B.Sc. Semester-V Examination, 2022-23

PHYSIOLOGY [Honours]

Course ID : 52516 Course Code : SH/PHY/503/DSE-1(T)

Course Title : Biological Statistics

OR

Human Nutrition and Dietetics

Time : 1 Hour 15 Minutes Full Marks : 25

The figures in the right-hand margin indicate marks.

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

(Biological Statistics)

1. Answer any **five** questions of the following: 1×5=5

a) What is kurtosis?

b) Define parametric statistics.

c) What is degree of freedom?

d) Define random sampling.

e) What is Mann-Whitney U test?

f) Differentiate between P value and Confidence Interval.

g) Write one condition when cumulative frequency is used.

h) Give any one example of derived variable.

0.001, 3.922

2. Answer any **two** questions of the following: 5×2=10

a) Draw the observed and smooth frequency polygon of tibia bone length (C_M) using the following data of a sample of human.

Class interval	31-33	34-36	37-39	40-42	43-45
Frequencies	5	12	20	9	4

3+2

b) Why is 'standard deviation' as a measure of dispersion superior to 'Mean deviation'?

Distinguish between absolute and relative measures of dispersion. 3+2

c) Ten students were given intensive coaching in Statistics. The score obtained 1st and 2nd test are given below -

Sl.No.	1	2	3	4	5	6	7	8	9	10
Marks in 1st test	50	52	53	60	65	67	48	69	72	80
Marks in 2nd test	65	55	65	65	60	67	49	82	74	86

Does score from test 1st to 2nd show an improvement? Test at 5% level of significance

Critical t value:

df	0.01	0.05	0.02	0.01	0.001
18	1.734	2.183	2.552	2.878	3.922

d) Compute the mean and median of the following body weight (Kg) data obtained from a sample of male candidates-

55, 57, 58, 59, 61, 61, 61, 63, 67, 68,70

3. Answer any **one** question of the following: 10×l=10

a) What are the assumptions for performing Chi-square test?

Out of 15 diabetic subjects, 8 were found to be suffering from hypercholesterolemia while the rest had normal serum cholesterol. Out of 10 nondiabetics, 2 had high serum cholesterol while the rest had normal serum cholesterol level. Is there any significant association between hypercholesterolermia and diabetes?

Critical values of Chi square

df.	.l0	.05	.02	.01	.001
1	2.71	3.84	5.41	6.64	10.83

8+2

b) What is Z-test? Mention the conditions for applying Z-test. The body weights (Kg) of 8 adult males and 8 adult females are given. Find out whether or not the mean weight of males is significantly higher than that of females?

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

t 0.05(14) = 1.761

t 0.025(14)= 2.145

t 0.01(14) = 2.624

t 0.005(14)=2.977

(Human Nutrition and Dietetics)

1. Answer any **five** questions of the following: 1×5=5

   a) Define RDA.

   b) Write the percentage of carbohydrate present in wheat and banana.

   c) Write any two food sources of iron for human.

   d) Why RQ of fat is less than one?

   e) What do you mean by 'pellagra preventing factor'?

   f) Define nutritional anemia.

   g) Define hyponatremia.

   h) What is space nutrition?

2. Answer any **two** questions from the following: 5×2=10

   a) Enumerate the physiological role of dietary fibres in human. 5

   b) What are the major metabolic changes occur during starvation in human? Why proteins have more SDA than other food stuff? 3+2=5

   c) What is NPU? Write down the sources and effects of deficiency of Vitamin-D. 2+3=5

   d) State the composition and nutritional value of fish. Mention the source and nutritional significance of DHA. 3+2=5

3. Answer any **one** question from the following: 10×1=10

   a) Illustrate the diet chart of a lactating mother in tabular form. State the dietary source and role of Vitamin-C in prevention of scurvy. Why folate is essential during pregnancy? 5+(1+2)+2

   b) State any two physiological factors which can affect BMR. Write a comparative note on kwashiorkor and marasmus. State the dietary sources and two physiological role of calcium in human. What is PER? 2+3+(1+2)+2

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