



HINDU COLLEGE OF PHARMACY

AUTONOMOUS

Amaravathi Road, GUNTUR-522 002. A.P.

Affiliated to Acharya Nagarjuna University and Recognized by
Pharmacy Council of India, UGC 2 (f) & 12 (B) - New Delhi, Certified by ISO-9001-2018



Set No: 2

Regd. No:

Total No. of Questions: 14

MRM 301 T
Total No. of Pages: 02

II/II M. PHARMACY (REGULAR) DEGREE EXAMINATIONS, FEBRUARY, 2026

Third Semester (Non-University)

COMMON PAPER FOR ALL BRANCHES

RESEARCH METHODOLOGY & BIOSTATISTICS

Duration: Three Hours

Maximum Marks: 75 M

CO1	Know about objective, requirements and practical difficulties of Research, study designs, blinding techniques
CO2	Know about importance of sample size, test of significance for parametric and non-parametric data, correlation and regression
CO3	Know about Medical Research such as history and values in medical ethics, conflicts between autonomy and beneficence, euthanasia, importance of communication, ethics committees, vendor relationships, treatment of family members, fatality etc.,
CO4	Know about CPCSEA guidelines for laboratory animal facility such as Veterinary care, treatment and control of disease, location of animal facilities to laboratories, physical facilities, animal husbandry, SOPs, transport of lab animals
CO5	Know about declaration of Helsinki such as history, basic principles for all medical research, and additional principles for medical research combined with medical care

B L - Bloom's Taxonomy Levels (L2 - Remembering, L2 - Understanding, L3 - Applying,
L4 - Analysing, L5 – Evaluating, L6 -Creating)

SECTION - A

ANSWER ANY FIVE QUESTIONS

(5 X 5 M=25 M)

Q. No.	Questions	Marks	CO	BL
1	Outline the strategies to prevent errors and bias in experimental and clinical research	5	1	L2
2	Define Correlation and Correlation coefficient. Describe different types of correlation	5	2	L1
3	Write a short note on One-way ANOVA and Two-way ANOVA	5	2	L1
4	Discuss the features, advantages, and disadvantages of a crossover study design	5	1	L2
5	Explain the fundamental ethical principles outlined in the Declaration of Helsinki	5	5	L2
6	Write the importance of confidentiality and cultural concern in medical research	5	3	L2
7	Write a note on transport of laboratory animals	5	4	L2

Contd.....

SECTION - B

ANSWER ANY FIVE QUESTIONS

(5 X 10 M=50 M)

Q. No.	Questions	Marks	CO	BL												
8	Describe in brief about values in medical ethics.	10	3	L2												
9	Describe in detail about Chi-Square test and its applications	10	2	L1												
10	To Find out whether a new serum will arrest leukemia, 9 mice, which have all reached an advanced stage of disease, are selected. Five mice receive the treatment and 4 do not. The survival times, in years, from the time the experiment commenced are as follows. <table><tr><td>Treatment</td><td>2.1</td><td>5.3</td><td>1.4</td><td>4.6</td><td>0.9</td></tr><tr><td>No treatment</td><td>1.9</td><td>0.5</td><td>2.8</td><td>3.1</td><td>---</td></tr></table> At the 0.05 level of significance, can the serum be said to be effective? Assume the two distributions to be normally distributed with equal variances. The value of the test statistic in this case at 7 d.f is 2.365	Treatment	2.1	5.3	1.4	4.6	0.9	No treatment	1.9	0.5	2.8	3.1	---	10	2	L5
Treatment	2.1	5.3	1.4	4.6	0.9											
No treatment	1.9	0.5	2.8	3.1	---											
11	Evaluate the different euthanasia techniques used in laboratory animals	10	4	L5												
12	Discuss the Declaration of Helsinki and its importance in medical research	10	5	L3												
13	Explain the various types of research and outline the steps of the research process.	10	1	L3												
14	Discuss the significance of reviewing scientific literature and its role in designing and conducting research	10	1	L4												

*** *All the Best* ***