Reg. No. ☐☐☐☐☐☐☐☐☐☐

MANIPAL UNIVERSITY

FRIST YEAR MASLP / MOT / MSc. MLT / MSc. RT / MSc. ECHOCARDIOGRAPHY / OPTOMETRY / MSc. MIT / MSc. RRT & DT DEGREE EXAMINATION – JUNE 2017

SUBJECT: STATISTICS & RESEARCH METHODS / ADVANCED BIOSTATISTICS & RESEARCH METHODOLOGY / BIOSTATISTICS / ADVANCED BIOSTATISTICS & RESEARCH METHODOLOGY / PAPER IV: EPIDEMIOLOGY & BIOSTATISTICS / PAPER IV: RESEARCH METHODOLOGY & BIOSTATISTICS / BIOSTATISTICS/ ADVANCED BIOSTATISTICS & RESEARCH METHODOLOGY

Friday, June 02, 2017

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

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1.   **Define the following:**

1A.   Any three measures of central tendency

1B.   Qualitative and quantitative variables with examples

1C.   Sampling errors and non-sampling errors

1D.   Sampling frame, probability sampling and non-probability sampling

(3+2+2+3 = 10 marks)

2A.   Write the properties of normal distribution. List any two applications of normal distribution.

2B.   The mean rate of adenosine triphosphate among a sample of 30 insulin resistant children was found to be 6 µmol/g of muscle/min with standard deviation of 2 µmol/g of muscle/min. Find the 95% and 99% confidence intervals for the mean rate of adenosine triphosphate for the study population.

(5+5 = 10 marks)

3A.   Define type I error, type II error, level of significance and power of a statistical test of significance.

3B.   Hypothermia is a problem for extremely low birth weight infants. A study was conducted to investigate whether wrapping these infants in polyethylene bags in the delivery room and while they are being transferred to the neonatal intensive care unit affects the survival of babies. The results of the study conducted among 140 extreme low birth weight babies are given in the following table:

Warming treatment	Number of infants		Total
	Lived	dead	
Polyethylene bag	63	7	70
Traditional	61	9	70
Total	124	16	140

Test at 5% level of significance whether mortality among the extreme low birth weight infants is associated with the kind of warming treatment given. The table value for 5% level of significance is 3.84.

(4+6 = 10 marks)

4. Discuss independent sample t test and paired t test with an example.

(10 marks)

5. Explain case control study under the headings:
   i) design with the help of a flow chart
   ii) measure of strength of association
   iii) merits
   iv) demerits

(4+2+2+2 = 10 marks)

6A. Write a short note on randomization in clinical trials.

6B. A randomized controlled trial has been planned to compare the effects of low fat diet with the diet recommended by the American Diabetic Association. The outcome variable is the total cholesterol (in mg/dL). What is the minimum number of subjects required in each group to detect a difference in total cholesterol of 20 mg/dL between the two groups with 90% power and 5% level of significance? Based on the earlier experience the standard deviation of total cholesterol in the population is about 35 mg/dL. The table value for 90% power and 5% level of significance is 1.28 and 1.96 respectively.

(5+5 = 10 marks)

7. Write short notes on:

7A. Validity of diagnostic test

7B. Structure of research thesis

7C. Meta-analysis

7D. Logistic regression

(5 marks × 4 = 20 marks)

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FIRST YEAR M.O.T. DEGREE EXAMINATION – JUNE 2017

SUBJECT: PAPER – I: OCCUPATIONAL THERAPY: PHILOSOPHY AND THEORETICAL FOUNDATIONS

Monday, June 05, 2017

Time: 10:00 – 13:00 Hrs.   Maximum Marks: 80

✍ **Answer ALL questions.**

✍ **Long Questions.**

1.   Enumerate the purpose of activity analysis. Explain the three levels of activity analysis.

(5+15 = 20 marks)

2.   Explain the assessment and intervention of axial control according to the Neuro-developmental Frame of Reference.

(20 marks)

3.   Explain the 'Performance capacity subsystem' of the Model of Human Occupation. Describe how this subsystem is assessed in clinical practice and the treatment principles.

(8+6+6 = 20 marks)

4.   **Short notes:**

4A. The role of activities in the Sensory Integration Frame of Reference.

4B. Define and differentiate between professional model and conceptual models.

(10+10 = 20 marks)

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FIRST YEAR M.O.T. DEGREE EXAMINATION – JUNE 2017

SUBJECT: PAPER – II: OCCUPATIONAL THERAPY: KNOWLEDGE BASE

Wednesday, June 07, 2017

Time: 10:00 – 13:00 Hrs.   Maximum Marks: 80

✎   **Answer ALL the questions.**

✎   **Draw diagram wherever necessary.**

✎   **Long Questions:**

1.   Describe the functions of sympathetic and parasympathetic nerves. Discuss any two pathophysiology of sympathetic nerve and its impact over human function.

(10+10 = 20 marks)

2.   Describe the types of equilibrium conditions and its impact on head balance.

(10+10 = 20 marks)

3.   Define and describe the concept of muscle tone. Discuss the spinal and supraspinal control of muscle tone.

(4+16 = 20 marks)

4.   **Write short notes on:**

4A.   Describe sliding filament theory of muscle fiber contraction.

(10 marks)

4B.   Define dynamic and static posture. Describe the systems contributing to postural control.

(4+6 = 10 marks)

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FIRST YEAR M.O.T. DEGREE EXAMINATION – JUNE 2017

SUBJECT: PAPER – III: ASSESSMENTS IN OCCUPATIONAL THERAPY

Friday, June 09, 2017

Time: 10:00 – 13:00 Hrs.   Maximum Marks: 80

✍   **Answer ALL the questions.**

✍   **Long questions:**

1. Discuss the strength and limitation of Functional Independence Measure (FIM) scale with respect to the test construction and psychometric properties of the scale development.

                                                                                     (14+6 = 20 marks)

2. Describe the International Classification of Functioning, Disability and Health (ICF) with appropriate illustration.

                                                                                     (15+5 = 20 marks)

3. Explain the significance of disability evaluation. Describe the guidelines for evaluation of permanent physical impairment of upper limb.

                                                                                     (5+15 = 20 marks)

4. **Short notes:**

4A. Explain the various reasons to assess quality of life in health care set up.

4B. Describe the Test of Visual Perception Scale.

                                                                                     (10+10 = 20 marks)

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FIRST YEAR M.O.T. DEGREE EXAMINATION – JUNE 2017

SUBJECT: PAPER – IV: OCCUPATIONAL THERAPY: TOOLS FOR PRACTICE

Monday, June 12, 2017

Time: 10:00 – 13:00 Hrs.   Maximum Marks: 80

✍   **Answer ALL questions.**

✍   **Long questions:**

1.   Explain the principles of spinal orthosis. Compare Halo Brace, Philadelphia Collar and Miami Brace.

(10+10 = 20 marks)

2.   Draw a neat labeled diagram of EMG biofeedback and state the purpose of its various parts. Discuss the role of biofeedback in hand rehabilitation.

(10+10 = 20 marks)

3.   What are the objectives of industrial rehabilitation? Discuss the process of job analysis and the role of occupational therapist.

(10+10 = 20 marks)

4.   **Short notes:**

4A.   Discuss the scope of occupational therapy in health promotion.
4B.   Describe the consideration in design of barrier free kitchen for cognitive impaired patients.

(10 marks × 2 = 20 marks)

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