

Unit I:-

Topics: Functions of several variables, Partial differentiation, Homogeneous functions, Euler's theorem for homogeneous functions.

Problems:

- Q.3 Exercise 2.2 (on page 2.30) (J&I)
- Solved Example 2.22 & 2.23 (on page 2.33) (J&I)
- Q. 1- 13/Exercise 2.3 (on page 2.44) (J&I)
- Verify Euler's theorem in the following cases

$$(i) \quad f(x, y) = \frac{(x^{\frac{1}{4}} + y^{\frac{1}{4}})}{(x^{\frac{1}{5}} + y^{\frac{1}{5}})}$$

$$(ii) \quad f(x, y) = \frac{(x^2 - 3xy)}{(x + y)}$$

- Solved Example 2.26 (on page 2.36) & 2.27 (on page 2.37) (J&I)
- Q. 29—33/Exercise 2.3 (on page 2.45) (J&I)
- Q. 6 & 7/Example 25 (on page 145) and Q. 15 & 18/Example 25 (on page 147) (Chandrika Prasad)

Topics: Total differential coefficient, Change of variables.

Problems:

- Q. 16—20/Exercise 2.2 (on page 2.31) (J&I)
- Q. 26—30/Exercise 2.2 (on page 2.31) (J&I)
- Q. 3, 6, 7, 12, 13 & 14/ Example 27 (on page 158-59) (Chandrika Prasad)

Topics: Jacobian: Definition and its properties

Problems:

- Solved example 2.19 (on page 2.27) and 2.20(a) (on page 2.28) (J&I).
- Q. 1-8/ Example 28 (on page 161-162) (Chandrika Prasad)

Topic: Taylor series for a function of two variables

Problems:

- Q. 36-40/Exercise 2.3 (on page 2.45) (J&I)

Topic: Error and Approximations

Problems:

- Q. 4—9/ Example 29 (on page 165-66) (Chandrika Prasad)
- Q. 48-52/Exercise 2.2 (on page 2.32) (J&I)

Topics: Maxima and minima of function of two variables: 2nd derivative test

Problems:

- Q. 1-6/ Exercise 2.4 (on page 2.54) (J&I)
- Q. 5, 7, 8 & 15/ Example 30 (on page 174-75) (Chandrika Prasad)

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Course Incharge