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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(AE) (2011 onwards) (Sem.5)

AUTOMOTIVE TRANSMISSIONS

Subject Code : BTAE-502

Paper ID : [A2062]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS 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 have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A**Q1 Write briefly :**

- i) What is grade resistance?
- ii) What do you mean by articulated trucks?
- iii) Lubricating oil reduces friction then why multi-plate clutches are dipped in lubricating oil?
- iv) What is the function of torsion damping helical springs in single plate clutch assembly?
- v) What is difference between sequential gear shifting and independent gear shifting?
- vi) What is the purpose of providing grooves on the internal surfaces of synchromesh ring?
- vii) Why turbocharged vehicles are advised to stop after few seconds of ideal engine running?
- viii) Draw the speed vs. torque graph for a fluid coupling.
- ix) What is benefit of providing overdrive gear in the gear box?
- x) Name different components of three element torque convertor?

SECTION-B

2. List the advantages and disadvantages of fluid flywheel.
3. Discuss the classification of transmission system based on the mode of power transmission in automobiles.
4. List advantages and disadvantages of various electric drives used in passenger cars.
5. Explain the construction and working of *free wheel* type over-running clutch.
6. Name different operations in automobile engine and transmission system which are operated and governed by electronic control unit with the help of a dedicated electronic chip.

SECTION -C

7.
 - i) Describe in detail the performance characteristics of *Modified Ward Lenard Control* system. 6
 - ii) Draw torque- power characteristics of a manual gearbox. 4
8. Draw neat and labeled diagram of pin and plunger type gear shifter mechanism in different operation modes to explain its working for shifting different gears. 10
9. What are hydrostatic drives? Explain the constructional details and working principle of Janny Hydrostatic drive in detail. 10