2018

CBCS

3rd Semester

NUTRITION

PAPER—SEC1T

(Honours)

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.

Immunology, Toxicology and Public Health

1. Answer any *five* questions : 5×2

(a) What do you mean by innate immunity ?

(b) What is plasma cell ?

(c) What is epitope ?

(d) What do you mean by autoimmunity ?

(e) What is xenobiotic ? Write an example of xenobiotic.

(f) Name two inflammatory markers.

(g) Write any two health hazards of lead toxicity.

(h) Write the name of two harmfull organophosphate compounds.

2. Answer any *four* questions : 4×5

(a) Discuss the basic structure of IgG with diagram. 3+2

(b) Define BOD and COD. Write its significance in eco-toxicology. $2\frac{1}{2}+2\frac{1}{2}$

(c) What do you mean by biomagnification and bioaccumulation of food toxicants. $2\frac{1}{2}+2\frac{1}{2}$

(d) What is arsenicosis ? Discuss the health hazzards of arsenic in human. 1+4

(e) Briefly discuss the source and functions of different types of immunoglobulins. 2+3

(f) Discuss the role of natural killer cells. 5

3. Answer any *one* question : 1×10

(a) What is antigen presenting cell ? How does it work in response to an immunogen ?

(b) Distinguish between active and passive immunity.

(c) Differentiate between TH_1 and TH_2 cell. 2+3+3+2

Or

(a) Briefly state with flow chart about the propagation of DDT from one tropic level to another tropic level in food chain.

(b) How does organochlorine develop toxicity in human ? 6+4

Biostatistics and Bioinformatics

1. Answer any *five* questions : 5×2

(a) Differentiate between Primary data and Secondary data.

(b) What is BLAST ?

(c) What do you mean by 'Bioinformatics' ?

(d) What do you mean by Central Tendency ?

(e) What is Chi-Square Test ?

(f) Explain the term 'Nutrient Data Base'.

(g) Calculate Median from the following data :
32, 22, 29, 17, 40, 26, 21, 15.

(h) What is Dispersion of data ?

2. Answer any *four* questions : 4×5

(a) What is SD ? Calculate SD from the following data :

Marks	*No. of Students*
20 – 29	5
30 – 39	12
40 – 49	15
50 – 59	20
60 – 69	18
70 – 79	10
80 – 89	6
90 – 99	4

1+4

(b) Describe the Phylogenetic Tree. 5

(c) A random sample of 500 students were classified according to economic condition of their family and also according to merit, as shown below :

Merit	Economic Condition			Total
	Rich	Middle Class	Poor	
Meritorious	42	137	61	240
Not Meritorious	58	113	89	260
Total	100	250	150	500

Test whether the two attributes merit and economic condition are associated or not.

$\left(\text{Given, } \chi^2_{0.05} = 5.99,\ \chi^2_{0.01} = 9.21 \text{ for df} = 2\right)$ 5

(d) Explain the concept health informatics. Write down its applications. 2+3

(e) Compute the t-value for paired observation from the following data of 10 individuals. Find out whether or not the mean pulse rate of before exercise in significantly lower than that of after exercise.

Pulse rate (beats/min) (Before exercise)	*Pulse rate (beats/min)* (After exercise)
78	112
74	118
82	116
80	104
76	106
68	98
78	114

Pulse rate (beats/min) (Before exercise)	*Pulse rate (beats/min)* (After exercise)
72	112
78	110
84	120

(Given, $t_{0.05(9)} = 1.833$, $t_{0.01(9)} = 2.821$, $t_{0.005(9)} = 3.250$). 5

(f) What is Data ? Explain the term ANOVA. Write down the significance of Multiple Sequence Alignments. 1+2+2

3. Answer any *one* question : 1×10

(a) Calculate Mean, Median and Mode from the following data :

Weight (gms)	*Frequency*
110 – 119	5
120 – 129	7
130 – 139	12
140 – 149	20
150 – 159	16
160 – 169	10
170 – 179	7
180 – 189	3

2+4+4

(b) Write down the principle, features and types of BLAST. Write down the applications of Bioinformatics.

2+2+4+2
