Chapter 01

Conventional Generation, Load Curves and Tariffs:

Lecture : 10

TOPIC:

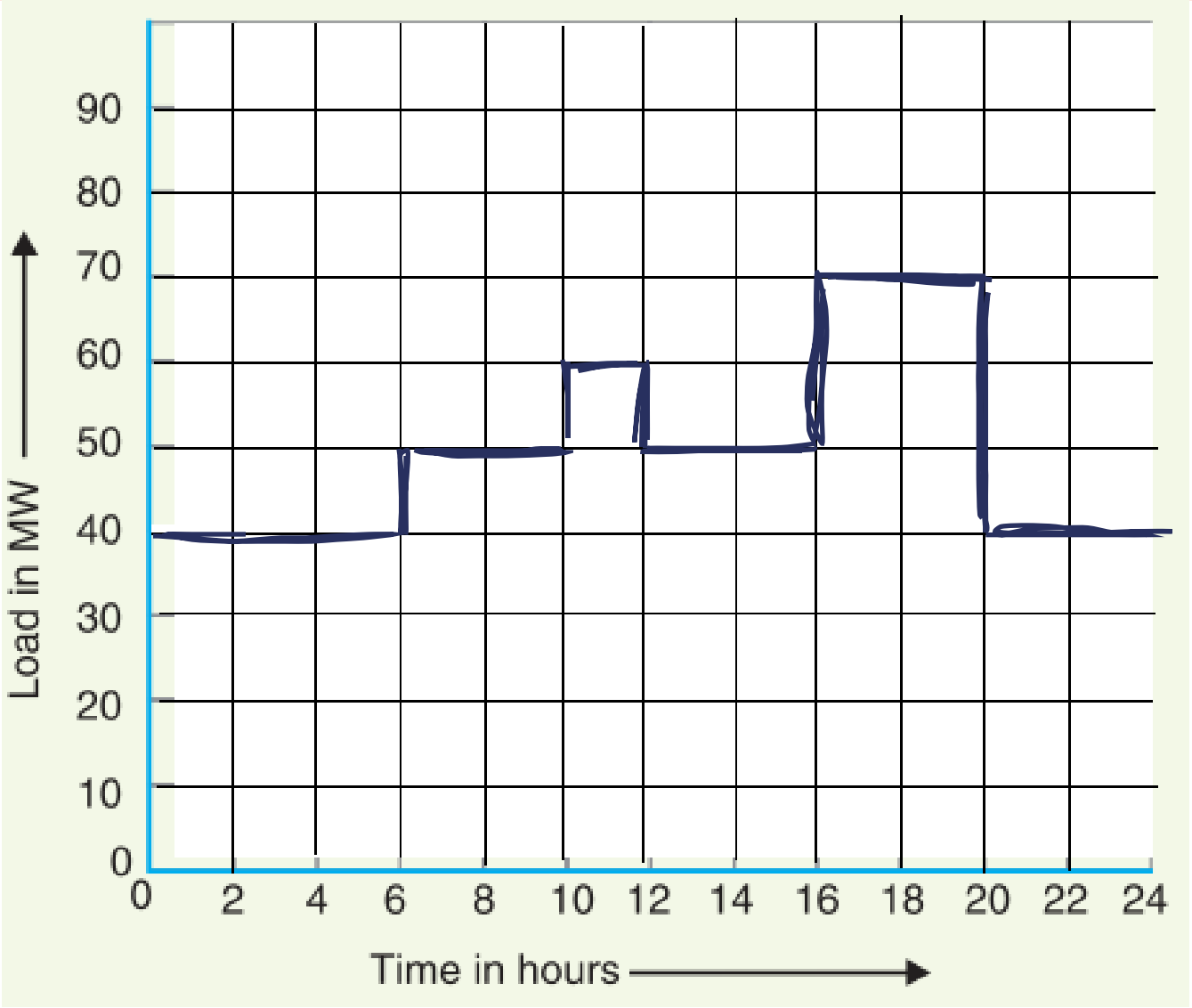
1. Load duration curve
2. Example

Chapter: 01
Conventional Generation, Load Curves and Tariffs:

- Generation scenario in India and Gujarat
- Steam power station, Schematic arrangement of steam power station, Equipment's of steam power station,
- Hydroelectric power station, Schematic arrangement of hydro-electric power station, Constituents of hydro-electric plants,
- Nuclear power station, Schematic arrangement of nuclear power station, Nuclear reactor,
- Gas turbine power plant, Schematic arrangement of gas turbine power plant,
- Comparison Of Various Power Plants.
- Load curves, Important terms and factors, Load duration curve, Examples. Tariff, Desirable characteristics of tariff, Types of tariff, Examples.

Example 3.10. *A generating station has the following daily load cycle :*

Time (Hours)	*0—6*	*6—10*	*10—12*	*12—16*	*16—20*	*20—24*
Load (M W)	*40*	*50*	*60*	*50*	*70*	*40*



- **<u>Area under the load curve = Unit Generated per Day</u>**

- = [40*6 + 50*4 + 60*2 + 50*4 + 70*4 + 40*4] Mwh
- = [240 + 200 + 120 + 200 + 280 + 160] Mwh
- = 1200Mwh
- = 12 *10^5 Kwh 1Unit = 1kwh

- Daily Load Curve

1. Maximum Demand = 70 MW
2. Unit Generated / Day = 12 Lakh Unit
3. Average Load = Area under the Daily load curve / 24 =

= 12* 10 ^5 / 24 = 50,000 Kw

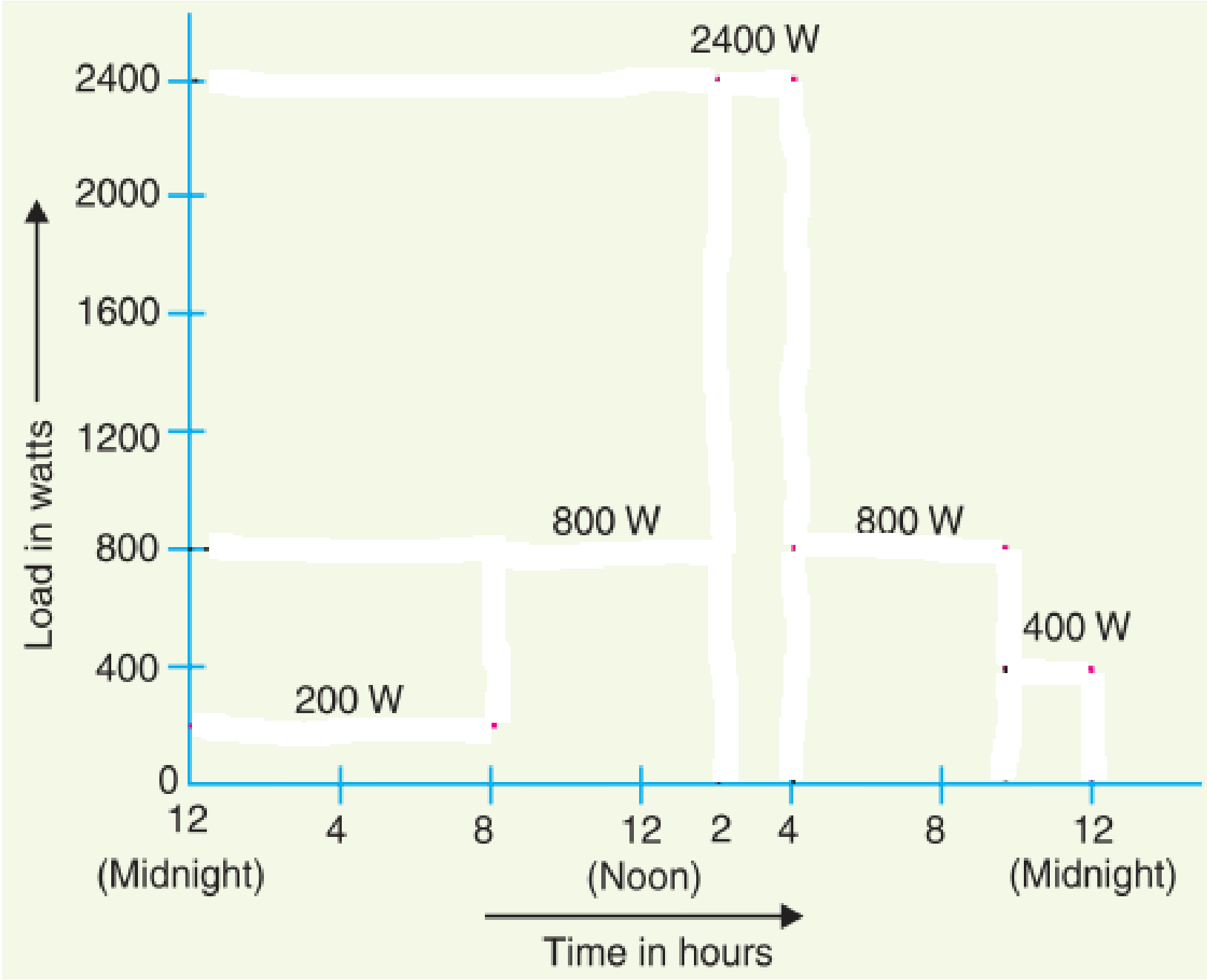
- Load Factor = Avg. Load / Max. Demand (Max. Load)
- = 50,000 / 70,000
-
- = 0.714
- Load Factor = 71.40%

Example 3.12. *The daily demands of three consumers are given below :*

Time	*Consumer 1*	*Consumer 2*	*Consumer 3*
12 midnight to 8 A.M.	*No load*	*200 W*	*No load*
8 A.M. to 2 P.M.	*600 W*	*No load*	*200 W*
2 P.M. to 4 P.M.	*200 W*	*1000 W*	*1200 W*
4 P.M. to 10 P.M.	*800 W*	*No load*	*No load*
10 P.M. to midnight	*No load*	*200 W*	*200 W*

L.F. of consumer 1 =

- Area under the Daily Load Curve = Units grnerated Per Day
- = []


2400 W
2400
2000
1600
1200
800
400
0
800 W
800 W
400 W
200 W
Load in watts
12
(Midnight)
4
8
12
(Noon)
2
4
8
12
(Midnight)
Time in hours

$$\text{Diversity factor} = \frac{\text{Sum of individual max. demands}}{\text{Max. demand on power station}}$$

Max. demand of consumer 1 = **800 W**

Max. demand of consumer 2 = **1000 W**

Max. demand of consumer 3 = **1200 W**

Precape

- Load duration curve
- Example


Thank You