

Roll No. ....

Total Pages : 2

BT-7/M-13

8751

**AUTOMOBILE ENGINEERING**

Paper-ME-401-E

Time Allowed : 3 Hours]

[Maximum Marks : 100

**Note :** Attempt five questions in all, selecting at least one question from each Unit. All questions carry equal marks.

**UNIT-I**

1. Distinguish between power balance and mechanical balance. What do you understand from the term Power overlap? Explain, why there is no power overlap in a four-cylinder engine. 20
2. What is the function of clutch? Discuss factors affecting the torque transmission in clutch. With the help of suitable diagram, describe the constructional features of a helical spring type clutch. 20

**UNIT-II**

3. Explain clearly, what is the necessity of transmission in the vehicle. Describe the working of Synchromesh gear box with the help of sketch. What are its merits compared to sliding mesh? 20
4. Explain the necessity of a differential in an automobile. Discuss briefly the construction and operation of the differential. Also explain with the help of neat sketch, the construction of propeller shaft and constant velocity joint. 20

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**UNIT-III**

5. What are the objectives of vehicle suspension? Differentiate clearly between the function of a spring and shock absorbers. Explain the construction and working of a telescopic type of shock absorber with the help of neat diagram. 20
6. Discuss the various functions performed by an automobile tyre. Draw cross-section of an automobile tyre and show on it various constructional features. Explain clearly the requirement of automobile brakes. Discuss various factors influencing braking effect. 20

**UNIT-IV**

7. What is wheel alignment? Explain the terms camber, caster, steering axis inclination and toe-in/out. What are the effects of each on steering characteristics of vehicle? 20
8. Discuss recent trends in automobile engineering in terms of double catalytic converter and aspect of pollution control in automobile. 20

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