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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

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**I. Write short notes on :**

- (a) What is drawbar pull of a vehicle?
- (b) What do you mean by 4×4 vehicles? How it is different from 6×4 vehicles?
- (c) How can we reduce the outer diameter of a clutch, so that it can be used in a smaller area?
- (d) Which members of the drive-line are used to absorb the variations of power during propulsion of vehicle?
- (e) What is Third Differential and where it is used?
- (f) What is the purpose of providing grooves on the internal surfaces of synchromesh ring?
- (g) What is three-element torque converter?
- (h) Why electrical drives are preferred over hydraulic drive?
- (i) Classify different lining materials used for fabrication of clutches.
- (j) What do you mean by Sequential Shifting?

SECTION-B

2. Describe the variation of tractive effort in different situation, with the help of different curves.
3. Describe the different layout, which are used for the transmission system.
4. What is Shift Shock? How it can be eliminated?
5. Explain the construction and working of *sprag* type over-running clutch.
6. What are the four basic configuration of hydrostatic operation?

SECTION-C

7. (a) Describe in detail the performance characteristics of *Modified Ward Lenard Control system*. (6)
(b) Describe the operation of constant displacement pump with variable displacement motor. (4)
8. (a) With the help of a suitable diagram, explain the working and construction of ball and plunger type gear shift mechanism. (4)
(b) What is the principle of operation of a five element Torque converter used in 'Turbo glide' Transmission? (6)
9. (a) Classify the types of vehicles based on their different transmission system. (5)
(b) Describe in detail the difference between power and economy modes of gearbox. (5)