Reg. No.

MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD YEAR B.Sc. R.R.T. & D.T./ B.Sc. M.R.T/B.Sc. R.T./ FOURTH YEAR B.P.T./B.O.T./ DEGREE EXAMINATION – DECEMBER 2019

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

Tuesday, December 03, 2019

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

✍ Answer ALL the questions.

1. Briefly explain the following:

1A. Relative Frequency

1B. Gross Reproduction Rate (GRR)

1C. Infant Mortality Rate (IMR)

1D. General Fertility Rate (GFR)

1E. Crude Death Rate (CDR)

(2 marks × 5 = 10 marks)

2. Write short notes on the following:

2A. Scales of measurement

2B. Census

(5 marks × 2 = 10 marks)

3. Explain different types of variables with examples.

(5 marks)

4. Explain in detail the cross-sectional study design with its strengths and limitations.

(5 marks)

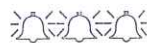5. Erythrocyte Sedimentation Rate (ESR) readings (in mm) of 12 tuberculosis patients are given below.

    12 8 11 9 8 14 8 12 8 9 11 10

    Calculate the values of:

5A. Sample mean

5B. Sample median

5C. Sample standard deviation

5D. Coefficient of variation

5E. Interquartile range

(2+2+5+2+4 = 15 marks)

6. Briefly explain the concept of Interquartile range.

(5 marks)

7. A random sample of 140 children had a mean urinary lead concentration of 2.15 μmol/24hr, with standard deviation 0.85. Construct reference range which includes 95% of the observations.

(5 marks)

8. Enumerate any three differences between probability (random) sampling and non-probability sampling technique.

(3 marks)

9. What is positive and negative correlation? Explain with an example.

(4 marks)

10. Briefly explain the steps involved in a research process.

(8 marks)

11. A researcher wants to predict birth weight (i.e. weight of new-borns, measured in kg) using weight of the mothers (measured in kg). A simple linear regression model was fit and it was found that the slope for mother's weight was 0.1. The intercept for the model was -0.43. Using the model obtained from this study, answer the following questions.

11A. State the dependent variable and independent variable of the fitted model.

11B. Write the form of simple linear regression model using the slope and intercept.

11C. Interpret the value of slope.

(3+3½+3½ = 10 marks)

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MANIPAL ACADEMY OF HIGHER EDUCATION

FOURTH YEAR B.P.T. DEGREE EXAMINATION – DECEMBER 2019

SUBJECT: MEDICINE
(REPEATERS - 2011 REGULATION)

Thursday, December 05, 2019

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

✍ **Answer any THREE questions of the following:**

1. Classify anemia. Discuss the clinical features, investigation and management of iron deficiency anemia.

2. Discuss the etiology, clinical features, investigations and treatment of hypothyroidism.

3. Discuss the etiology, clinical features, complications and management of types of bacterial pneumonia.

4. Classify hypertension. Discuss the clinical features, complications and treatment of essential hypertension.

(15 marks × 3 = 45 marks)

5. **Answer all the following questions.**

5A. Snake bite

5B. Management of needle prick injury

5C. Obstructive jaundice

5D. Obesity

5E. Clinical features of congestive cardiac failure

5F. Management of pulmonary tuberculosis

5G. Complications of acute renal failure

(5 marks × 7 = 35 marks)

MANIPAL ACADEMY OF HIGHER EDUCATION

FOURTH YEAR B.P.T. DEGREE EXAMINATION – DECEMBER 2019

SUBJECT: SURGERY
(2011 REGULATION)

Saturday, December 07, 2019

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

✍ Answer Section "A" and Section "B" in TWO separate answer books.

SECTION A: CARDIOVASCULAR AND THORACIC SURGERY (40 MARKS)

1. Describe the etiopathogenesis, clinical features and management of bronchiectasis.

(10 marks)

2. Enumerate congenital cyanotic and acyanotic heart diseases. Describe tetralogy of Fallot.

(10 marks)

3. **Write short notes on any TWO:**

3A. Enumerate indications for ICD (Intercostal Drainage tube) insertion. Add a note on ICD care
3B. Describe clinical features and management of Lung abscess.
3C. Write a short note on bronchoscopy.

(10 marks × 2 = 20 marks)

SECTION B: GENERAL SURGERY (40 MARKS)

1. Describe the complications of blood transfusion. Enumerate the blood fractions. Add a note on massive blood transfusion.

(10 marks)

2. Define Hernia. Discuss causes, types and management of inguinal hernia.

(10 marks)

3. **Write short notes on any FOUR:**

3A. Write a note on Hypovolemic Shock.
3B. Describe the post-operative pulmonary complications. Add a note on spirometry.
3C. Discuss pathophysiology of Shock.
3D. Write a short note on reconstructive surgeries in head and neck.
3E. Describe clinical features and prophylaxis of deep venous thrombosis.

(5 marks × 4 = 20 marks)

MANIPAL ACADEMY OF HIGHER EDUCATION

FOURTH YEAR B.P.T. DEGREE EXAMINATION – DECEMBER 2019

SUBJECT: COMMUNITY PHYSIOTHERAPY
(2015 & 2011 REGULATION)

Tuesday, December 10, 2019

Time: 10:00-13:00 Hrs

Maximum Marks: 80

✍ **Answer ALL questions.**

1. **Essay questions:**

1A. Define barrier. Explain its types & steps involved in modifying architectural barrier for a paraplegic wheel chair user.

(2+2+6 = 10 marks)

1B. Define ageing. Explain the role of physiotherapist in institutionalized elderly

(2+8 = 10 marks)

2. **Short Notes:**

2A. Explain musculoskeletal changes during pregnancy

2B. Explain any five principles of ergonomics

2C. Write in brief about work conditioning program

2D. Write in brief about risk factors for work related musculoskeletal disorders

2E. Explain any five principles of sports training

2F. Explain the role of physiotherapist in antenatal care in the community

2G. Explain the principles of early intervention

2H. Explain any five principles of CBR

(5 marks × 8 = 40 marks)

3. **Brief Answers:**

3A. Kegel's exercises

3B. Define incontinence

3C. Define participation restriction

3D. What is job simulation?

3E. Mention ideal gradient for a ramp and ideal temperature of working environments

3F. List any four limitation of disability evaluation

3G. List any four agencies involved in rehabilitation

3H. Classify older adults

3I. Mention any four engineering controls for the management of WRMSDs

3J. List out risk factors for falls among older adults

(2 marks × 10 = 20 marks)

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FOURTH YEAR B.P.T. DEGREE EXAMINATION – DECEMBER 2019

SUBJECT: PHYSIOTHERAPY IN CARDIOPULMONARY AND GENERAL CONDITIONS
(2011 & 2015 REGULATION)

Thursday, December 12, 2019

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

✍ **Answer all questions:**

1.   **Essay Questions:**

1A. Write the physiotherapy management for a respiratory failure patient on mechanical ventilator with tracheostomy

1B. Write the cardiac rehabilitation for a patient who has undergone CABG

(10 marks × 2 = 20 marks)

2.   **Short Notes:**

2A. Discuss physiotherapy management for below knee amputation

2B. Discuss the indications, contraindication for postural drainage. Add a note on postural drainage technique for left lower lobe segment.

2C. Define myocardial infarction. Write the clinical features and medical management for myocardial infarction.

2D. Discuss about the indication and the delivery system for oxygen therapy

2E. Explain the technique of Active cycle of breathing.

2F. Mention the relaxed positions to reduce the work of breathing in acute asthma.

2G. Six minute walk test

2H. Discuss about weaning criteria's from Mechanical ventilator

(5 marks × 8 = 40 marks)

3.   **Brief Notes:**

3A. Mention any four neurophysiologic facilitation techniques

3B. Shamroth sign

3C. Define ankle brachial index

3D. Write the ABG findings in acute respiratory alkalosis.

3E. Mention the parts of the endotracheal tube

3F. Name two ways to deliver oxygen in neonate

3G. Define intermittent claudication.

3H. What is PEEP?

3I. Mention the types of humidifiers

3J. Write the phase of Huffing

(2 marks × 10 = 20 marks)

MANIPAL ACADEMY OF HIGHER EDUCATION

FOURTH YEAR B.P.T. DEGREE EXAMINATION – DECEMBER 2019

SUBJECT: EXERCISE PHYSIOLOGY
(2011 & 2015 REGULATION)

Saturday, December 14, 2019

Time: 10:00-11.30 Hrs.   Maximum Marks: 40

✎   **Answer ALL questions.**

✎   **Essay question:**

1.   Explain in detail the cardiovascular and respiratory adaptations to aerobic exercise

(10 marks)

2.   **Brief Answers:**

2A.   Metabolic adaptations to aerobic training

2B.   Heat acclimatization

2C.   Potential hazards of hyperbaric environment

2D.   Principles of endurance training

(5 marks × 4 = 20 marks)

3.   **Short Notes:**

3A.   Define flexibility

3B.   Define power

3C.   What is lactate threshold?

3D.   What is the principle of disuse?

3E.   Name the hormones that regulate water and electrolyte balance during exercise

(2 marks × 5 = 10 marks)

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FOURTH YEAR B.P.T. DEGREE EXAMINATION – DECEMBER 2019

SUBJECT: ELECTRODIAGNOSIS
(2011 & 2015 REGULATION)

Monday, December 16, 2019

Time: 10:00 – 11:30 Hrs.   Maximum Marks: 40

✍ Answer All questions.

✍ Long Answers:

1.   Draw panel diagram of electromyography (EMG). Explain the normal and abnormal potentials during first two phases of EMG.

(2+5+3 = 10 marks)

2.   Write brief answers:

2A. Explain H reflex

2B. Mention the electro diagnostic differences between nerve lesions

2C. Threshold detectors and its implication in physiotherapy

2D. Motor unit study parameters

(5 marks × 4 = 20 marks)

3.   Write short answers:

3A. What is F wave?

3B. Name any four types of needle electrodes used in EMG

3C. What are the normal nerve conduction velocities in upper and lower limb?

3D. Mention any two indications for blink reflex

3E. What is reflex action? Give an example

(2 marks × 5 = 10 marks)

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