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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech (AE) (Sem.-5)  
**AUTOMOTIVE TRANSMISSIONS**  
Subject Code : AE-303  
Paper ID : [A0714]

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTION TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.

**SECTION-A****1. Write briefly :**

- (i) What are the various forces act on the vehicle during running?
- (ii) What do you mean by  $4 \times 2$  vehicles? How it is different from  $6 \times 4$  vehicles?
- (iii) What are advantages of cone clutch over other types and where it is used?
- (iv) Where fluid coupling is used?
- (v) What is the use of idealer gear in the gearbox?
- (vi) What is the purpose of synchromesh ring in gear assembly?
- (vii) Why turbocharger is used in an automobile?
- (viii) Draw the speed vs. torque graph for a fluid coupling.
- (ix) Which type of gearbox uses Epicyclic gears?
- (x) Draw the diagram to show the positions of the sliding mesh gear box in reverse gear.

**SECTION-B**

2. List the advantages and disadvantages of torque convertor. (5)
3. Describe the different layout, which are used for the transmission system. (5)
4. List advantages and disadvantages of automatic transmission used in passenger cars. (5)
5. What do you understand by the term synchronization in gear box? (5)
6. (i) Why lubricating oil is necessary in gear box as compared to grease? (2)
- (ii) Which type of gears profile is used for gears in constant mesh gear box? (3)

**SECTION-C**

7. (i) Draw a schematic diagram of multiplate wet clutch to show its complete constructional details with completely labelled diagram only. (4)
- (ii) Describe how the diaphragm spring works in the clutch assembly and describe the different members in contact with it, which helps in engagement and disengagement of the clutch. (6)
8. What are hydrostatic drives? Explain the constructional details and working principle of Janny Hydrostatic drive in detail. (10)
9. What are hybrid vehicles? What are main components of it? How they are helpful in saving energy of the vehicle? (10)