

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)**

**CLASS: BHMCT
BRANCH: HMCT**

**SEMESTER : VII
SESSION : MO/19**

SUBJECT: HM7211 RESEARCH PROJECT DESIGN & METHODOLOGY

TIME: 3:00 HOURS

FULL MARKS: 60

INSTRUCTIONS:

1. The question paper contains 7 questions each of 12 marks and total 84 marks.
 2. Candidates may attempt any 5 questions maximum of 60 marks.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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- Q.1(a) Define research. [2]
Q.1(b) Discuss criteria of good research. [4]
Q.1(c) Explain research process. [6]
- Q.2(a) Distinguish between conceptual and empirical research. [2]
Q.2(b) Discuss observation method of data collection. [4]
Q.2(c) Explain principles of experimental designs. [6]
- Q.3(a) Define moderating variable. [2]
Q.3(b) Enlist characteristics of case study method of data collection. [4]
Q.3(c) Explain semantic differential scale. [6]
- Q.4(a) Define measurement in research. [2]
Q.4(b) Elaborate the sources of error in measurement. [4]
Q.4(c) Describe different types of measurement scales with examples. [6]
- Q.5(a) If the probability of a defective bolt is 0.1. Find mean and standard deviation for the distribution of defective bolt in a total of 500. [2]
Q.5(b) A of 585 pages contains 43 typographical errors. If these errors are randomly distributed throughout the book. What is the probability that 10 pages, selected at random, will be free from errors? [Use $e^{-0.735} = 0.4795$] [4]
Q.5(c) Given the following results of the height and weight of 1000 students: [6]
 $\bar{y} = 68$ inches, $\bar{x} = 150$ lbs, $r = 0.60$, $\sigma_y = 2.50$ inches, $\sigma_x = 10$ lbs. Amit weights 100lbs. Sumit is 5 feet tall. Estimate the height of Amit from his weight and the weight of Sumit from his height.
- Q.6(a) Define stratified sampling. [2]
Q.6(b) The mortality rate for a certain disease is 7 in 1000. What is the probability for just 2 deaths on account of this disease in a group of 400? (Given $e^{-0.28} = 0.06$) [4]
Q.6(c) Calculate the quartile deviation from the following [6]

Class interval	10-15	15-20	20-25	25-30	30-40	40-50	50-60	60-70
Frequency	4	12	16	22	10	8	6	4

Q.7(a) Enlist the steps of technical report writing.

[2]

Q.7(b) Elaborate the mechanics of writing research report.

[4]

Q.7(c) Write the bibliography (APA style) from the following data given below:

[6]

Book's Title	Article title	Authors	Publisher/ Journal/ Newspaper Name	Year	Page No	Place of publication	Edition
Structural Engineering	-	Robert Groove	Pearson Press	1996		New Delhi	Print
	Genetic Enwinding	A.Sen; P. Bare;C.Tate;K.Kalley	Nature, VOL 23, Issue 3	2011	65-86		
	Future of Resource Based Theory	Arthur Simons	Business Today, Vol 29, Issue 1	2009	21-54		Print
	Malaysia off the priority watch list for pirated movies, music	Lee, S.	New Straits Times,	October 3,2006	6		
	Conflict and cognitive control.	Reppel, F. G.	Natural Science Vol 33	2003, February 13	969-970		
How to research	Thinking about research.		Open University Press	1996	19-25	Buckingham	

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