(d) Product differentiation

(e) Product branding

(f) Marketing channel

(g) Public relations

(h) Web marketing

## SECTION – B

### UNIT – I

**2.** "Marketing begins before production and continues even after transaction." In the light of this statement discuss the nature and scope of marketing.

**3.** What is marketing information system ? How does it help marketing people in decision making ?

### UNIT – II

**4.** What is business buying behavior ? Who are the participants in business buying process ? Enumerate various stages of buying decision process in business markets.

**5.** What do you mean by market segmentation ? Discuss the bases used for segmenting the market taking suitable examples.



### UNIT – III

**6.** (a) What do you understand by product mix ? Explain in brief.

(b) Discuss the role of packaging in market development, with suitable examples.

**7.** Explain the various methods of pricing. What are the factors to be considered before setting of prices ?

### UNIT – IV

**8.** 'Advertisement and Sales Promotions are inevitable in marketing' - evaluate with example.

**9.** What do you mean by controlling the marketing efforts ? Discuss various types of controls used by business organization.

---

## Section-D

8. (a) The sales in a super market during a week are given below. Test the hypothesis that the sales do not depend on the day of the week at 5% level of significance :

| Days | : | Mon | Tues | Wed | Thus | Fri | Sat |
|---|---|---|---|---|---|---|---|
| Sales (in 1000 Rs.) | : | 65 | 54 | 60 | 56 | 71 | 84 |

(b) A sample of 18 items has a mean 24 units and standard deviation 3 units. Test the hypothesis that it is a random sample from a normal population with mean 27 units.

9. Using dual simplex method

Maximize $z = -3x_1 - 2x_2$

Subject to $x_1 + x_2 \geq 1$,

$x_1 + x_2 \leq 7$,

$x_1 + 2x_2 \geq 10$,

$x_2 \leq 3$,

$x_1, x_2 \geq 0$





[Graph Paper]

**B.Tech. 4th Semester F-Scheme**

**(Common for All Branches) Examination,**

**May-2019**

**MATHEMATICS-III**

**Paper-Math-201-F**

*Time allowed : 3 hours]* *[Maximum marks : 100*

***Note :*** *Attempt **five** questions in total selecting **one** question from each section. **Question No. 1 is compulsory**.*

1. (a) Find the value of $a_n$ in the Fourier series of $f(x) = x - x^2$ from $x = -\pi$ to $x = \pi$,

(b) Separate into real and imaginary parts Log (4+3i).

(c) Define residue. Write statement of Cauchy's residue theorem.

(d) Solve the following LPP graphically :

Minimize $Z = 3x + 2y$

subject to the constraints

$5x + y \geq 10$, $x + y \geq 6$, $x + 4y \geq 12$, $x, y \geq 0$.

## Section-A

2. (a) Find the Fourier serial expansion for :

$$f(x) = \begin{cases} -\pi, & -\pi < x < 0 \\ x, & 0 < x < \pi \end{cases}$$

hence deduce that $\frac{1}{1^2} + \frac{1}{3^2} + \frac{1}{5^2} + --- = \frac{\pi^2}{8}$.