Subject Code: 2930

M. Sc. Marine Science

Semester II Examination April-2016

PAPER – 6 [Tool, Techniques and Biostatistics]

Duration: $2\frac{1}{2}$ Hours **Marks: 70**

Instructions:

1. There are FIVE compulsory Questions in this paper. Each question carries 14 marks.
2. Statistical tables & Graph Papers will be provided on request.
3. Use of scientific calculator is allowed.

Q.1 Write essay on Electron Microscope. **14**

OR

Q.1 Write detailed essay on AAS. **14**

Q.2

A. Write a note on: 'Frequency polygon and Frequency curve'. **07**

B. The number of prawns with reference to different length groups was reported in a single visit from Veraval fish market in the following table. Draw the histogram and frequency polygon for given data. **07**

length Group	15-24	25-34	35-44	45-54	55-64	65-74	75-84
No. of Prawns	10	20	25	45	35	25	15

OR

Q.2

A. Write a note on: 'Histogram'. **07**

B. Number of mollusc was recorded from Alang coast according to shell weight (g) in different weight groups. Compute the mean and median of given data. **07**

Weight Group (in Gram)	3.5-4.0	4.0-4.5	4.5-5.0	5.0-5.5	5.5-6.0	6.0-6.5	6.5-7.0
No. of Mollusc	5	8	9	20	10	25	4

Q.3

A. Describe various types of positional average. **07**

B. Calculate the standard deviation from given variables. **07**

22	20	27	30	32	31	40	35	45	48

OR

A. Write short note on Standard error and Degree of freedom. **07**

B. Frequency distribution of height (in cm) of 200 students in a University is given in following table. Calculate the range, coefficient of range, quartile deviation and co-efficient of quartile deviation of height distribution. **07**

Height in cm	145	150	155	160	165	170
No. of Students	28	42	54	36	30	10

Q.4

A. Differentiate between regression analysis and correlation analysis. **07**

B. Data of Protein and Carbohydrate content analysis of six fish species is given in table below. Construct a scatter diagram. Is the correlation positive or negative? **07**

Nutrient content (mg/g)	Sp.-1	Sp.-2	Sp.-3	Sp.-4	Sp.-5	Sp.-6
Carbohydrate content	8	3	9	2	7	10
Protein content	9	5	10	1	8	7

OR

A. Write note on null hypothesis and alternative hypothesis. **07**

B. Data of fish liver weight (X) and weight of oil extracted (Y) from it is given in following table. Find out the coefficient of correlation using Karl Pearson's method. **07**

Liver weight (in gram)	15	12	10	8	9	11	13	14	7	18
Oil weight (in gram)	6	5	3	2	2	3	4	5	1	7

Q.5

A. Describe properties and applications of t-distribution in statistical testing. **07**

B. The weight of ten Rabbits (in grams) when brought in the laboratory and after one month were recorded in the following table. Calculate Paired t–test and concluded whether the gain in weight is statistically significant or not. **07**

Rabbits	Weight (in grams)									
In the beginning	49	41	37	41	42	37	39	38	41	35
After one month	52	43	46	52	46	38	42	41	42	38

OR

Q.5 What do you mean by nonparametric statistical test? Give a list of all nonparametric test and explain any two. **14**