2016

M.Sc.

1st Semester Examination

HUMAN PHYSIOLOGY

PAPER—PHY-103

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 all questions from the following :

1. (a) What do you mean by percentile ?

(b) Find out P_{75} of the following frequency distribution of body weights :

Class Interval	51-60	61-65	66-70	71-75	76-80
Frequencies	5	20	25	10	5

1+4

Or

(a) Write a note distinguishing between absolute and relative measures of dispersion. 5

2. (a) What are correlation and correlation coefficient ?

(b) What is meant by "positive" values of 'r'?

(c) Write down the formula of 'r' from raw scores.

(d) Differentiate between null hypothesis and alternative hypothesis. (1+1)+1+1+1

Or

(a) What is simple linear regression ?

(b) Determine the simple linear regression equation of Systolic Blood Pressur (SBP) on Plasma Total Cholesterol (TC) from following data of 12 individuals.

Individuals	1	2	3	4	5	6	7	8	9	10	11	12
SBP(mm Hg)	200	168	124	174	165	184	210	196	242	166	192	220
TC($mg.dl^{-1}$)	170	150	122	144	130	156	180	176	190	140	162	198

$r = +0.938$

1+4

3. (a) Describe the computation steps for Wilcoxon Rank Sum test.

(b) Mention the inaccuracies of this test. 3+2

Or

(a) How Mann-Whitney U Test can be worked out for small and large groups ? 5

4. (a) What do you mean by one way anova and higher order anova ?

(b) Explain the following assumptions of anova

(i) additivity.

(ii) homoscadasticity.

(c) What is addedd variance ? 2+2+1

Or

(a) Explain a-priori and a-posteriori comparison.

(b) Apply Scheffe's multiple comparison 'F' test between group 2 and group 3 of the following blood pressure data. The computed 'F' ratio was significant among three groups of human subjects.

$\bar{X}_2$ = 122.0 mm Hg $\bar{X}_3$ = 90.0 mm Hg

$S\omega^2 = 46.5$, $n_1 = 10$, $n_2 = 10$, $n_3 = 10$

$F_{0.05}(2,27) = 3.35$, $F_{0.01}(2,27) = 5.49$

2+3

(Unit—06)

Answer all questions from the following :

1. (a) Make a comparison between first and second generation computers.

(b) Mention the features of different kinds of RAM.

(c) How data are represented in compact disk ?

2+2+1

Or

(a) State the difference between compiler and interpreter.

(b) State the functions of BIOS and GUI.

(c) What is Utility program ? 2+2+1

2. (a) What is Hexadecimal number system ? Convert the hexadecimal number 3D6 into its binary equivalent.

(b) $(101010.1)_2 + (1110110.01)_2 = ?$

(1+2)+2

Or

(a) What are string variable and string constant ?

(b) Write a computer program to find highest value of hand length among three persons without using For-NEXT loop.

1+4

3. (a) How do you make a table in MS Word ?

(b) What do you mean by MERGE cell and SPLIT cell ?

(c) How animation can be created in a slide with MS-Power Point ?

2+1+2

Or

(a) What is a browser ? What is URL ?

(b) What do you mean by navigation through visited site ?

(c) What is hypertext link ?

2+2+1

4. (a) Write the main features of the following databases : Annotated sequence database and Relational database.

(b) What is data retrieval tool ? Give example.

4+1

Or

State the goals of bioinformatics. How bioinformatics is used in DNA sequencing and modeling in system biology ?

1+4