

FACULTY OF ENGINEERING
B.E. 3/4 (AE) II – Semester (Main) Examination, June 2014

Subject: Performance & Testing of Automotive Vehicles

Time: 3 Hours

Max.Marks: 75

Note: Answer all questions from Part A. Answer any five questions from Part B.

PART – A (10 x 2.5 = 25 Marks)

- 1 Explain the effects of front and geometry on drag coefficients.
- 2 Explain the factors effecting the (Cd) drag coefficient.
- 3 Why is the clutch placed between the fly wheel and the transmission?
- 4 Why is an idler gear used? Which main shaft gear meshes with the idler gear?
- 5 What is DIN Rating?
- 6 Write some effects on fuel economy by tyre and road condition.
- 7 What are the advantages of independent front end suspension?
- 8 Give the main troubles of brakes and their causes.
- 9 List any 6 engine testing noise.
- 10 Explain how the gear box is to be tested.

PART – B

- 11 (a) Explain the term rolling resistance. (4)
 (b) What is the difference between the traction and tractive effort? (6)
- 12 (a) Explain why is the multi plate clutch of small diameter preferred for high performance cars. (4)
 (b) Describe the construction and working of diaphragm clutch. (6)
- 13 A four cylinder petrol engine has an output of 70 BHP at 2000 rpm. A Morse test was carried out and the brake torque readings were 17.98, 17.28, 17.00 and 17.70 kg-m respectively for normal running at this speed specific fuel consumption is 0.272 Kg/BHP hour. The power calorific value of the fuel is 10500 Kcal/Kg. Calculate the mechanical efficiency and the brake thermal efficiency of the engine. (10)
- 14 Explain with neat sketch effects of body roll and irregular road surfaces on suspension geometry. (10)
- 15 Explain with neat sketch the mechanics of a hydraulic single-line braking system. (10)
- 16 Explain the effects of atmospheric temperature pressure and humidity on vehicle performance. (10)
- 17 Explain the following: (10)
 a) Road and track testing b) Residual gas c) Emission test.
