

2018

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—01 )

1. Answer any two questions : 2×2
- (a) What is bivariate statistics ? Give one example. 1+1
  - (b) What is dependent variable in simple linear regression ? 2
  - (c) What is meant by inter-quartile range ? What is homoscedasticity ? 1+1
  - (d) What are non-parametric tests ? 2

(Turn Over)

2. Answer any two questions :

2×4

- (a) Differentiate between simple linear regression and multiple regression. Why regression is called predictive statistics ? 2+2
- (b) Differentiate between finite and infinite population. What is dichotomous ? Give suitable example. 2+1+1
- (c) Apply one-way anova to find out whether a significant difference between the mean oxygen consumptions (lit/min) of two groups of sports persons :

Group 1:	5.0	3.8	4.3	4.0	2.8	4.6	5.1	4.6	5.3	4.5
Group 2:	4.7	2.4	4.6	3.0	3.1	3.7	2.2	3.0	4.5	2.8

[Critical  $F_{0.05(1,18)} = 4.41$ ;  $F_{0.01(1,18)} = 8.28$ ] 4

- (d) Deduce the simple linear regression equation of systolic Blood Pressure (SBP) in mm Hg on Body Mass Index (BMI) in  $\text{kg.m}^{-2}$  of 0.8 individuals.

BMI	26.3	29.5	22.7	25.2	24.7	27.6	23.2	28.1
SBP	150	178	124	149	136	158	130	162

The correlation coefficient between the above two variables is 0.98. 4

3. Answer any one question : 1×8

- (a) (i) Find out the 25th percentiles of the frequency distribution of weights of the office job workers from the following table :

Class interval	51-53	54-56	57-59	60-62	63-65	66-68	69-71
Frequency	5	7	14	28	15	8	3

- (ii) Describe different advantages of working with sample group ?
- (iii) Write down about 'discrete' Variables. 4+2+2
- (b) (i) When Wilcoxon Composite rank test is applied ?
- (ii) How the computation of the test can be done ?
- (iii) State the significance and inaccuracies of the test. 1+3+2+2

**( Unit—02 ).**

1. Answer any *two* questions : 2×2

- (a) What is string variable ? Give example.
- (b) State the functions of ALU.
- (c) What is URL ?
- (d) Why is Napier's stick called Napier's Bone ? What computation technique was used for calculation in Napier's Bone ?

2. Answer any *two* questions : 2×4
- (a) (i) Define bioinformatics.
- (ii) Write a brief note on operating systems used in bioinformatics. 1+3
- (b) How can you create charts in MS-Excell ? State the steps for executing "Max" function in MS-Excell.
- (c) How animation/Transition can be created in a slide while using MsPowerpoint. 4
- (d) Classify the computer based on working principle and state the characteristics of them. 4
3. Answer any *one* question. 1×8
- (a) (i) Explain IF...THEN statement of BASIC programing.
- (ii) Write a computer program to find out mean heart rate of 10 persons using IF...THEN statement.
- (iii) State the difference between READ and INPUT statements of BASIC. 2+4+2
- (b) (i) What do you mean by Low Level Language ? How High Level Language is more advantageous over Low Level Language ? What is application program ?
- (ii) State the difference between Interpreter and Compiler.
- (iii) Write the characteristic features of fourth generation computer. 4+2+2