MANIPAL UNIVERSITY

THIRD/FOURTH YEAR B.Sc. R.R.T. & D.T./B.Sc. C.V.T./B.Sc. M.R.T/B.Sc. R.T./ B.Sc. M.L.T./B.O.T./B.P.T. DEGREE EXAMINATION – JUNE 2015

SUBJECT: BIOSTATISTICS & RESEARCH METHODOLOGY/RESEARCH METHODOLOGY & STATISTICS/BIOSTATISTICS/BASIC BIOSTATISTICS & RESEARCH METHODOLOGY/RESEARCH METHODOLOGY AND BIOSTATISTICS

Monday, June 01, 2015

Time: 10:00-13:00 Hrs.   Max. Marks: 80

✍ **Answer ALL the questions.**

1.   Define statistics and list its role in health sciences.

(5 marks)

2.   Describe Validity and Reliability.

(5 marks)

3.   Give the difference between nominal and ordinal variables with examples.

(5 marks)

4.   Classify the following into different scales of measurements (Nominal, Ordinal, Interval and Ratio).
   a)   Temperature $(°F)$ b)   City   c)   Age
   d)   Gender   e)   Stage of disease (I/II/III/IV)

(5 marks)

5.   Briefly describe Probability and Non Probability sampling.

(5 marks)

6A.   In a study of 126 patients admitted in a hospital, it was assessed whether patients were 'Current smoker', Past smoker' or 'Never smoker'. The frequencies of these categories are shown in table below. Represent the data with the help of a pie chart.

Smoking status	Frequency
Current smoker	42
Past smoker	21
Never smoker	63

6B.   The data gives the intelligence quotient (I.Q) of 36 children. Construct frequency table along with relative frequencies using the class intervals, less than 90, 90 – 100, 100 – 110, and so on.

99	103	112	118	109	76	110	101	98	100	116	113
139	105	120	106	113	121	99	103	98	117	109	130
95	105	120	93	108	65	85	94	98	101	117	115

(5+5 = 10 marks)

7A.   Why do we use coefficient of variation? How is it different from standard deviation? Explain with an example.

7B. Compute the median, range and inter-quartile range for the following data:

SBP (mmHg):   120 125 121 123 125 127 122 128 123 126 122

(5+5 = 10 marks)

8. It was observed that the incubation period in days of patients with infectious hepatitis follows normal distribution with a mean of 20 days and standard deviation of 4 days. What percentage of the patients have incubation period:

8A. Below 12 days

8B. Between 24 and 28 days

(5 marks)

9. What is Karl-Pearson's correlation coefficient? List its properties.

(5 marks)

10. Write a note on health information system and its requirements.

(5 marks)

11A. Explain the terms prevalence and incidence with examples.

11B. Define crude birth rate and infant mortality rate.

(6+4 = 10 marks)

12. Define epidemiology. Enumerate its uses. Describe case series analysis.

(10 marks)

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THIRD YEAR B.Sc. RRT & DT DEGREE EXAMINATION – JUNE 2015

SUBJECT: BDT 301 – ADVANCED HD, SPECIAL EXTRACORPOREAL TREATMENTS AND PATIENT EDUCATION

Wednesday, June 03, 2015

Time: 10.00-13.00 Hrs.   Max. Marks: 80

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1. **Long essay questions:**

1A. Describe the principles of management of poisonings.

1B. Discuss renal replacement therapy (RRT) modalities used in the intensive care unit (ICU).

1C. Describe the centrifugation method of Plasmapheresis.

(10 marks × 3 = 30 marks)

2. **Short essay questions:**

2A. Discuss citrate anticoagulation.

2B. Illustrate the Molecular Adsorbents Recirculating System (MARS) circuit.

2C. Discuss the advantages of using fresh frozen plasma (FFP) in plasmapheresis.

2D. What are the complications of continuous renal replacement therapy (CRRT)?

2E. What is the indication and principle behind Hemadsorption?

2F. What is isolated ultrafiltration?

(5 marks × 6 = 30 marks)

3. **Short notes questions:**

3A. What is the advantage of predilution continuous venovenous hemofiltration (CVVHF) over postdilution continuous venovenous hemofiltration (CVVHF)?

3B. How will you manage needle phobia in the hemodialysis patient?

3C. What role does patient education play in managing the end stage renal disease (ESRD) patient?

3D. How will you calculate the continuous venovenous hemofiltration (CVVHF) dose for the patient with acute kidney injury?

3E. How will you calculate the plasma volume for plasmapheresis?

3F. What are the disadvantages of acute peritoneal dialysis as a therapy in acute kidney injury?

3G. Name four indications for plasmapheresis.

3H. What is online hemodiafiltration?

3I. What are the standards for hemodialysis water?

3J. What is nocturnal hemodialysis?

(2 marks × 10 = 20 marks)