Power Point ;

(iv) Biomedical informatics.

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