

--	--	--	--	--	--	--	--	--	--



P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Eighth Semester, B.E. - Automobile Engineering

Semester End Examination; May/June - 2018

Manufacturing of Automotive Components

Time: 3 hrs

Max. Marks: 100

Note: Answer FIVE full questions, selecting ONE full question from each unit.

UNIT - I

- 1 a. Explain various machining operations in the manufacturing of engine block. 10
 b. Explain the various steps involved in upset forging of valves. 10
 2 a. Explain in detail heat treatment process of connecting rod. 10
 b. Explain different piston ring manufacturing process. 10

UNIT - II

- 3 a. Explain the manufacturing of friction plates for clutches with neat flow chart. 10
 b. Mention the advantages and limitation of powder metallurgy. 6
 c. Write a note on gear hobbing. 4
 4 a. Sketch and explain the manufacturing of propeller shaft by continuous casting process. 10
 b. Explain briefly the orbital forming of spur and helical gears. 10

UNIT - III

- 5 a. Discuss the method of manufacturing of leaf spring and coil spring. 10
 b. Explain the forging operation which are used to manufacturing front and rear axles. 10
 6 a. Explain briefly the manufacturing of tyre and tube. 10
 b. Explain briefly the manufacturing of wheels and brakes. 10

UNIT - IV

- 7 a. Write a short note on : 10
 i) Thermo forming ii) Hydro forming iii) Press forming
 b. Explain construction and working of : 10
 i) Spot welding ii) Resistance welding
 8 a. Describe injection moulding of instrument panel with sketch. 10
 b. Explain the hand layup process for making composite panels. 10

UNIT - V

- 9 a. With neat sketch, explain the following : 10
 i) Physical vapour deposition ii) Chemical vapour deposition iii) Solgel processing
 b. Describe the use of RPT and CNC in manufacturing of automotive components. 10
 10 a. Discuss the use of Pro-E and IDEAS packages in machine concepts. 8
 b. Write short notes on : 12
 i) Fused vapour deposition ii) Laser sintering