3. अंग्रेजी माध्यम के अनुसार।   16

अथवा

(अ) अंग्रेजी माध्यम के अनुसार।   8

(ब) अंग्रेजी माध्यम के अनुसार।   8

4. (अ) अंग्रेजी माध्यम के अनुसार।   8

(ब) अंग्रेजी माध्यम के अनुसार।   8

अथवा

अंग्रेजी माध्यम के अनुसार।   16

5. नियंत्रण चार्ट क्या है ? नियंत्रण चार्ट बनाने में अंतर्भूत चरणों की चर्चा कीजिए।   16

अथवा

अंग्रेजी माध्यम के अनुसार।   16

M.Com. Semester—III Examination
STATISTICAL ANALYSIS
Paper— 302

Time : Three Hours]   [Maximum Marks : 80

Note :— (1)   ALL questions are compulsory.

(2)   All questions carry equal marks.

1. (A) Calculate the coefficient of correlation by the Spearman's Rank Difference method :

Prices of
Tea (Rs.) : 75   88   95   70   60   80   81   50
Prices of
Coffee (Rs.) : 120   134   150   100   110   140   142   115

    8

(B) Calculate the coefficient of Concurrent Deviations from the following data :

No. of Workers : 300   350   400   450   500   550
No. of Bales
Consumed   : 30   32   35   40   44   50

    8

OR

A Panel of judges A and B graded seven debators and independently awarded the following marks :

Debator	1	2	3	4	5	6	7
Marks by A	40	34	28	30	44	38	31
Marks by B	32	39	26	30	38	34	28

An eighth debator was awarded 36 marks by judge A while judge B was not present.

If judge B were also present, how many marks would you expect him to award to the eighth debator assuming that the same degree of relationship exists in their judgement ?   16

2. The mean life of a sample of 10 electrical bulbs was found to be 1456 hours with standard deviation of 423 hours. A second sample of 17 bulbs chosen from a different batch showed the mean life of 1280 hours with a standard deviation of 398 hours.

Is there a significance difference between the mean of the two batches ?

(The critical value of t at 5% level of significance for 25 degrees of freedom is 2.06 for two failed test.)   16

OR

Set up a table of analysis of variance for yields of three strains of wheat planted in five randomised blocks, and

3. इंग्रजी माध्यमा प्रमाणे.   16

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(अ) इंग्रजी माध्यमा प्रमाणे.   8
(ब) इंग्रजी माध्यमा प्रमाणे.   8

4. (अ) इंग्रजी माध्यमा प्रमाणे.   8
(ब) इंग्रजी माध्यमा प्रमाणे.   8

किंवा

इंग्रजी माध्यमा प्रमाणे.   16

5. नियंत्रणचार्ट काय आहे? नियंत्रण चार्ट तयार करतांना अंतर्भूत पायऱ्यांची चर्चा करा.   16

किंवा

इंग्रजी माध्यमा प्रमाणे.   16

(हिन्दी माध्यम)

सूचना :— (1) सभी प्रश्न अनिवार्य हैं।

(2) सभी प्रश्नों के समान अंक हैं।

1. (अ) अंग्रेजी माध्यम के अनुसार।   8
(ब) अंग्रेजी माध्यम के अनुसार।   8

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अंग्रेजी माध्यम के अनुसार।   16

2. अंग्रेजी माध्यम के अनुसार।   16

अथवा

अंग्रेजी माध्यम के अनुसार।   16

Fit a straight line trend by the method of least squares to the following indices and estimate the value for year 2015 :

Years	Index No.
2007	127
2008	101
2009	130
20010	132
20011	126
20012	142
20013	137

16

(मराठी माध्यम)

सूचना :— (1) सर्व प्रश्न अनिवार्य आहेत.
(2) सर्व प्रश्नांना समान गुण आहेत.

1. (अ) इंग्रजी माध्यमा प्रमाणे.   8
   (ब) इंग्रजी माध्यमा प्रमाणे.   8

किंवा

इंग्रजी माध्यमा प्रमाणे.   16

2. इंग्रजी माध्यमा प्रमाणे.   16

किंवा

इंग्रजी माध्यमा प्रमाणे.   16

इंग्रजी माध्यमा प्रमाणे.   16

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discuss whether there is a significant difference between the three mean yields :

Strains	Yields				
	Block-1	Block-2	Block-3	Block-4	Block-5
A	20	21	23	16	20
B	18	20	17	15	25
C	25	28	22	28	32

(The critical value of F for V_1 = 2 and V_2 = 12 at 5% level of significance is 3.88.)   16

3. A movie producer is bringing out a new movie. In order to map out his advertising campaign, he want to determine whether the movie will appeal most to a particular age group or whether it will appeal equally to all age group. The producer takes a random sample from persons attending a preview of the movie and obtains the following results. Use χ^2 test to derive the conclusion.

	Age Groups			
	Under 20	20-39	40-59	60 and over
Liked the movie	320	80	110	200
Disliked the movie	50	15	70	60
Indifferent	30	5	20	40

(The critical value of χ^2 at 5% level of significance for 6 degrees for freedom is 12.592.)   16

OR

(A) From the following data prepare 2 × 2 table and using Yule's Coefficient of Association. Discuss whether there is any association between literacy and unemployment :

Illiterate Unemployed	220 Persons
Literate Employed	20 Persons
Illiterate Employed	180 Persons
Total number of Persons	500

8

(B) Calculate Fisher's Index number from the following data and show that it satisfy time reversal test :

Commodities	Quantities		Prices	
	Base Year	Current Year	Base Year	Current Year
Rice	10	5	20	60
Wheat	15	10	15	40
Maize	20	10	5	15

8

4. (A) The probability that a contractor will get a plumbing contract is 2/3, and the probability that he will not get an electric contract is 5/9. If the probability of getting at least one contract is 4/5, what is the probability that he will get both the contracts ? 8

(B) In a class of 75 students, 15 were considered to be very intelligent, 45 as medium and the rest below average. The probability that a very intelligent students fails in a Viva-voce examination is 0.005; the medium student failing has a probability 0.05; and the corresponding probability for a below average student is 0.15. If a student is known to have passed the Viva-voce examination. What is the probability that he is below average ? 8

OR

Find out the number of students securing second division in the University examination from the following figures by Newton's method of Advancing differences :

Marks obtained (out of 100)	0-20	20-40	40-60	60-80	80-100
No. of students	5	26	85	54	30

(48% and above but less than 60% marks makes second division). 16

5. What is control chart ? Discuss the steps involved in setting up a control chart. 16

OR