Date: Dec-2017   *SUBJECT: STATISTICS*

II PUC
MOCK-I

Timings Allowed: 3Hrs.   *Total Marks: 100*

Instructions to candidates:
1. **Write the serial number of questions properly as given in the question paper while answering**
2. **Write the correct and complete answers.**

SECTION –A

Answer any ten of the following   **10 x 1=10**
1. Generally what is the child bearing age for women?
2. Name the index number which satisfies unit test
3. What is the value of index number for the base year?
4. What is a seasonal variation?
5. What are the values that a Bernoulli variate can take?
6. Write down the probability density function for Normal distribution?
7. Define Acceptance region.
8. What is sample space?
9. Define type I error.
10. Mention different types of control chart.
11. What do you mean by zero sum Game?
12. Give an example for equipment's which deteriorate with age.

SECTION-B

Answer any ten of the following   **10 x2=20**
13. Mention two fertility rates.
14. Given $\Sigma p_0 q_1 = 172$ and $\Sigma p_0 q_0 = 192$ calculate suitable Quantity index number
15. Why fisher's index number is called as ideal index number.
16. Mention all the components of time series.
17. Expand $(Y-1)^4$ & $(y-1)^5$
18. What are the mean variance and standard deviation of a normal distribution?
19. If n=10 for a student t-distribution find the median and standard deviation.
20. Write chi-square test statistic with degrees of freedom in testing of goodness of fit.
21. Write two application of t-test
22. Mention two types of causes for variation in a manufacturing process.
23. From the following TP test whether the solution is non degenerate

	D1	D2	D3
O1	2	5	
O2		3	1
O3			

24. Given R=1000 units/month C_3=Rs.350 & C_1=Rs 0.20 units/month. Find EOQ

SECTION-C

Answer any ten of the following   **15 x 8=40**

25. **From the following data calculate GFR and TFR**

Age(in years)	Female Population	No.of live births
15-19	10000	500
20-24	15000	900
25-29	14000	1400
30-35	13000	1170
35-37	9000	450
40-44	6000	120
45-49	3000	30

26. What is Index number? Write down the uses of Index number

27. Compute cost of living index number by using the following data.

Item	Weight	Price(in Rs) Base years	Current year
Food	10	400	500
House rent	5	160	240
Clothing	3	80	100
Fule and light	4	100	140
Miscellaneous	5	160	200

28. Compute the trend value by finding 3 yearly moving averages for the following data.

year	2003	2004	2005	2006	2007	2008	2009	2010
value	15	18	17	20	23	25	29	33

29. From the following data interpolate the sales for the year 1998

Year	1996	2000	2004	2008	2012
Sales(units)	47	84	105	111	114

30. Write down the features of hyper-geometric distribution.

31. In a certain school, 40% of the students have opted for first language Kannada, Assuming 20 teachers take a sample of 4 students each, how many teachers will report that 2 or 3 students opted for first language Kannada.

32. A company manufactures the car tyres, the average life is 40,000 Kms and SD 5000 Kms. A change in the production process is believed to result in better product. A test sample of 100 new tyres has been mean life of 41000 Kms. Can you conclude at 5% LOS that the new product gives better result?

33. From the following data, test whether literate and smoking are independent at 5% LOS.

	smoker	Non smoker
Literates	7	18
Illiterates	13	12

34. In a production process, 8 samples of size 4 are collected. Their averages are given below. Construct R chart (Given, d2=2.059, D1=0, D2=4.698, D3=0, D4=2.282)

Sample	1	2	3	4	5	6	7	8
R	3	2	4	2	5	4	3	2

35. Graphically, solve the following LPP

Maximise Z=3x+2y

S,t x+3y≥ 6

2x+y≥ 8

and x, y >0

36. The cost of a machine is Rs 10500 and its resale value is 500. The maintenance cost in different years are as follows:

Years	1	2	3	4	5	6
Maintenance	800	1000	1500	2200	2800	3900

SECTION-D

Answer any two of the following.   **2 X 10 =20**

37. From the following data calculate the STDR'S for locality A and locality B. Taking locality A as standard population

Age in years	Locality-A		Locality –B	
	Population	Death	Population	Death
Below 5 years	5000	140	4000	145
5-14	12000	50	11000	60
15-64	15000	80	14000	90
65 & above	4000	150	3000	110

38. **For the following data compute Fisher's quantity index number. Show that Fisher's index number satisfies Time Reversed Test and Factor Reversal Test for the given data.**

Items	Price (Rs)		quantity (Rs)	
	2008	2009	2008	2009
A	9	9	3	6
B	20	21	9	10
C	10	10	5	6

39. Fit a straight line trend for the following data by the method of least squares and calculate the trend values. Estimate the production for the year 2008

Year	2000	2001	2002	2003	2004	2005	2006
Production in (000 tons)	50	47	52	45	48	55	60

40. The following data shows the suicides of 1096 women in 8 Punjab cities during 14 years.

No of suicides in the state per year	0	1	2	3	4	5	6	7
Frequency	364	376	218	89	33	13	2	1

Fit a Poisson distribution to the data and show that the distribution is not good to fit using 5%.

SECTION-E

Answer any two of the following   2 X 5 = 10

41. Solve the following game by dominance property

		Player B			
		B_1	B_2	B_3	B_4
Player A	A_1	5	2	1	6
	A_2	2	1	0	2
	A_3	7	5	4	5

42. X is a normal variate with parameters $\mu=50$, $\sigma^2=16$. Find (i) $P(X>48)$
(ii) $P(X<56)$
(iii) $P(52<X<55)$

43. The following data represents the blood pressure of 5 persons before and after performing meditation.

Persons	A	B	C	D	E
Blood pressure before meditation	90	90	100	88	99
Blood pressure after meditation	88	90	95	90	96

44. Weight in Kgs of 10 students are given below
38, 40, 45, 53, 47, 43, 55, 48, 52, 49
Can we say that variance of the distribution of weights is equal to 2 kg^2?

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