



## ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

B.E. /B.Tech / B. Arch (Full Time) - END SEMESTER EXAMINATIONS, NOV/DEC 2024

Civil Engineering

VI Semester

ME7691 - BASIC AUTOMOBILE ENGINEERING

(Regulation2015)

Time : 3hrs

Max.Marks: 100

PART- A(10x2=20Marks)

(Answer all Questions)

Q.No	Questions	Marks
1	List the advantages of Integral body construction.	2
2	Define brake thermal efficiency and brake specific fuel consumption.	2
3	Differentiate SI and CI engine working.	2
4	Draw the layout parallel hybrid configuration?	2
5	What is the need of gearbox?	2
6	What is the function of an universal joint?	2
7	Define Camber and Castor.	2
8	Compare disk and drum brakes.	2
9	What is the need of Engine cooling?	2
10	What are limitations of driverless car?	2

PART- B(5x 13=65Marks)

(Restrict to a maximum of 2 subdivisions)

Q.No	Questions	Marks
11 (a) (i)	With suitable sketch explain various types of car body and its application.	7
(ii)	Briefly explain with suitable sketch any two types of vehicle chassis.	6
(OR)		
11 (b) (i)	With neat diagram explain ladder frame of an automobile.	7
(ii)	Discuss the various resistance encountered to an automobile in detail.	6
12 (a) (i)	Explain the sources of Particulate Matter, UBHC and NOx emissions.	7
(ii)	What is Exhaust Gas Recirculation (EGR)? Explain the reason why it's employed?	6
(OR)		
12 (b)	With a neat sketch explain working of three-way catalytic converter.	13

13 (a) (i) State the necessity of clutch in an automobile. Also with a diagram explain working centrifugal clutch. 13

(OR)

13 (b) (i) With a neat sketch explain working of an conventional differential. 7

(ii) Discuss working of any two type of rear axial. 6

14 (a) (i) Define Ackermann's steering principle. Also explain the manual steering mechanism with neat sketch. 6

(ii) With a neat sketch explain the construction and principle of operation of a hydraulic brake system 7

(OR)

14 (b) (i) With a neat sketch explain the operation of telescopic type shock absorber. 6

(ii) With the aid of a diagram explain working of master cylinder. Also briefly explain about Anti-locking braking system. 7

15 (a) (i) Explain working of pressurized wet sump lubrication system. 7

(ii) Explain working of airbag. 6

(OR)

15 (b) Explain working of

i) Traction control system. (7) 13

ii) Cruise control system. (6)

**PART- C(1x 15=15Marks)**  
(Q.No. 16 is Compulsory)

Q.No	Questions	Marks
16 (i)	Explain the working synchromesh gearbox with neat sketch.	8
(ii)	Explain the working of air-conditioning system with a schematic diagram.	7

