

B.Sc. 5th Semester (Honours) Examination, 2019-20**PHYSIOLOGY****Course ID : 52516****Course Code : SH/PHY/503/DSE-1 (T)****Course Title : Biological Statistics****Time: 1 Hour 15 Minutes****Full Marks: 25***The figures in the margin indicate full marks.**Candidates are required to give their answers in their own words as far as practicable.*

1. Answer *any five* questions of the following: 1×5=5
- What is Kurtosis?
 - What is null hypothesis (Ho)?
 - What is random sampling?
 - What is mean deviation?
 - What is standard score?
 - What is degree of freedom?
 - Give two examples of non-parametric statistics.
 - What is ANOVA?
2. Answer *any two* questions of the following: 5×2=10
- State the significance of 't' test.
 - Why one tail 't' test is worked out? 4+1=5
 - What is mode?
 - Using the data presented in table about frequencies of gene crossovers between homologous chromosomes in Drosophila, born of mothers at different ages. Find if there is a significant association between the frequency of crossovers and mother's age. 1+4=5

Table: 4×2-fold contingency table showing crossover data

Mother's age (days)	Crossovers (fo)	Non crossovers (fo)	Total (fr)
5	247	291	538
10	152	284	436
20	174	393	567
30	140	495	635

Critical χ^2 (Chi square) values ($df = 3$) for different levels of α are given:

$$\chi^2_{0.05(3)} = 7.82 ; \chi^2_{0.01(3)} = 11.34 ; \chi^2_{0.001(3)} = 16.27$$

(c) What is median? Find the median of the following body weight –

55, 67, 58, 59, 61, 61, 61, 63, 67, 68, 70

1+4=5

(d) What is histogram? Draw the histogram of the following frequency distribution of body height (cm) using the following data:

Height(cm)	126 – 130	131 – 135	136 – 140	141 – 145	146 – 150	151 – 155	156 – 160	161 – 165	166 – 170	171 – 175	176 – 180
Frequency(f)	2	9	16	26	33	41	36	21	11	3	2

1+4=5

3. Answer *any one* question of the following:

10×1=10

(a) Differentiate between SD and SE. Compute the mean, SD and SE of the following data.

Class Interval	51-55	56-60	61-65	66-70	71-75	76-80
Frequency	7	15	30	25	14	9

2+2+3+3=10

(b) (i) What is probability?

(ii) Body weight (kg) of 8 adult males and 8 adult females are given. Find whether or not the mean weight of males is significantly higher than that of females.

2+8=10

Males(X_1):	50, 58, 60, 55, 59, 56, 54, 64
Females(X_2):	49, 52, 51, 56, 55, 53, 52, 48

Critical 't' scores ($df = 14$) for different levels of significance: $t_{0.05(14)} = 1.761$; $t_{0.025(14)} = 2.145$; $t_{0.01(14)} = 2.624$; $t_{0.005(14)} = 2.977$.

B.Sc. 5th Semester (Honours) Examination, 2019-20**PHYSIOLOGY****Course ID : 52516****Course Code : SH/PHY/503/DSE-1 (T)****Course Title : Human Nutrition and Dietetics****Time: 1 Hour 15 Minutes****Full Marks: 25***The figures in the margin indicate full marks.**Candidates are required to give their answers in their own words as far as practicable.*

1. Answer *any five* questions of the following: 1×5=5
- (a) Why is dietary fibre required in daily diet?
 - (b) Which Vitamin is called 'Pellagra Preventive Factor'?
 - (c) Why is iodine essential in our body?
 - (d) What are the special characteristics of space nutrition?
 - (e) Why excess calcium is required for lactating woman?
 - (f) What is NPU?
 - (g) What is the importance of SDA?
 - (h) Mention any two problems related to starvation.
2. Answer *any two* questions of the following: 5×2=10
- (a) What is RQ? Mention about the factors that alter RQ. Write two significance of RQ. 1+3+1=5
 - (b) Prepare a balanced diet chart of a growing child. What is nitrogen balance? 4+1=5
 - (c) Write about the nutritional values of soyabean and fish. 2½+2½=5
 - (d) What are trace elements? Mention about the biological importance of phosphorus. 1+4=5
3. Answer *any one* question of the following: 10×1=10
- (a) What are antioxidant vitamins? Mention the sources, biological importance and deficiency syndrome of any such vitamin. 1+2+5+2=10
 - (b) Prepare a balanced diet chart of a pregnant woman. How will you convert cow milk into mother's breast milk? 8+2=10
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