

M.Sc. 1st Semester Examination, 2014

HUMAN PHYSIOLOGY

PAPER— H. PHY-103

Full Marks : 40

Time : 2 hours

Answer all questions

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 – V

1. (a) What is percentile rank ?

(b) Find out the percentile rank of the score 172 of the following frequency distribution of the heights : 1 + 4

Class

Intervals : 151-160 161-165 166-170 171-175 176-180

Frequencies : 5 20 25 10 4

(Turn Over)

(2)

Or

- (a) Describe the properties of a binomial distribution.
- (b) What are binomial co-efficients? $3 + 2$
2. (a) What do you understand by partial correlation? What is its significance?
- (b) What is second order partial "r"?
- (c) What is 'criterion'? $(2 + 1) + 1 + 1$

Or

Determine the simple linear regression equation of Serum Total Cholesterol (mg/dl) on Blood Sugar (mg/dl) from following data. Also determine the predicted values of Serum Total Cholesterol of given 10 individuals. 5

<u>Blood Sugar</u> (mg/dl)	<u>Serum</u> <u>Total Cholesterol (mg/dl)</u>
110	183
89	156

(3)

<u>Blood Sugar (mg/dl)</u>	<u>Serum Total Cholesterol (mg/dl)</u>
122	205
136	230
125	208
108	175
110	189
85	140
120	192
105	172

$$r = + 0.983 (p < 0.05)$$

3. (a) What is Mann-Whitney U-test ? Mention its applicability.

(b) How will you compute it for the small samples ? (2 + 1) + 2

Or

(a) What is Chi-square goodness of fit test ?

(b) Describe the procedure for computing the test. 1 + 4

4. (a) What is homoscedasticity ?

(b) Why Omega square test is performed ?

(c) How do you estimate added variance component during performing ANOVA ? 1 + 2 + 2

Or

(a) What do you mean by a-priori comparison ?

(b) Blood sugar level was estimated in three groups of animals. The computed F was significant. Apply Scheff's multiple comparison test between group 1 and group 3 with the following data :

$$\bar{X}_1 = 126.7 \text{ mg/dl}, \bar{X}_3 = 89.2 \text{ mg/dl}, sw^2 = 46.5$$

$$n_1 = 10, n_2 = 10, n_3 = 10.$$

$$F_{0.5(2, 27)} = 3.35 \quad F_{0.01(2, 27)} = 5.49 \quad \text{1 + 4}$$

UNIT – VI

1. State the main features of 3rd generation computer. State the functions of ALU. Mention the use of 'Home Key' of the keyboard. 2 + 2 + 1

Or

Mention the facilities of operating systems. What is GUI? State the difference between source program and object program. 3 + 1 + 1

2. Explain FOR-NEXT loop used in BASIC programming. What is nested FOR-NEXT loop? What do you mean by type mismatch? 3 + 1 + 1

Or

(a) Correct the error of the following :

0.5 READ 50, 60

(b) Write a program in BASIC to find the greatest value of weights of three persons without using FOR-NEXT loop. 1 + 4

(6)

3. Write the steps for creating charts in MS Excel. Mention the steps of executing 'MAX' function in MS Excel. 3 + 2

Or

How do you apply transition to the slides while using MS Power Point ? What is the difference between 'SAVE' and 'SAVE AS' options in MS Word ? What is pull-down menu ? State the functions of status bar of MS Word.

2 + 1 + 1 + 1

4. Mention the goals of bioinformatics. State the applications of bioinformatics in (i) biomedical informatics (ii) Gene expression analysis.

1 + (2 + 2)

Or

What do you mean by biological database ? State the features of annotated database and organism specific databases. What is data retrieval tool ?

1 + 3 + 1