

J-21-0023

B. Tech. EXAMINATION, 2021

Semester V (CBCS)

AUTOMOBILE ENGINEERING

ME-505

Time : 2 Hours

Maximum Marks : 60

The candidates shall limit their answers precisely within 20 pages only (A4 size sheets/assignment sheets), no extra sheet allowed. The candidates should write only on one side of the page and the back side of the page should remain blank. Only blue ball pen is admissible.

Note : Attempt *Four* questions in all, selecting *one* question from any of the Sections A, B, C and D. Q. No. **9** is compulsory.

Section A

1. Explain in detail the construction and working of a multi-plate clutch. **15**
2. Explain integral and semi-integral type vehicle body construction. **15**

Section B

3. Explain in detail the working of differential with the help of a neat sketch. **15**
4. Explain the construction and working of typical gearbox. **15**

Section C

5. Explain the steering geometry with a neat sketch. **15**
6. Explain rack and pinion steering gear mechanism in detail with a neat sketch. **15**

Section D

7. Explain electronic ignition system in detail with a sketch. **15**
8. Explain in detail the working of hydraulic brakes with a sketch. **15**

(Compulsory Question)

9. (i) What is spring rate ? Relate it to the quality of ride.
(ii) What is the function universal joints, in what combination are they employed ?

- (iii) How is CC related to acceleration of vehicle ? Explain.
- (iv) What is panhard rod and what is its function ?
- (v) What is the function of EGR valve ?
- (vi) Why is there no tread on tyres of Formula One cars ?
- (vii) Why is bleeding of brakes done ?
- (viii) Where are expanding type clutches used ?
- (ix) What is the difference between vacuum and air brakes ? Which are being used in trains now a days ?
- (x) Out of diesel and petrol vehicles which are more polluting and why ? **10×1½=15**