

FOURTH YEAR PHARM. D : SUMMER - 2018
SUBJECT : BIostatISTICS AND RESEARCH METHODOLOGY

Day : **Friday**
Date : **13/04/2018**

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

S-2018-4041

N. B. :

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

SECTION - I

- Q.1 a)** Solve **Any FOUR** of the following : **(08)**
- i) What are case studies?
 - ii) What are observational studies?
 - iii) What are interventional studies?
 - iv) What is placebo?
 - v) Mention two uses of computers in Hospital Pharmacy.
 - vi) What is power of an investigation?
- b)** Differentiate between qualitative and quantitative data. **(03)**
- Q.2** How do you collect data in clinical trials? Explain with suitable examples. **(12)**
- Q.3** Differentiate between prospective and retrospective clinical research indicating advantages and disadvantages. **(12)**
- Q.4** Write short notes on **Any THREE** of the following : **(12)**
- a) Acute toxicity
 - b) Sample size
 - c) Confidence interval
 - d) Purpose of research

SECTION - II

- Q.5 a)** Solve **Any FOUR** of the following : **(08)**
- i) Explain the term Prevalence'.
 - ii) List any two statistical soft-wares with their uses.
 - iii) Compute Median and Mode for following :
 - iv) 35, 47, 36, 49, 47, 32, 44
 - v) Define the terms: Population, Sample.
 - vi) Write any two guidelines for making the classes/groups from the raw data.
- b)** Compute the Spearman's Rank correlation coefficient for the following : **(03)**
- Rank by A → 1, 2, 3, 4, 5, 6
Rank by B → 3, 2, 1, 5, 4, 6

P.T.O.

- Q.6 a)** Compute the Median and Mode for following data in respect of the drug contents (in mL) in a bottle. **(06)**

Drug contents in mL	490-495	495-500	500-505	505-510	510-515	515-520
No. of bottles	10	16	22	9	6	3

- b)** Draw the Less than Ogive graph form the following data in respect of the body temperature of the patients in a hospital. **(06)**

Temp (in °F)	90-92	92-94	94-96	96-98	98-100	100-102	102-104
No. of patients	11	17	22	28	16	13	9

- Q.7 a)** If the heights of the soldiers in a battalion are normally distributed with the mean of 170 cm and the S.D. of 6 cm. what is the probability that the height of a randomly selected soldier is above 175 cm.? **(06)**

- b)** The probability that a senior citizen is suffering from B.P. is 0.25. If 8 senior citizens are checked what is the probability that at least 2 are suffering from B.P. **(06)**

- Q.8 a)** A manufacturer claims that the life of their product is 1500 hrs and the S.D. is 14 hrs. When 100 products are checked it showed the mean life as 1490 hrs. Could you justify the claims of the manufacturer? (Use 5 % L.O.S.) **(06)**

- b)** The pulse rates of the ladies and the gents in an organization are as below **(06)**

Ladies	73	74	69	79	75	76	77	71
Gents	71	75	72	80	73	77	75	73

Test using the sign test that the pulse rate of ladies and gents are significantly different (Use 5 % L.O.S.)

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