2055
M.E. (Bio-Technology) Second Semester
MEBIO-201: Research Methodology

Time allowed: 3 Hours

Max. Marks: 50

NOTE: *Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.*

x-x-x

1. Answer the following questions briefly:

   a) Differentiate between research methods and research methodology. Give one example of each.

   b) You decide to get tested for Dengue based on mild symptoms. There are two errors that could potentially occur, name them and explain them in detail.

   c) Calculate z score, if the mean is 8 and S.D=2 and the given data point lies at 11.

   d) Examine the merits and limitations of the observation method in collecting material. Illustrate your answer with suitable examples.

   e) Are the following nominal, ordinal, interval or ratio data? Explain your answers:-
   Length in centimetres, Ranks in Army, Aadhar card Numbers, Number of passengers on bus from Chandigarh to Delhi

   (5x2)

UNIT - I

2. a) Interview method is a powerful tool for data collection, however it has its own pitfalls. Discuss.

   (5)

   b) What is a research proposal? What points should be considered while writing a research proposal?

   (1+4)

3. Research process consists of series of actions or steps necessary to effectively carry out research. Describe the sequence of the steps necessary to effectively carry out research. Use a flow chart, if required.

   (10)

4. a) Enlist the advantages and disadvantages of oral presentation over a written report.

   b) What is a sample? Explain different sampling designs using examples.

   (2x5)

P.T.O.

UNIT - II

5. In the garden pea, yellow cotyledon colour is dominant to green, and inflated pod shape is dominant to the constricted form. Considering both of these traits jointly in self-fertilized dihybrids, the progeny appeared in the following numbers: 193 green, inflated 184 yellow constricted 556 yellow, inflated 61 green, constricted. Do these genes assort independently (9:3:3:1)? Support your answer using Chi-square analysis. (Chi square table value=7.88)   (10)

6. In a study of intelligence, a group of 5 students of class IX studying each in Arts, Commerce and Science stream were selected by using random method of sample selection. An intelligence test was administered to them and the scores obtained are as under. Determine, whether the three groups differ in their level of intelligence. At .05 level, the F value is 3.59.

S.No.	Arts Group Intelligence scores	Comm. Group Intelligence scores	Science Group Intelligence scores
1	15	12	12
2	14	14	15
3	11	10	14
4	12	13	10
5	10	11	10

(10)

7. Calculate coefficient of correlation between age of husband and age of wife from the following data: (10)

Age of Wife	17	20	22	27	21	29	26	30	28	30
Age of Husband	22	27	28	28	29	30	31	34	25	36

x-x-x