

Fourth Year Pharm. D : SUMMER - 2019
SUBJECT : BIOSTATISTICS & RESEARCH METHODOLOGY

Day : Tuesday
Date : 16/04/2019

Time : 02.00 P.M. TO 05.00 PM
Max. Marks : 70

S-2019-4520

N.B.:

- 1) **Q.No.1 and Q.No.5** are **COMPULSORY**. Out of the remaining questions attempt **ANY TWO** questions from each section.
- 2) Answers to both the sections should be written in **SEPARATE** answer books.
- 3) Statistical tables and graph papers will be supplied at the examination centre.
- 4) Use of non-programmable electronic pocket **CALCULATOR** is allowed.
- 5) Figures to the right indicate **FULL** marks.

SECTION – I

- Q.1 A)** Answer **ANY FOUR** of the following: **[08]**
- i) List main features of good research design.
 - ii) Write the importance of control group in research design.
 - iii) Explain in short computational use of computer.
 - iv) What is inventory control?
 - v) What is experimental design?
 - vi) What is computerized retrieval?
- B)** What is research? Write its importance in science **[03]**
- Q.2** Explain different types of clinical design in research. **[12]**
- Q.3 a)** Write the importance of computer system in community pharmacy. **[07]**
- b)** Write the importance of sample size determination in research. **[05]**
- Q.4** Write short notes on **ANY THREE** of the following: **[12]**
- a) Research report writing
 - b) Computer use in hospital pharmacy
 - c) Exploratory design
 - d) Data presentation in research

P.T.O.

SECTION – II

- Q.5 A) Attempt ANY FOUR of the following: [08]**
- i) Define 'Mode'.
 - ii) Compute Arithmetic Mean and the Median of the following:
27, 25, 34, 29, 22, 31, 37.
 - iii) Give two examples of the positive correlation.
 - iv) Give two differences between Poisson and Binomial Distribution.
 - v) Write any two guidelines for making classes / groups.

B) Prepare a explanatory note on 'Scatter Diagram'. Draw the suitable diagram. [03]

- Q.6 a) Draw the 'Less than Ogive' for the following data and using the graph find the approximate value of the Median. [06]**

Weight (in kgs)	30 – 40	40 – 50	50 – 60	60 – 70	70 – 80	80 – 90
No. of patients	18	37	45	27	15	8

- b) If the probability that a senior citizen is suffering from B.P. is 0.3; then if 6 citizens are checked at random then what is the probability that at most 2 are suffering from B.P. [06]**

- Q.7 a) Following are the marks obtained in Maths and Statistics by six individuals [06]**

Maths	98	87	56	65	71	39
Stats	79	82	80	66	54	52

Find the Spearman's Rank correlation coefficient.

- b) A newly developed drug to cure a disease showed following results: [06]**

No. of patients	New drug used	Conventional drug used
Cured	77	55
Not cured	23	45

Test whether the drug is effective (Use 5% LOS).

- Q.8 a) Following are the body temperature in °F for individuals in Europe and Asia. [06]**

Europe	98.7	98.5	97.9	98.4	98.6	98.0	--	--
Asia	97.6	98.1	97.3	98.3	98.6	97.9	98.5	98.2

Using Mann Whitney U test, test whether the body temperature for individuals in Europe and Asia differs significantly (Use 5% LOS).

- b) The number of patients suffering from Dengue admitted to a hospital are as below: [06]**

Jan : 18, Feb : 16, March : 17, April : 15, May : 20, June : 24, July : 39,
August : 32, Sept : 33, Oct : 30, Nov : 25, Dec : 20.

Test whether the incidence of Dengue is uniform over all months of the year. (Use 5% LOS).

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