Roll No.

**SAP ID** 

## UNIVERSITY OF PETROLEUM AND ENERGY STUDIES End Semester Examination, July 2020 Open Book – Through Blackboard Learning Management System

Course: Business Mathematics Programme: BBA LLB (Hons.), 2019, B.Com LLB (Hons.), 2019 Semester: II

Time: 03 hrs.

Max. Marks: 100

**Instructions:** 

As this examination is non-proctored, the students are expected to demonstrate a very high degree of Academic Integrity and not copy contents from resources referred. Instructors would look for understanding of the concept by the students and any similarity found from resources online/ offline shall be penalized in terms of deduction of marks and <u>even cancellation of paper in requisite</u> cases. The online examination committee of the School would also look for similarity of two answer scripts and if answer scripts of two or more students are found similar, both the answer scripts shall be treated as copied and lead to cancellation of the paper. In view of the aforesaid points, the students are warned that they should desist from any unfair means and provide answers in their own words.

	All Questions are Compulsory Answer each question		
S. No.		Marks	СО
1	<ul> <li>I. Define <ul> <li>a) Random Experiment</li> <li>b) Independent events</li> </ul> </li> <li>II. Give statement of Bayes' Theorem</li> <li>III. A, B and C are three arbitrary events. Find expressions for the following events, in set theoretic notations: <ul> <li>a. All of them occur</li> <li>b. At least two events occur</li> </ul> </li> <li>IV. Define Type I and Type 2 error, while testing a hypothesis.</li> </ul>	4×5 =20	CO1
2	<ul> <li>I. Show that the probability that exactly one of the events A and B occurs is P(A) + P(B) - 2P(AB)</li> <li>II. In a courier company, three office assistants are assigned to process incoming mail. The first assistant processes 40%, the second one 35% and the third one processes 25% of the mail. The first, second and third assistant has an error rate of 0.04, 0.06 and 0.03 respectively. A mail is selected at random and found to have an error. The manager of the company wishes</li> </ul>		CO2



	he probabili	•	nail was p	rocessed	l by fi	rst, seco	nd or third		
	·								
Marks : 0 –	10 10 - 2	20 20 - 3	30 30 -	- 40 4	40 — !	50 5	0 - 60		
No. of students: 5	15	20	$f_1$		20		10		
You are told that the mean value is 34 and the total frequency is 100. Find out the value of $f_1$ . Also, calculate the value of the mode.									
OR							20	CO3	
The data on the profit (in Rs. Lakhs) earned by 60 companies are as follows:									
Profits (	rofits $0 - 10  10 - 20  20 - 30  30 - 40  40 - 50  50 - 60$						50 - 60		
No. of Companies:	5	12	20	16		5	2		
· · ·									
data: Country A B C D E	% 10 20 30 30	of group s eavily ) ) ) )	moking	9 5 1 2 2 2	% of g cance 5 15 20 25 20	roup wil	th lung	20	CO4
Below are given th	<u> </u>	2007 20		)9 20		ugar fact 2011 99	ory: 2012 92	20	CO4
	An incomplete distribution Marks : $0 -$ No. of students: 5 You are told that the value of $f_1$ . Also, c The data on the profi- Profits (0) No. of Companies: Calculate the coeffic w.r.to mean. Calculate the coeffic data: Country A B C D E Hence find the probability smoking heavily. Below are given the	An incomplete distribution is given Marks : $0 - 10$ $10 - 2$ No. of students:515You are told that the mean value value of $f_1$ . Also, calculate the value of $f_1$ . Also, calculate the Profits0 - 10The data on the profit (in Rs. Lake Profits0 - 101No. of Companies:5Calculate the coefficient of quart w.r.to mean.5Calculate the coefficient of cordata: Country%A10B20C20D30E30Hence find the probable percentage smoking heavily.6	No. of students:51520You are told that the mean value is 34 and to value of $f_1$ . Also, calculate the value of the value of $f_1$ . Also, calculate the value of the ORThe data on the profit (in Rs. Lakhs) earnedProfits $0 - 10$ $10 - 20$ 20No. of Companies:51212Calculate the coefficient of quartile deviation wr.to mean.Calculate the coefficient of correlation and data:Country% of group sheavilyA10B20C20D30E30Hence find the probable percentage of group we smoking heavily.Below are given the figures of production	An incomplete distribution is given below:Marks : $0 - 10$ $10 - 20$ $20 - 30$ $30 - 10$ No. of students: $5$ $15$ $20$ $f_1$ You are told that the mean value is 34 and the total fr value of $f_1$ . Also, calculate the value of the mode.ORThe data on the profit (in Rs. Lakhs) earned by 60 conditions)ORProfits $0 - 10$ $10 - 20$ $20 - 30$ No. of Companies: $5$ $12$ $20$ Calculate the coefficient of quartile deviation and the w.r.to mean.Calculate the coefficient of correlation and two regidata:Country% of group smoking heavilyA $10$ B $20$ C $20$ D $30$ E $30$ Hence find the probable percentage of group with lung catsmoking heavily.Below are given the figures of production (in million)	An incomplete distribution is given below:Marks : $0 - 10$ $10 - 20$ $20 - 30$ $30 - 40$ Marks : $0 - 10$ $10 - 20$ $20 - 30$ $30 - 40$ No. of students: $5$ $15$ $20$ $f_1$ You are told that the mean value is 34 and the total frequency value of $f_1$ . Also, calculate the value of the mode.ORORThe data on the profit (in Rs. Lakhs) earned by 60 companies:Profits $0 - 10$ $10 - 20$ $20 - 30$ $30 - 4$ No. of Companies: $5$ $12$ $20$ $16$ Calculate the coefficient of quartile deviation and the coefficient w.r.to mean.Calculate the coefficient of correlation and two regression data:Country% of group smoking9A $10$ 9B $20$ 20C $20$ $30$ E $30$ $20$ D $30$ $20$ D $30$ $20$ D $30$ $20$ D $30$ $20$ C $20$ $20$ D $30$ $20$ C $20$ $20$ D $30$ $20$ C $30$ $20$ D $30$ <td< td=""><td>An incomplete distribution is given below:Marks :<math>0 - 10</math><math>10 - 20</math><math>20 - 30</math><math>30 - 40</math><math>40 - 40</math>No. of students:<math>5</math><math>15</math><math>20</math><math>f_1</math><math>20</math>You are told that the mean value is 34 and the total frequency is 10value of <math>f_1</math>. Also, calculate the value of the mode.ORORThe data on the profit (in Rs. Lakhs) earned by 60 companies are aProfits<math>0 - 10</math><math>10 - 20</math><math>20 - 30</math><math>30 - 40</math>No. of Companies:<math>5</math><math>12</math><math>20</math><math>16</math>Calculate the coefficient of quartile deviation and the coefficient ofwr.to mean.Calculate the coefficient of correlation and two regression lines todata:Country% of group smoking% of gheavilycanceA<math>10</math><math>5</math>B<math>20</math><math>15</math>C<math>20</math><math>20</math>D<math>30</math><math>25</math>E<math>30</math><math>20</math>Hence find the probable percentage of group with lung cancer in a count smoking heavily.Below are given the figures of production (in million tons) of a state of the st</td><td>An incomplete distribution is given below:Marks :<math>0 - 10</math><math>10 - 20</math><math>20 - 30</math><math>30 - 40</math><math>40 - 50</math>5No. of students:5<math>15</math><math>20</math><math>f_1</math><math>20</math>You are told that the mean value is 34 and the total frequency is 100. Find value of <math>f_1</math>. Also, calculate the value of the mode.ORORThe data on the profit (in Rs. Lakhs) earned by 60 companies are as followProfits<math>0 - 10</math><math>10 - 20</math><math>20 - 30</math><math>30 - 40</math><math>40 - 50</math>No. of Companies:5<math>12</math><math>20</math><math>16</math><math>5</math>Calculate the coefficient of quartile deviation and the coefficient of average w.r.to mean.Calculate the coefficient of correlation and two regression lines for the fod data:Country% of group smoking% of group with heavilyA<math>10</math><math>5</math>B<math>20</math><math>15</math>C<math>20</math><math>20</math>D<math>30</math><math>25</math>E<math>30</math><math>20</math></td><td>An incomplete distribution is given below:Marks :<math>0 - 10</math><math>10 - 20</math><math>20 - 30</math><math>30 - 40</math><math>40 - 50</math><math>50 - 60</math>No. of students:5<math>15</math><math>20</math><math>f_1</math><math>20</math><math>10</math>You are told that the mean value is 34 and the total frequency is 100. Find out the value of <math>f_1</math>. Also, calculate the value of the mode.ORORThe data on the profit (in Rs. Lakhs) earned by 60 companies are as follows:Profits<math>0 - 10</math><math>10 - 20</math><math>20 - 30</math><math>30 - 40</math><math>40 - 50</math><math>50 - 60</math>No. of Companies:5<math>12</math><math>20</math><math>16</math><math>5</math><math>2</math>Calculate the coefficient of quartile deviation and the coefficient of average deviation w.r.to mean.Calculate the coefficient of correlation and two regression lines for the following data:Country% of group smoking% of group with lung heavilycancerA<math>10</math><math>5</math>B<math>20</math><math>15</math><math>2</math>C<math>20</math><math>20</math><math>20</math>D30<math>20</math>Hence find the probable percentage of group with lung cancer in a country with 45% of group smoking heavily.Below are given the figures of production (in million tons) of a sugar factory:</td><td>An incomplete distribution is given below: Marks : <math>0 - 10</math> <math>10 - 20</math> <math>20 - 30</math> <math>30 - 40</math> <math>40 - 50</math> <math>50 - 60</math>No. of students: <math>5</math> <math>15</math> <math>20</math> <math>f_1</math> 20 10You are told that the mean value is 34 and the total frequency is 100. Find out the value of <math>f_1</math>. Also, calculate the value of the mode.20OR20The data on the profit (in Rs. Lakhs) earned by 60 companies are as follows: Profits <math>0 - 10</math> <math>10 - 20</math> <math>20 - 30</math> <math>30 - 40</math> <math>40 - 50</math> <math>50 - 60</math>No. of Companies: <math>5</math> <math>12</math> <math>20</math> <math>16</math> <math>5</math> <math>2</math>Calculate the coefficient of quartile deviation and the coefficient of average deviation w.r.to mean.Calculate the coefficient of correlation and two regression lines for the following data: Country <math>heavily</math> <math>20</math> <math>15</math> <math>C</math> <math>20</math> <math>20</math>A 105 <math>15</math> <math>20</math>B 2015 <math>20</math>C 2020 <math>20</math>D 3025 <math>20</math>B 2015 <math>20</math>C 2020 <math>20</math>D 3025 <math>20</math>Below are given the figures of production (in million tons) of a sugar factory:</td></td<>	An incomplete distribution is given below:Marks : $0 - 10$ $10 - 20$ $20 - 30$ $30 - 40$ $40 - 40$ No. of students: $5$ $15$ $20$ $f_1$ $20$ You are told that the mean value is 34 and the total frequency is 10value of $f_1$ . Also, calculate the value of the mode.ORORThe data on the profit (in Rs. Lakhs) earned by 60 companies are aProfits $0 - 10$ $10 - 20$ $20 - 30$ $30 - 40$ No. of Companies: $5$ $12$ $20$ $16$ Calculate the coefficient of quartile deviation and the coefficient ofwr.to mean.Calculate the coefficient of correlation and two regression lines todata:Country% of group smoking% of gheavilycanceA $10$ $5$ B $20$ $15$ C $20$ $20$ D $30$ $25$ E $30$ $20$ Hence find the probable percentage of group with lung cancer in a count smoking heavily.Below are given the figures of production (in million tons) of a state of the st	An incomplete distribution is given below:Marks : $0 - 10$ $10 - 20$ $20 - 30$ $30 - 40$ $40 - 50$ 5No. of students:5 $15$ $20$ $f_1$ $20$ You are told that the mean value is 34 and the total frequency is 100. Find value of $f_1$ . Also, calculate the value of the mode.ORORThe data on the profit (in Rs. Lakhs) earned by 60 companies are as followProfits $0 - 10$ $10 - 20$ $20 - 30$ $30 - 40$ $40 - 50$ No. of Companies:5 $12$ $20$ $16$ $5$ Calculate the coefficient of quartile deviation and the coefficient of average w.r.to mean.Calculate the coefficient of correlation and two regression lines for the fod data:Country% of group smoking% of group with heavilyA $10$ $5$ B $20$ $15$ C $20$ $20$ D $30$ $25$ E $30$ $20$	An incomplete distribution is given below:Marks : $0 - 10$ $10 - 20$ $20 - 30$ $30 - 40$ $40 - 50$ $50 - 60$ No. of students:5 $15$ $20$ $f_1$ $20$ $10$ You are told that the mean value is 34 and the total frequency is 100. Find out the value of $f_1$ . Also, calculate the value of the mode.ORORThe data on the profit (in Rs. Lakhs) earned by 60 companies are as follows:Profits $0 - 10$ $10 - 20$ $20 - 30$ $30 - 40$ $40 - 50$ $50 - 60$ No. of Companies:5 $12$ $20$ $16$ $5$ $2$ Calculate the coefficient of quartile deviation and the coefficient of average deviation w.r.to mean.Calculate the coefficient of correlation and two regression lines for the following data:Country% of group smoking% of group with lung heavilycancerA $10$ $5$ B $20$ $15$ $2$ C $20$ $20$ $20$ D30 $20$ Hence find the probable percentage of group with lung cancer in a country with 45% of group smoking heavily.Below are given the figures of production (in million tons) of a sugar factory:	An incomplete distribution is given below: Marks : $0 - 10$ $10 - 20$ $20 - 30$ $30 - 40$ $40 - 50$ $50 - 60$ No. of students: $5$ $15$ $20$ $f_1$ 20 10You are told that the mean value is 34 and the total frequency is 100. Find out the value of $f_1$ . Also, calculate the value of the mode.20OR20The data on the profit (in Rs. Lakhs) earned by 60 companies are as follows: Profits $0 - 10$ $10 - 20$ $20 - 30$ $30 - 40$ $40 - 50$ $50 - 60$ No. of Companies: $5$ $12$ $20$ $16$ $5$ $2$ Calculate the coefficient of quartile deviation and the coefficient of average deviation w.r.to mean.Calculate the coefficient of correlation and two regression lines for the following data: Country $heavily$ $20$ $15$ $C$ $20$ $20$ A 105 $15$ $20$ B 2015 $20$ C 2020 $20$ D 3025 $20$ B 2015 $20$ C 2020 $20$ D 3025 $20$ Below are given the figures of production (in million tons) of a sugar factory:

I, ...., understand that submitting work that isn't my own may result in failure in this paper and I may also be subject to Disciplinary Proceedings as per the Academic Integrity policy of the University.