**ARKA JAINUniversity, Jharkhand**

8th Semester 2nd Internal Examination – 2022-2023



**Subject: Biostatistics and Research Methodology**

**Course: B. Pharm Sem-8**

**Time: 1hr Full Marks: 30**

* **All Questions are compulsory**.

**Section A**

**All the Questions are COMPULSORY 1x10=10**

**1(i)** If X is a continuous random variable with PDF f(x) the commutative distribution

 Function F(x) if given by

 i) ii) iii) iv) none of these

1(ii) A rondom variable X has the following probability function

 X=xi -2 -1 0 1 2 3

 P(x) 0.1 k 0.2 2k 0.3 k then value of k =?

 i)0.15 ii) 0.2 ii) 0.3 iv) none of these

1(iii) which of the formula is correct for mean for discrete series

 i) (ii) ) iii) ) iv) none of these

1(iv)Which of the following formula is used for calculation of mode

 (i) L1+ (ii) L1+ (iii) L1+ (iv) none of these

1(v) If f(x) be probability density function then =?

 i) 0 ii) 1 iii) iv) none of these

1(vi) large sample theory is applicable when

 (i) N>100 (ii) N>100 (iii) N>50 (iv) N>30

 1. (Vii) In which series The formula is used for median Numbers

 i)individual ii) discrete (iii) continuous iv) none

1. (Viii) Standard Error of number of success is given by

 (i) (ii) (iii) (iv) none of these

1. (IxIf F(x) be a distribution Function then F()=

 (i) 1 (ii) 0 (iii) not defined (iv) none

1. (x) If E1 and E2 be the two events are said to be mutually exclusive events if

 (i)E1 E2 = (ii) E1 E2 =0 iii) iv) none of these

 **Section B**

**Answer any ONE out of TWO [1x 10= 10Marks]**

**1.** A random variable X has the following probability function

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| X | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| P(x) | 0 | k | 2k | 2k | 3k | K2 | 2K2 | 7K2+k |

 Find (i) value of k (ii) Evaluate P(X<6) (iii) Evaluate P(X>6) (iv) P(0<X<5).

2. The mean height of 500 students is 151cm and the standard deviation is 15 cm. Assuming that the height are normally distributed. Find how many students have height between 120cm to 155cm.given that P(-2.07<Z<0)=0.4808.and P(0<Z<0.27)=0.1064.

**Section C**

**Answer any TWO out of THREE [2 x 5 = 10 Marks]**

1. The probability Mass function of a variate X is

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| X | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| P(x)  | k | 3k | 5k | 7k | 9k | 11k | 13k |

 Find p(x<4), P(X>5), P(3<x<6).

2. The probability that an entering student will graduate is 0.4. determine the probability that out of 5 students (i) none (ii) only one (iii) at least one will be graduate

3. Is the function Defined as follows a density function?

 F(x)=e-x, x

 = 0, x<0

 If so, determine the probability that variate having this density will fall in the interval [1,2].