GIET UNIVERSITY, GUNUPUR – 765022

B. Tech (Fifth Semester – Regular) Examinations, December – 2022

BOEME5060 – Research Methodology

(Mechanical Engineering)

Time: 3 hrs   Maximum: 70 Marks

Answer ALL Questions

The figures in the right hand margin indicate marks.

PART – A: (Multiple Choice Questions)   **(1 x 10 =10 Marks)**

		[CO#]	[PO#]
Q.1. Answer *ALL* questions			
a. Who should write a literature review?		CO1	PO1

     (i) Scholar   (ii) Teacher

     (iii) Supervisor   (iv) Consultant

b. How is random sampling helpful?   CO2   PO1

     (i) Reasonably accurate   (ii) An economical method of data collection

     (iii) Free from personal biases   (iv) All of the above

c. The main aim of the scientific method in the research field is to _____ .   CO2   PO1

     (i) Improve data interpretation   (ii) Confirm triangulation

     (iii) Introduce new variables   (iv) Eliminate spurious relations

d. Evaluation Research is concerned with _____.   CO2   PO1

     (i) How well are we doing?   (ii) Why are we doing?

     (iii) What are we doing?   (iv) None of the above

e. Who can successfully conduct Research?   CO2   PO1

     (i) Someone who is a hard worker   (ii) Possesses post-graduation degree

     (iii) Has studied research methodology   (iv) Possesses thinking and reasoning ability

f. Two types of research data include-   CO2   PO1

     (i) Recognised and unrecognised data.   (ii) Structured and unstructured data.

     (iii) Qualitative and quantitative data.   (iv) Organised and processed data.

g. What are the conditions in which Type-I error occurs?   CO3   PO1

     (i) The null hypotheses get accepted even if it is false   (ii) The null hypotheses get rejected even if it is true

     (iii) Both the null hypotheses as well as alternative hypotheses are rejected   (iv) None of the above

h. In order to pursue the research, which of the following is priorly required?   CO2   PO1

     (i) Developing a research design   (ii) Formulating a research question

     (iii) Deciding about the data analysis procedure   (iv) Formulating a research hypothesis

i. An abstract is a _____ .   CO4   PO1

     (i) Synopsys   (ii) Quotation

     (iii) Glossary   (iv) Appendix

j. Thesis is also known as ____ .   CO4   PO1

     (i) Research report   (ii) Monograph

     (iii) Dissertation   (iv) Book

PART – B: (Short Answer Questions)   **(2 x 10 = 20 Marks)**

Q.2. Answer *ALL* questions

		[CO#]	[PO#]
a.	Define research methodology .	CO1	PO1
b.	What do I need to consider when doing observational research ?	CO2	PO1
c.	In the research process why is the problem definition stage probably the most important?	CO2	PO1
d.	Define the purpose of a literature review in research?	CO2	PO1
e.	How do you write data analysis in research methodology?	CO3	PO1
f.	Find the mean of the following distribution:	CO3	PO2

x	4	6	9	10	15
f	5	10	10	7	8

		[CO#]	[PO#]
g.	What are the various important sampling distributions?	CO3	PO1
h.	What is contained in the 'Cover and Title Page' of the research report?	CO4	PO1
i.	What is research proposal?	CO4	PO1
j.	What are the merits of research report.	CO4	PO1

PART – C: (Long Answer Questions)   **(10 x 4 = 40 Marks)**

Answer *ALL* questions

		Marks	[CO#]	[PO#]
3. a.	What is Research and note down various advantages and limitations of Research.	2+3	CO1	PO1
b.	Discuss problems encountered by researchers in India		CO2	PO1
	(OR)			
c.	Explain the case study method of a research.	10	CO2	PO1
4. a.	Discuss in detail the basic issues addressed in research design?	5	CO1	PO1
b.	Discuss the various sources of collecting secondary data.	5	CO2	PO1
	(OR)			
c.	Which are the important aspects you will take into account while designing a Questionnaire for a research study?	6	CO2	PO1
d.	Discuss briefly about various kinds of charts and diagrams used in data analysis	4	CO2	PO5
5. a.	Differentiate between mean, median and mode.	6	CO2	PO2
b.	Find the mode of the given data:	4	CO3	PO2

Marks Obtained	0-20	20-40	40-60	60-80
Number of students	5	10	12	6

(OR)

		Marks	[CO#]	[PO#]
c.	Find the mean, median, mode, and range for the following list of values: 8, 9, 10, 10, 10, 11, 11, 11, 12, 13	5	CO3	PO2
d.	Write short notes on measures of dispersion.	5	CO3	PO2
6. a.	What is Report Writing? Explain the Process of Writing the Report.	5	CO4	PO10
b.	What is plagiarism and state the techniques to avoid it.	5	CO4	PO5
	(OR)			
c.	Discuss the different stages in report writing.	5	CO4	PO10
d.	Enumerate and explain about ethics in research.	5	CO4	PO8

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