Printed Page:- 04 **Subject Code**:- **AME0613**

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM:VI CARRY OVER THEORY EXAMINATION AUGUST 2023

Subject: Vehicle Body Engineering

Time: 3 Hours **Max. Marks: 100**

General Instructions:

IMP: *Verify that you have received the question paper with the correct course, code, branch etc.*

1. *This Question paper comprises of* **three Sections -A, B, & C.** *It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.*

2. *Maximum marks for each question are indicated on right -hand side of each question.*

3. *Illustrate your answers with neat sketches wherever necessary.*

4. *Assume suitable data if necessary.*

5. *Preferably, write the answers in sequential order.*

6. *No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.*

SECTION A **20**

1. Attempt all parts:-

1-a. The auto ignition in a spark ignition engine means (CO1) 1

(a) Automatic ignition of the charge at the end of compression

(b) Ignition induced by the passage of a spark

(c) Ignition of the charge before the passage of flame front

(d) Ignition induced to supplement the process of normal combustion

1-b. The main merit of a multi cylinder type cylinder sleeve is (CO1) 1

(a) Smaller engine dimensions

(b) Better cooling efficiency

(c) High rigidity

(d) None of these

1-c. The difference between DOT 3 and DOT 4 brake fluids is (CO2) 1

(a) DOT 4 fluids have a higher boiling point than DOT 3 fluid

(b) DOT 4 fluids have a lower boiling point than DOT 3 fluid

(c) DOT 3 and DOT 4 fluids have the same boiling point, but DOT 4 fluid has a

longer service life

(d) DOT 4 fluid is more resistant to freezing than DOT 3 fluid

1-d. In Diesel engines, the duration between the time of injection and the time of ignition is called (CO2) 1

(a) Spill cut-off

(b) Delay period

(c) Injection period

(d) Ignition period

1-e. The characteristic that is enhanced by the use of cylinder sleeves is (CO3) 1

(a) Cooling efficiency

(b) Resistance to wear

(c) Lubrication performance

(d) None of these

1-f. The function of positive crankcase ventilation (PCV) system is that it (CO3) 1

(a) Mixes fuel with air

(b) Promotes combustion by creating a swirling movement in the air-fuel mixture

(c) Returns blow by gases from the crankcase to the intake system

(d) Feeds blow by gases to the exhaust manifold

1-g. The function of a radiator fan in the cooling system is that (CO4) 1

(a) It blows air through the radiator when necessary

(b) It is turned by wind force as the vehicle moves forward, and its rotation drives the water pump

(c) It cools the engine by blowing air onto the cylinder block

(d) It draws heat out of the engine compartment

1-h. The function of a proportioning control valve (PCV) in a brake system is to (CO4) 1

(a) Ensure that equal pressure is supplied to the front and rear brakes throughout every braking operation

(b) Reduce the brake fluid pressure when the brakes approach their lockup point

(c) Cause less brake fluid pressure to act on the front brakes than on the rear brakes when the fluid pressure exceeds a predetermined level

(d) Cause less brake fluid pressure to act on the rear brakes than on the front brakes when the fluid pressure exceeds a predetermined level

1-i.	The gear shift lever requires two separate motions to shift gears, and the first movement (CO5) (a) Moves the synchronizer (b) Selects the synchronizer (c) Meshes the gears (d) Operates the clutch	1
1-j.	Which of the following symptom is caused as a result of brake disc run out? (CO5) (a) Ineffectiveness of the brakes (b) Judder during braking (c) Localized wearing of the brake pads (d) Rapid wearing of the brake pads	1

2. Attempt all parts:-

2.a.	What are roof sticks (CO1)	2
2.b.	Give any two examples of glass reinforced plastics. (CO2)	2
2.c.	What do you mean by force? (CO3)	2
2.d.	What are the visibility regulations for car? (CO4)	2
2.e.	What is bearing? (CO5)	2

SECTION B **30**

3. Answer any <u>five</u> of the following:-

3-a.	What do you mean by seating arrangement in cars? (CO1)	6
3-b.	Compare between car and commercial vehicles. (CO1)	6
3-c.	What are the different properties of structural timber? (CO2)	6
3-d.	What are the different properties of high strength composites? (CO2)	6
3.e.	How body structure is chosen for the vehicles? (CO3)	6
3.f.	How vehicle stability plays an important role in design (CO4)	6
3.g.	Why we are using a bumper system explain? (CO5)	6

SECTION C **50**

4. Answer any <u>one</u> of the following:-

4-a.	Describe the rub rail in detail (CO1)	10
4-b.	Differentiate between floor longitudes and post (CO1)	10

5. Answer any <u>one</u> of the following:-

5-a.	Explain the function of paint adhesives. (CO2)	10
5-b.	Differentiate between aluminum and aluminium alloys with examples and properties. (CO2)	10

6. Answer any <u>one</u> of the following:-

6-a.	Explain the various types of side loads with arrow diagrams. (CO3)	10
6-b.	What are mathematical equation for load distribution? (CO3)	10

7. Answer any <u>one</u> of the following:-

7-a.	Describe the various methods for improving the visibility of the driver. (CO4)	10
7-b.	Describe in detail the stabilization of steerable wheels. (CO4)	10

8. Answer any <u>one</u> of the following:-

8-a.	What are the various parameters that are used to design the vehicle for fatigue loads. (CO5)	10
8-b.	What do you understand by laws of mechanisms to safety explain. (CO5)	10