

**MANIPAL UNIVERSITY****MASTER OF PHYSIOTHERAPY (MPT) – PART I DEGREE EXAMINATION – JUNE 2017****SUBJECT: RESEARCH METHODOLOGY  
(2013 Regulation)**

Friday, June 02, 2017

Time: 10:00 – 13:00 Hrs.

Maximum Marks: 100

1. Find mean, median, mode and standard deviation for the following data:  
20 24 27 16 32 13 19 24 30 18  
(2+2+2+4 = 10 marks)
2. Define population, sample, sampling, sampling error and non-sampling errors. Briefly explain simple random sampling.  
(5+5 = 10 marks)
3. Briefly explain kurtosis. Based on a sample of size 400, the prevalence of childhood asthma in an urban area was observed to be 15%. Obtain 95% and 99% confidence intervals for the population proportion of obesity in that village. (Standard normal table value for 95% and 99% are 1.96 and 2.58 respectively).  
(5+5 = 10 marks)
4. In a trial on effect of Yoga on breath holding time it was seen that the study group of 15 individuals showed mean breath holding time of 45 seconds with standard deviation of 6 seconds. In the control group of 20 individuals the mean breath holding time was 40 seconds with standard deviation of 3 seconds.
  - 4A. Name the statistical test used to see whether yoga can significantly increase the breath holding time.
  - 4B. What are the assumptions for this test?
  - 4C. State the null and alternate hypothesis.
  - 4D. Calculate the value of test statistic and the corresponding degrees of freedom.
  - 4E. How do you take a decision on acceptance or rejection of null hypothesis at 1% level of significance?  
(1+2+2+4+1 = 10 marks)
- 5A. What are non-parametric tests? Enumerate the advantages and disadvantages of non-parametric tests.
- 5B. An investigator wants to estimate mean systolic blood pressure in a particular population. What is the minimum sample size required if the standard deviation is assumed to be 10 mm Hg, precision of  $\pm 3$  mm Hg and confidence level of 95%? (The standard normal table value for 95% confidence level is 1.96).  
((1+4)+5 = 10 marks)

- 6A. Distinguish between prospective and retrospective cohort studies.  
6B. Explain any three types of randomization in experimental studies.

(5+10 = 15 marks)

7. Distinguish between:  
7A. Reliability and validity of diagnostic tests.  
7B. Simple linear regression and multiple linear regression.

(5+5 = 10 marks)

8. Explain the structure of research protocol.

(10 marks)

9. **Write short notes on**

- 9A. Poisson distribution  
9B. Wilcoxon signed rank test  
9C. Pearson's correlation coefficient

(5 marks × 3 = 15 marks)



**MANIPAL UNIVERSITY****MASTER OF PHYSIOTHERAPY (MPT) – PART-I DEGREE EXAMINATION – JUNE 2017****SUBJECT: THEORETICAL BASIS & PRINCIPLES OF PRACTICE IN PHYSIOTHERAPY  
(2013 REGULATION)**

Monday, June 05, 2017

Time: 10:00 – 13:00 Hrs.

Maximum Marks: 100

**Answer ALL questions.**

1. Write in detail about Biomechanics of Lumbar spine. Add a note on its clinical implication in Mechanical Low Back Pain.  
(20 marks)
2. Discuss about Pulmonary Rehabilitation.  
(20 marks)
3. Write the various assessment methods of balance in an elderly person.  
(20 marks)
4. Discuss the role of Physiotherapy in Osteoporosis and its implications.  
(20 marks)
5. **Short notes:**
  - 5A. Physiology of Locomotion
  - 5B. Principles of Community based Rehabilitation
  - 5C. Management of Wound
  - 5D. Polycystic Ovarian Disease and Role of Physiotherapy

(5 marks × 4 = 20 marks)

