2019

B.Sc.

3rd Semester Examination

NUTRITION
(Honours)

Paper - SEC 1-T

Full Marks : 40 Time : 2 Hours

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

Immunology, Toxicology Public Health

1. Answer any *five* questions : 2×5=10

   (a) What is plasma cell? 2

   (b) Write the two importance of IgG? 2

   (c) What is cytotoxic T-Cell? 2

   (d) Write the name of two diseases in which IgE level is elevated? 2

(e) What is B.O.D.? 2

(f) Write two toxic effects of arsenic? 2

(g) What is POP? 2

(h) What is dendritic cell? 2

2. Answer any *four* questions : 5×4=20

(a) Name the receptors present on T-cell. Write the three importance of passive immunity? 2+3

(b) Write the mechanism of action of organophosphate compound on neuromuscular junction. 5

(c) Discuss the role of cytokines in immune system. 5

(d) What is phagocytosis? Write the toxic effect of lead. 2+3

(e) Write the basic difference between cell mediated & humoral immunity.

(f) Discuss briefly the mechanism of biotransformation and biomethylation of arsenic. 5

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

(a) What is auto immunity? How does bio-accumulation and bio-amplification of mercury occur? Define bioconcentration and biodilution. 2+6+(1+1)

(b) What is secondary humoral response? Write basic difference between hapten and immunogen. Discuss the source of carbomate and effect of carabate on human health. 3+2+5

Biostatistics and Bioinformatics

1. Answer any *five* questions : 2×5=10

   (a) What do you mean by parametric statistics? 2

   (b) What do you mean by 'Mode'. Write the formula for computing mode from mean and median. 2

   (c) When 'Chi square test' is applicable? 2

   (d) Write any application of 'Nutrient Data Base'. 2

   (e) What do you mean by alternative hypothesis? 2

   (f) Define model I ANOVA. 2

   (g) Write one application of 'Standard Deviation'. 2

   (h) Write one application of 'Phylogenetic tree'. 2

2. Answer any *four* questions : 5×4=20

   (a) Write the difference between mean and median. Compute the mean value of the

marks obtained by the following students.

Marks	*No of Students*
40-49	12
50-59	10
60-69	15
70-79	13
80-89	10

(b) Write the full form of BLAST. State the role of BLAST for sequence similarity searching. What is multiple sequence alignment?

$1+2\frac{1}{2}+1\frac{1}{2}$

(c) A random sample of 100 Mid aged individuals were divided into vegetarian and non-vegetarian which belong to three categories Known as Mild, Moderate and Severe diabetes as tabulated below. Find out whether there is any significant association between degree of diabetes and food style or not.

(Given $\chi^2_{0.05}$=5.99, $\chi^2_{0.01}$-9.21) and df = 2)

Food style	Diabetic condition			Total
	Mild	Moderate	Severe	
Vegetarian	15	10	5	30
Nonvegetarian	20	30	20	70
Total	35	40	25	100

5

(d) Write the concept of Bioinformatics. State the application of bioinformatics. 2+3

(e) What do you mean by one tail and two tail student's 't'-test? State the assumption for the student's 't'-test. 2+3

(f) Calculate the SE of the following group data.

Class interval	frequency
70-75	4
76-81	5
82-87	6
88-93	8
94-99	6
100-105	3

5

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

(a) Compute whether there any significant difference or not between haemoglobin level (g/dl) between school going girls and boys. Interpret your results.

Girls	*Boys*
Hb Levels	*Hb Levels*
12	13
11	12
10	15
13	12
14	11

Girls	*Boys*
Hb Levels	*Hb Levels*
11	10
10	12
given $t_{0.05(6)}=1.433$	$t_{0.01(6)}=2.321$
$t_{0.05(12)}=1.121$	$t_{0.01(12)}=1.821$

(b) differentiate between primary & secondary data. What are the criteria of good data? Write in brief about nucleic acid data base. State the types and objectives of BLAST.

$2+3+2+(1\frac{1}{2}+1\frac{1}{2})$