



Sanjay Ghodawat University, Kolhapur
Established as State Private University under Govt. of Maharashtra.
Act No XL, 2017

2018-19
EXM/P/09/00

Year and Program:
2018-19, M.Sc.-I (All)
Course Code – REM 502

School of Science
**Course Title – Research
Methodology-II**

Department
Mathematics, Physics, Chemistry
Semester – II

Day and Date – Wednesday
29-05-2019

End Semester Examination

Time: 3:00 to 3:30 pm
Max Marks: 100

PRN number –

Seat no-

Answer Booklet No.-

Students' Signature -

Invigilator's Signature

Marks for section A out of 20:

Instructions:

- 1) All questions are compulsory.
- 2) For MCQs mark/tic (✓) for correct answer. No marks for multiple ticks(✓).
- 3) Section A should be submitted to Jr. Supervisor immediately after first 30 min.
- 4) Use Blue ball pen only.

Section A

Q.1	Tick Mark correct alternative	Marks	Bloom's Level	Cos
1)	_____ is a systematic list of books and other works such as journal articles. A) Bibliography B) Index C) List of books D) List of journals	01	L ₁	CO1
2)	Statement of the objective of the research appears in A) main report B) summary C) conclusion D) introduction	01	L ₁	CO1
3)	Which one of the following is a type of Probability Sampling? A) Cluster Sampling B) Cluster Sampling C) Referral /Snowball Sampling D) Quota Sampling	01	L ₁	CO1
4)	Which of the following problem statements is best suitable to study environment problem as per the techniques of defining effective problem statements?	01	L ₃	CO2

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- A) Air Pollution
 B) Air pollution in India
 C) Air Pollution in Kolhapur
 D) Effect of industrial air pollution on some vegetables and cash crops in Kolhapur District
- 5) If the population has 85% females and 15% males, and the researcher wishes to use Quota Sampling Method then his/her sample should consist ____
- A) 70% females and 30% males C) 30% females and 70% males
 B) 50% females and 50% males D) 85% females and 15% males
- 6) ____ refers to the rules and procedures by which some elements of the population are included in the sample.
- A) sampling method C) sampling design
 B) sampling D) population
- 7) What are secondary data?
- A) Unimportant data C) Ordinal data.
 B) Existing data D) Ordinary data.
- 8) Which one of the following is primary data?
- A) Unimportant data C) Observation.
 B) Ordinary data D) None of these
- 9) \TeX a computer language created in ____
- A) 1960 C) 1980
 B) 1970 D) 1965
- 10) To use \ in LaTeX (as a regular text) output we use the command
- A) \ C) \textbackslash
 B) \\$\backslash\$ D) \\
- 11) Which one of the following is not a documentclass in LaTeX?
- A) book C) plain
 B) report D) letter
- 12) Which of the following is not font size in LaTeX (without package)?
- A) 11 C) 10
 B) 12 D) 16

- 13) Which is the correct command, to obtain the output $x^2 + y^2 = a^2$ in LaTeX? 01 L₂ CO2
 A) $\$xx+yy=aa\$$ C) $\$x^2+y^2=a^2\$$
 B) $\$x*x+y*y=a*a\$$ D) $x^2+y^2=a^2$
- 14) The range of correlation coefficient is 01 L₁ CO3
 A) [-1,1] C) {-1,1}
 B) (-1,1) D) [0,1]
- 15) Find the median 800, 725, 750, 900, 925, 910, 1000, 790, 870, 920 01 L₁ CO3
 A) 885 B) 800 C) 750 D) 826
- 16) For individual observations, reciprocal of arithmetic mean is called 01 L₂ CO3
 A) geometric mean C) arithmetic Mean
 B) harmonic mean D) paired mean
- 17) The maximum value of correlation coefficient is 01 L₁ CO3
 A) 0 C) -1
 B) 1 D) 0.5
- 18) Mode of 12, 17, 16, 14, 13, 16, 11, 14 is 01 L₂ CO3
 A) 11 C) 14 and 16
 B) 14 D) 13
- 19) The average salary in one section of a firm is Rs 800 with number of workers 40 and in another section is Rs 900 with number of workers 60 then, find the arithmetic mean of the salary of the workers of the two sections. 01 L₃ CO3
 A) Rs 800 C) Rs 860
 B) Rs820 D) Rs. 880
- 20) A coefficient of correlation is computed to be -0.95 means that 01 L₂ CO3
 A) Correlation coefficient cannot have this value
 B) The relationship between two variables is strong and positive
 C) The relationship between two variables is strong and negative
 D) The relationship between two variables is weak.

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(ESE)

Time: 2 1/2 Hrs. 3.00 to 5.30 pm.
Max Marks: 100

Instructions:

- 1) All questions are compulsory.
- 2) Figures to the right indicate full marks.
- 3) Non-programmable calculator is allowed.

Section B

		Marks	Bloom's Level	Cos
Q.2	Answer the following questions (Any Two)			
a)	Describe the different steps involved in a research process.	8	L ₂	CO1
b)	Illustrate with suitable example the Probability Sampling Method.	8	L ₃	CO1
c)	Enumerate the types of Non-Probability Sampling Method with suitable example.	8	L ₃	CO1
Q.3	Answer the following questions (Any four)			
a)	Write a note on "Ethics in Research."	4	L ₁	CO2
b)	Differentiate between Primary and Secondary Data.	4	L ₂	CO2
c)	Construct LaTeX code to obtain the following out put	4	L ₃	CO2
	$\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1 \quad (1)$			
	$y = ax + by + c - \frac{\delta}{\epsilon} \left[\frac{\cos(\theta)}{1 + \sin^3 \theta} \right]$			
d)	Write output of the following LaTeX code. <code>\documentclass{article}</code> <code>\begin{document}</code> The equation of the circle is $x^2 + y^2 = a^2$ with center is $(0,0)$ and radius a . $\lim_{x \rightarrow 0} \frac{\sin x}{x} = 1$ whereas $\lim_{x \rightarrow 0} \frac{\cos x}{x}$ not exists <code>\end{document}</code>	4	L ₃	CO2
e)	List the advantages of LaTeX for document preparation.	4	L ₄	CO2

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Q.4

Answer the following questions (Any Two)

- a) Apply the techniques of writing report/thesis and write a sample report on any topic. (Preliminary Pages, main text and end matter.) 8 L4 CO1
- b) i) Write the latex code to generate the following equation array 8 L3 CO2

$$\begin{aligned} \cos 2\theta &= \cos^2 \theta - \sin^2 \theta \\ &= 2 \cos^2 \theta - 1 \\ &= 1 - 2 \sin^2 \theta \end{aligned}$$

ii) What is the output of following LaTeX document

```
\documentclass{article}
\begin{document}
The feature of \LaTeX {} is
\begin{enumerate}
\item \LaTeX {} is open source software
\item \LaTeX {} works for different operating system
\item \LaTeX {} is default for Linux.
\end{enumerate}
\end{document}
```

- c) State and explain any four packages in LaTeX with example. 8 L4 CO2

Q.5

Answer/Attempt the following questions (Any Two)

- a) Compute Kerl person's correlation coefficient for the following data and also comment on the answer. 8 L4 CO3

x	2.6	2.8	2.9	3.1	3.2	2.3	2.5	1.8
y	5.9	6	6.2	6.2	7.6	7	7.5	5.5

- b) Find Arithmetic mean, geometric mean and Harmonic mean for the data 20, 22, 25, 28, 30 and compare the answer. 8 L2 CO3

- c) Calculate mean, median and mode from the following data 8 L3 CO3

Class	15-25	25-30	35-45	45-55	55-65	65-75
Freq.	4	11	19	14	0	2

Q.6

Answer/Attempt the following questions (Any Two)

- a) Define correlation and explain it types with suitable examples. 8 L2 CO3
- b) Define range, mean absolute deviation and standard deviation. 8 L1 CO3
- c) Find the median from the following data 8 L3 CO3

x	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
f	15	35	60	84	96	127	198	250

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