

Reg. No.

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B.E. / B.TECH. DEGREE EXAMINATIONS, MAY 2023

Eighth Semester

AE18008 – AUTOMOTIVE AIR CONDITIONING

(Automobile Engineering)

(Regulation 2018)

TIME:3 HOURS

MAX. MARKS: 100

- CO1** To acquire the basic knowledge in air conditioning systems and its components.
- CO2** To understand the concept of automotive cooling and heating systems.
- CO3** To know the various refrigerants and its handling.
- CO4** To understand and basic concepts of air routing and temperature control.
- CO5** To underline the importance of maintenance and service of air conditioning systems.

PART- A (10x2 = 20 Marks)

(Answer all Questions)

	CO	RBT LEVEL
1. What is the purpose of accumulator drier in an air-conditioning system?	1	1
2. Mention the location of evaporator in a vehicle air-conditioning system.	1	1
3. How will you check the condition of a fuse?	2	2
4. What type of lubricant is used along with CFC refrigerant?	2	1
5. What are the types of air intake system in a vehicle air conditioning system?	3	1
6. What is meant by solenoid?	3	2
7. What are the different types of sensors in a vehicle air-conditioning system?	4	1
8. Distinguish between manual air conditioning and fully automatic air conditioning.	4	2
9. How will you check the system pressure of a vehicle air conditioning?	5	2
10. What is the purpose of engine coolant temperature sensor?	5	2

PART- B (5x14 = 70 Marks)

	Marks	CO	RBT LEVEL
11. (a) Discuss the constructional details and working of thermostatic expansion valve type air conditioning system.	(14)	1	3

(OR)

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|----------------|--|-------------|----------|----------|
| (b) | What is meant ozone layer depletion? Explain how does it occur due to the vehicle air conditioning system? | (14) | 1 | 3 |
| 12. (a) | Illustrate the constructional details and working of swash plate compressor used in a vehicle air conditioning system. | (14) | 2 | 3 |
| (OR) | | | | |
| (b) | Explain any three types of refrigerant leak detection methods. | (14) | 2 | 3 |
| 13. (a) | Discuss the air routine passage of a vehicle air conditioning system with neat sketches. Also, analyze the various systems of air passage. | (14) | 3 | 4 |
| (OR) | | | | |
| (b) | Draw and explain the blower motor speed control system and analyze the system with modern blower motor speed control system. | (14) | 3 | 4 |
| 14. (a) | Discuss and analyze any four sensors used in a vehicle air conditioning system. | (14) | 4 | 4 |
| (OR) | | | | |
| (b) | Explain the constructional details and working of a variable position actuator. Also, analyze the variable position sensor with another position sensor. | (14) | 4 | 4 |
| 15. (a) | Explain the constructional details and working of a combination set used to diagnose the air conditioning system. | (14) | 5 | 3 |
| (OR) | | | | |
| (b) | Discuss the constructional details and working principle of radiator cap with neat sketches. | (14) | 5 | 3 |

PART- C (1x10 = 10 Marks)

(Q.No.16 is compulsory)

- | | | Marks | CO | RBT
LEVEL |
|------------|--|-------------|----------|--------------|
| 16. | Discuss and analyze the electrical circuit of an air conditioning system with a neat sketch. | (10) | 2 | 4 |
