

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
MSc DEGREE EXAMINATION DECEMBER 2018
(First Semester)

Branch - CLINICAL NUTRITION AND DIETETICS

BIostatistics and Research Methods

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks!)

Answer ALL questions

ALL questions carry EQUAL marks

(10x1 = 10)

- 1 Research should be performed not for the sake of
(i) Earning money (ii) Getting degree
(iii) Challenge in solving problem (iv) Service to society
- 2 Research through experiment and observation is known as
(i) Clinical research (ii) Experimental Research
(iii) Laboratory Research (iv) Empirical Research
- 3 Probability Sampling is otherwise called
(i) Random Sampling (ii) Acceptance Sampling
(iii) Convenience Sampling (iv) Purposive Sampling
- 4 The form of structured questionnaire does not include
(i) Closed questions (ii) Pre-determined questions
(iii) fixed alternative questions (iv) unspecified questions
- 5 The total number of hospital deaths in a given period divided by the number of discharges during the same period is termed as
(i) Fatality ratio (ii) Autopsy ratio
(iii) Hospital death rate (iv) Notification rate
- 6 Vital statistics deal with such events of human life as
(i) Births only (ii) Deaths only
(iii) Marriage (iv) Hospitalized deaths
- 7 Coefficient of variation is calculated using the formula
(i) $(\text{Mean}/\text{Sd}) \times 100$ (ii) $(\text{Sd} \times \text{Mean}) / 100$
(iii) $(\text{Mean} + \text{Sd}) / 2$ (iv) $(\text{Mean} / \text{Sd})$
- 8 Correlation coefficients tends to lie between
(i) 0 to +1 (ii) -1 to 0
(iii) -1 to +1 (iv) -2 to +2
- 9 95% Confidence interval for p is
(i) $x \pm cr$ (ii) $p \pm 2.58\sigma$
(iii) $p \pm \text{S.E}$ (iv) $x \pm 1.96.E(x)$
- 10 The null hypothesis is a statement that is
(i) Probably true
(ii) considered to be false until proven true
(iii) Evaluated statistically as either true or false
(iv) All of the above

SECTION - B (25 Marks!)

Answer ALL Questions

ALL Questions Carry FORTY AT A*—

12 a Explain the method of enumerating Simple Random Sampling.

OR

b Precise different steps involved in developing research process.

13 a Explain the mechanism of data collection on vital statistics.

OR

b Compute crude death rates of two populations A and B from the following data.

Age group (years)	A		B	
	Population	Deaths	Population	Deaths
Below 5	15000	360	40000	1000
5-30	20000	400	52000	1040
Above 30	10000	280	8000	240
Total	45000	1040	100000	2280

14 a Determine the Standard Deviation weight of 100 persons from the following frequency distributions:

Weight (in kg)	45	50	55	60	65	70	75	80
No. of Persons	5	12	18	20	33	10	?	1

OR

b Apply the suitable coefficient of correlation for the following:

Fertilizer used (metric tons)	15	18	20	24	30	35	40	50
Productivity (metric tons)	85	93	95	105	120	130	150	160

15 a Systolic blood pressure of 100 males taken in hill area. The average blood pressure was found to be 128mm of mercury (Hg) and Standard Deviation 13mm of mercury. Find 95% and 99% confidence limits of blood pressure within which the population mean would lie.

OR

b Explain the procedure for testing a hypothesis in small samples.

SECTION -C (40 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 8 = 40)

16 a Elaborate the different types of research involved in research process.

OR

b Elaborate analytical studies.

17 a Discuss the different types of sampling methods.

OR

b Discuss in detail for writing research articles for the publication in the field of clinical trials.

18 a Elaborate the problems in collection of sickness data.

OR

b From the given below evaluate the general fertility rate and total fertility rate.

<u>Age Group</u>	<u>Number of Women</u>	<u>Specific Fertility rate</u>
<u>15-20</u>	<u>100</u>	<u>15</u>
<u>20-25</u>	<u>120</u>	<u>100</u>
<u>25-30</u>	<u>110</u>	<u>120</u>
<u>30-35</u>	<u>105</u>	<u>140</u>
<u>35-40</u>	<u>100</u>	<u>80</u>
<u>40-45</u>	<u>80</u>	<u>50</u>
<u>45-50</u>	<u>70</u>	<u>10</u>

- 19 a The following frequency distribution gives the number of chillies per plant. Determine the mean and standard deviation for the number of chillies per plant.

No. of chillies per plant	10-16	17-23	24-30	31-37	38-44	45-51
No. of plants	8	10	23	29	18	12

OR

- b The following scores represent a nurses' assessment (X) and a physician assessment (Y) of the condition of 10 patients at the time of admission to a trauma centre.

X	13	18	15	10	12	4	7
Y	20	16	11	7	6		

Construct the two regression equations.

- 20 a A group of 15 normal children in a study had a mean serum iron level of 148 mg% and standard deviation of 44.03. Another group of 15 children with infantile cirrhosis of liver had mean serum iron level of 151 mg% and standard deviation of 49.04. Is the difference between the two serum means statistically significant? (5%, 28 df=2.05)

OR

- b The sharing of injecting equipment among the drug users was investigated and the following information was collected regarding the use of needle exchanges of injecting drug users who were located either through treatment agency files or through outreach work designed to involve those not receiving counseling treatment.

	Use of needle exchange			Not known
	Regular	Occasional	Never	
Agency	56	15	20	24
Non Agency	19	6	16	53

May we assess from these data that use of needle exchange and agency status is related by using chi-square test?

Z-Z-Z

END