

No. of printed pages : 2

Your Roll No.....

Pre Ph.D. Examination — June 2019

**Research Methodology and
Science of Scientific Writing**

(PPD - 101)

Time : Three Hours

Maximum Marks : 70

*(Write your Roll No. at the top immediately
on receipt of this question paper.)*

- *No student is allowed to leave the Hall before Two hours.*
 - *Answer any FIVE questions.*
 - *All questions carry equal marks.*
1. a) Discuss various methods and sources of information for literature review and data collection. (8)
 - b) Differentiate between Impact Factor and Citation Index in scientific journals and papers. (6)
 2. a) Describe various features and types of research designs. (7)
 - b) Discuss objectives and techniques of defining research problem. (7)

P.T.O.

3. a) Discuss Ethical issues in research and publication. (7)
b) Discuss different guidelines concerning studies on Human subjects. (7)
4. a) Discuss significance and steps involved in report writing. (7)
b) Write a note on Research grant proposal writing. (7)
5. Discuss various types of research and its significance in today's time. (14)
6. Write short notes on any *two* : (7 × 2 = 14)
 - a) Disposal of chemicals and wastes.
 - b) Research methods and Research methodology.
 - c) Methods of result presentation.
7. a) Describe salient features of Good Laboratory Practices. (8)
b) Explain basic principles of experimental designs. (6)

No. of printed pages : 3

Your Roll No.....

Pre Ph.D. Examination — June 2019
Biostatistics, Computer Application and
Communication Skills
(PPD - 102)

Time : Three Hours

Maximum Marks : 70

*(Write your Roll No. at the top immediately
on receipt of this question paper.)*

- *No student is allowed to leave the Hall before Two hours.*
 - *Answer any FIVE questions.*
 - *All questions carry equal marks.*
1. a) A manufacturer of metal pistons finds that on the average, 12% of his pistons are rejected because they are either oversize or undersize. What is the probability that a batch of 10 pistons will contain
- i) no more than 2 rejects
 - ii) at least 2 rejects
- b) Hospital records show that of patients suffering from a certain disease, 75% die of it. What is the probability that of 6 randomly selected patients, 4 will recover ?
- c) In the old days, there was a probability of 0.8 of success in any attempt to make a telephone call. Calculate the probability of having 7 successes in 10 attempts. (6 + 4 + 4 = 14)

P.T.O.

2. a) If three persons, on an average, come to ABC company for job interview, then find the probability that less than three people have come for interview on a given day (Use Poisson Distribution).
- b) What is Hypothesis Testing ? Also explain the Type I and Type II error in statistics.
- c) Explain Probability Sampling and Non-Probability Sampling.
- d) The values of x and their corresponding values of y are shown in the table below :

x	0	1	2	3	4
y	2	3	5	4	6

- i) Find the least square regression line $y = a x + b$.
- ii) Estimate the value of y when $x = 10$.
(4 + 4 + 3 + 3 = 14)
3. Write short notes on :
- a) ANOVA and Z test and T test.
- b) Kruskal Wallis test and Wilcoxon Rank test.
(7 + 7 = 14)
4. a) What is the basic objective of Communication ? How a formal written communication to non-formal communication. When an author presenting his paper in a conference then what type of audience should be there ? What is the significance of knowing the structure of communication ?

b) What is expression mixed verbal communication? Why it is important for a teacher?

(7 + 7 = 14)

5. a) Write a technical description (technical writing script) of any *one* of the following:

i) Pharmaceutical Industry

ii) Digital Marketing

iii) Mobile Phone

b) Write a Slogan on the following:

i) No pollution - save earth

ii) Say no to tobacco

(7 + 7 = 14)

6. a) "Computers are already better than doctors at diagnosing some diseases" – is this statement correct or not? Also justify your answer.

b) How computer modeling helps pharmaceutical industry in designing and manufacturing the new drugs?

(7 + 7 = 14)

7. Write short notes on any *two*:

a) Software for Herbal drug research

b) Software for QbD

c) Normal Distribution

d) Language tool for communication. (7 + 7 = 14)

No. of printed pages : 2

Your Roll No.....

Pre Ph.D. Examination — June 2019

**Advances in Pharmaceutical Sciences,
IPR and Entrepreneurship**

(PPD - 103)

Time : Three Hours

Maximum Marks : 70

*(Write your Roll No. at the top immediately
on receipt of this question paper.)*

- *No student is allowed to leave the Hall before Two hours.*
 - *Answer any FIVE questions.*
 - *All questions carry equal marks.*
1. Write a brief note on recent developments in protein and peptide drug delivery systems with examples of atleast one product which is either commercialized or in the final phase. (14)
 2. a) Write a brief note on how to file a patent in India.
b) What is PCT application and describe general rules for filing the same. (7 + 7 = 14)
 3. Write brief notes on any *two* :
 - a) Latest techniques in Pharmaceutical Analysis.
 - b) Biomarkers
 - c) Smart drug delivery. (7 + 7 = 14)

P.T.O.

4. How will you submit Project Proposal to start a new enterprise? Enumerate in brief various governmental policies which support the startups in India in healthcare domain. (14)
5. Describe the process of new drug discovery and its challenges. Give in brief the Analytical tools essential for drug discovery. (14)
6. a) What is Patent licensing and its role in commercialization of a product.
- b) Describe in brief process of Patent search and Analysis. (7 + 7 = 14)
7. Write brief notes on any *two* :
- a) Role of Quality by Design in Product Development
- b) Translational Research
- c) Role of IP in Pharmaceutical Growth. (7 + 7 = 14)