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|  | **ENGINEERING MATHEMATICS IV**  **(AAS0402)**  **UNIT-I** | | **SESSION: 2022-23** |
| **CLASS/SEM: (IT)- IV(EVEN)** |
| Assignment Given Date: 10/03/23  Assignment Submission Date: 22/03/23 | | Maximum Points: 100 | |
| Weightage in University Exam: 34 Marks | |
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**Note: Write solution of each question in clear handwriting.**

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| Q. N. | Question Statement | Pts | CO | BLOOM’S KNOWLEDGE LEVEL |
| 1 | An incomplete distribution of families according to their expenditure per week is given below. The median and mode for the distribution is ₹ 25 and ₹ 24 respectively. Calculate the missing frequencies.   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Expenditure | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | | No. of families | 14 | ? | 27 | ? | 15 | | 5 | 1 | K5 |
| 2 | Calculate mode of the following distribution:   |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Wages | 50-70 | 70-90 | 90-110 | 110-130 | 130-150 | 150-170 | 170-190 | 190-210 | 210-230 | | No. of workers | 4 | 44 | 38 | 28 | 6 | 8 | 12 | 2 | 2 | | 5 | 1 | K5 |
| 3 | The first four moments of a distribution about 2 are 1,2.5,5.5 and 16 resp.Calculate the four moments about mean and about the origin. | 5 | 1 | K5 |
| 4 | Find the moment coeff. of Skewness and kurtosis of the following data.  Class- interval: 0-10 10-20 20-30 30-40 40-50  Frequency: 10 20 40 20 10 | 10 | 1 | K3, K5 |
| 5 | Calculate the correlation coefficient between X and Y from the following data-  X: 60 34 40 50 45 41 22 43  Y: 75 32 34 40 45 33 12 30 | 10 | 1 | K3, K5 |
| 6 | Calculate the rank correlation coefficient between X and Y from the following data-  X: 15 20 27 13 45 60 20 75  Y: 50 30 55 30 25 10 30 70 | 10 | 1 | K5 |
| 7 | If the coefficient of correlation between two variables and is 0.5 and the acute angle between their lines of regression is . show that | 10 | 1 | K2, K5 |
| 8 | For two random variables, and with same mean, the two regression equations are and .  Show that Also find Common mean. | 10 | 1 | K5 |
| 9 | By method of least square fit a curve to the following data:  : 1 2 3 4 5  : 7.1 27.8 62.1 110 161 | 10 | 1 | K5 |
| 10 | Two lines of regression are given by 3and  6 and =16. Calculate-  (i) the mean of and (ii) variance of (iii) the correlation coefficient. | 10 | 1 | K5 |
| 11 | Find the multiple linear regressions of on and from the data relating to three variables:   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | |  | 4 | 6 | 7 | 9 | 13 | 15 | |  | 15 | 12 | 8 | 6 | 4 | 3 | |  | 30 | 24 | 20 | 14 | 10 | 4 | | 10 | 1 | K4, K5 |

**Answer:**

1. **25,24**
2. **97.5**
3. **0,1.5,0,6 and 3,10.5,40.5,168**
4. **0 and 2.5(platykurtic)**
5. **0.9158**
6. **0**
7. **Common mean:**