

F.Y.B.PHARM. SEMESTER-I (CBCS - 2015 Course) : WINTER - 2018

SUBJECT: PHARMACEUTICAL STATISTICS

Day: Monday
Date: 26/11/2018

W-2018-4066

Time: 10.00 A.M. TO 01.00 P.M.
Max. Marks: 60

N.B:

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

SECTION - I

Q.1 Explain the following terms in brief (**ANY FIVE**) : **(10)**

- a) Normal distribution
- b) Independent events
- c) Types of events
- d) Types of correlation
- e) Advantages of standard deviation
- f) Statistical data

Q.2 a) Compute mean and mode using the following data. **(05)**

C.I.	0-4	5-9	10-14	15-19	20-24	25-29	30-34
F	5	14	22	30	45	28	12

b) Plot frequency polygon by using the following data. **(05)**

C.I.	100-300	300-500	500-700	700-900	900-1100
F	6	16	24	20	10

Q.3 a) Explain the term 'Scatter diagram' with suitable examples. **(05)**

b) Compute the value of Karl Pearson's correlation coefficient by using the following data. **(05)**

X	20	22	25	38	42	47	50
Y	10	17	14	12	18	16	20

Q.4 a) If the probability that a senior citizen is suffering from B.P. is 0.3, what is the probability that in a group of 7 randomly selected senior citizens exactly 3 are suffering from B.P.? **(05)**

b) If the mean weight of the new born babies in a hospital is 2.8 kg with the S.D. of 0.2 kg; using the normal distribution, what is the probability that a randomly selected baby will weigh below 2.6 kg. **(05)**

P.T.O.

SECTION-II

- Q.5** Attempt **ANY FIVE** of the following: **(10)**
- a) Select the correct option and re-write the sentence:
Sign test is a parametric/Non-parametric test of significance.
 - b) Define Hypothesis.
 - c) Define the term 'type II' error.
 - d) State any two factors considered to determine the sample size.
 - e) Name any two experimental Designs.
 - f) State when a sample is called as 'Small Sample'.

- Q.6** a) The Hb values of some ladies in Europe and Africa are as below **(05)**

Europe	14.0	14.5	15.0	15.3	14.7	14.8	15.1
Africa	14.2	14.5	14.7	15.0	14.4	14.6	14.9

Use the sign test to test whether the Hb values for ladies in Europe and in Africa are significantly different (use 5% L.O.S.)

- b) What do you understand by the term 'test of significance' and the 'level of significance' and the 'Critical Area'? **(05)**
- Q.7** a) From the data given below about the treatment on 260 patients suffering from a disease, State whether the new treatment is superior to the conventional treatment. (Use 5% L.O.S.) **(05)**

Treatment	No. of Patients	
	Favorable	Not favorable
New	140	40
Conventional	60	20

- b) Following are the average number of accidents observed in a large manufacturing unit on various days. **(05)**

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
2	3	5	2	9	4

Using the X^2 test, test whether the accidents are spread uniformly over all the days. (use 5% L.O.S.)

- Q.8** a) The theory says that the average age at which the individuals start greying their hair is 45 years with a S.D. of 5 year. When the record of 400 senior citizens were checked its revealed that the average age at which they started greying their hair is 48 years. Test whether the result justify the theory. (Use 5% L.O.S.) **(05)**

- b) Following are the pulse rate of the different individual belonging to various professions. **(05)**

Teachers	72	73	71	74	72
Auditors	69	68	75	70	71
Lawyers	80	83	85	82	81

Using the Kruskal Wallis H test (the non-parametric rank test) test whether pulse rate of these different professions differ significantly (Use 5% L.O.S.)