

Code No: **R204124M**

**R20**

**Set No. 1**

**IV B.Tech I Semester Regular Examinations, January – 2024**  
**AUTOMOBILE COMFORT SYSTEMS AND ERGONOMICS**

**(Automobile Engineering)**

**Time: 3 hours**

**Max. Marks: 70**

*Answer any FIVE Questions*  
*ONE Question from Each unit*  
*All Questions Carry Equal Marks*

\*\*\*\*\*

**UNIT - I**

- 1 a) Describe the primary features of Intelligent Headlight Control systems and their significance in improving night time driving visibility. [7]  
b) Explain the underlying technology behind Remote Park Assist systems. [7]  
(OR)
- 2 a) Demonstrate the utilization of Window Lift and Sunroof Drives as integral components of interior comfort systems. [7]  
b) Analyze the potential impact of Traffic Jam Assist systems on reducing driver stress and fatigue. [7]

**UNIT - II**

- 3 a) Explain the concept of NVH in the context of automobiles. [7]  
b) How does the design and operation of HVAC systems impact fuel efficiency and passenger comfort? [7]  
(OR)
- 4 a) Explain the significance of HVAC system design in providing a comfortable environment inside the vehicle. [7]  
b) How does efficient temperature control and air circulation enhance passenger comfort? [7]

**UNIT - III**

- 5 a) List the key elements that contribute to driver comfort in passenger cars and commercial vehicles. [7]  
b) Analyze the psychological factors affecting driver comfort specifically stress and attention. [7]  
(OR)
- 6 a) Demonstrate how seating design impacts driver comfort in both passenger cars and commercial vehicles. [7]  
b) Discuss the ergonomic features that can alleviate driver fatigue during long hauls in commercial vehicles. [7]

**UNIT - IV**

- 7 a) List the factors contributing to passenger ingress and egress comfort in vehicles. [7]  
b) Give factors to design vehicle doors and seat configurations. [7]

(OR)

- 8 a) Demonstrate the application of spacious cabin design principles that maximize interior roominess and comfort for passengers. [7]  
b) Analyze the importance of effective ventilation systems in vehicles. [7]

**UNIT - V**

- 9 a) List the primary functions of a rain sensor system in an automobile. [7]  
b) Enumerate the components involved in a tyre pressure control system and their roles in ensuring vehicle safety. [7]

(OR)

- 10 a) Explain the significance of central locking systems in vehicle security. [7]  
b) Describe the functionalities of a garage door opening system when integrated into an automobile. [7]