



R20 Regulation

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A' Grade)

Subject code: 3E5CA

B.Tech V Semester Regular Examinations, January 2023

AUTOMOBILE ENGINEERING

(Professional Elective-1)

(Mechanical Engineering)

Maximum Marks: 70

Date: 23.01.2023 Duration: 3 hours

- Note:
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks

(10x2M=20 Marks)

- 1 Write the requirements of diesel injection systems.
- 2 Write the types of automobile engines.
- 3 What is the function of contact points inside the distributor?
- 4 Define the function of thermostat.
- 5 Why the shock absorbers are used in automobile.
- 6 Write the principle of clutch.
- 7 What are steering ratio and steering stops?
- 8 Upon what force does the operation of every type of brake depend? Explain?
- 9 What are the effects of carbon monoxide emissions from an automobile?
- 10 Write three reasons for using monolith three-way catalytic converter.

Part-B

Answer All the following questions.

(5X10M=50Marks)

- 11 A. Explain the working principle of a CRDI with neat sketch. [5+5]
B. How carburetors are classified? Explain the construction and operation of a simple Carburetor.
OR
- 12 A. Discuss about the chassis and body components in automobile. [5+5]
B. Write about engine lubrication.
- 13 A. Sketch and explain different types of Ignition systems used in automotive engines. [5+5]
B. Why is water cooling preferred than air cooling systems? Explain.
OR
- 14 A. What is the purpose of a radiator in an automobile? Explain its construction. [5+5]
B. Explain about electronic ignition system using contact breaker.
- 15 A. Explain the working of cone clutch used in an automobile with a neat sketch. [5+5]
B. What are the functions of universal joint and Propeller shaft?
OR

- 16 A. What are the different types of shock absorbers available? Extend working of any one with neat sketch. [5+5]
B. Describe in detail about single plate clutch with a neat diagram.
- 17 A. Explain the working of hydraulic brake system with neat diagram. [5+5]
B. Sketch and explain various steering geometries.
- OR
- 18 A. Explain the construction and working of Davis steering gear mechanism. [5+5]
B. Write about the power brakes.
- 19 A. Causes of emissions of nitrogen oxides from an automobile? What are its effects? [5+5]
B. Discuss the role of hydrogen as an alternative fuel in an IC engine.
- OR
- 20 A. Write about the International Pollution standards. [5+5]
B. Discuss different energy alternatives with their merits and demerits.