

Code No: 157AQ

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**B. Tech IV Year I Semester Examinations, January/February - 2023****AUTOMOBILE ENGINEERING****(Mechanical Engineering)****Time: 3 Hours****Max. Marks: 75**

- Note:** i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A**(25 Marks)**

- 1.a) State the characteristics of good lubricating oil. [2]
- b) List the functions of carburetor. [3]
- c) Mention the importance of fan in the cooling system. [2]
- d) Why the condenser is important in the ignition system? [3]
- e) State the objectives of suspension systems. [2]
- f) Illustrate the working principle of clutch. [3]
- g) List out the applications of air brakes. [2]
- h) What is the necessity of braking system? [3]
- i) What are the main sources of pollutants from petrol engines? [2]
- j) State the mechanism of formation of CO. [3]

PART – B**(50 Marks)**

- 2.a) Illustrate briefly various parts of an automobile with the help of simple sketch.
 - b) Examine the working of SU carburetor with a neat sketch. [5+5]
- OR**
- 3.a) Inspect the working of common rail injection system with neat sketch.
 - b) Analyze the different types of automobile vehicles. [5+5]
- 4.a) Explain the working of the evaporative cooling system with neat sketch.
 - b) Contrast a simplified working circuit for the lightening system of a car and discuss the same. [5+5]
- OR**
- 5.a) Interpret the working of the electronic ignition using the contact triggers.
 - b) Interpret the role of anti-freeze solutions in water cooling systems. [5+5]

- 6.a) Explain the working of the fluid fly wheel with a neat sketch.
b) Select the procedure for the maintenance of shock absorber. [5+5]

OR

- 7.a) Examine the working of the centrifugal clutch with a neat sketch.
b) Discover the operating working principles involved in the independent suspension system. [5+5]

- 8.a) Discover the advantages and disadvantages of hydraulic brakes.
b) Explain the working of (i) Worm and worm wheel steering gear (ii) Rack and pinion steering gear. [5+5]

OR

- 9.a) Explain the Davis steering gear with a neat sketch.
b) List the functions of the master cylinder in hydraulic brakes and discuss its working with neat sketch. [5+5]

- 10.a) Examine the mechanism in the formation of nitric oxide.
b) Inspect the various national and international pollution standards implement for the automobile emissions. [5+5]

OR

- 11.a) List the sources of evaporative emission in petrol engines? How can it be controlled?
b) Interpret the properties of alcohols to be used as a fuel in automobiles. [5+5]

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