

SUBJECT CODE-14
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E. (Mech) Examination Nov/Dec 2015
Automobile Engineering
(Revised)

[Time: Three Hours]

[Max. Marks: 80]

“Please check whether you have got the right question paper.”

- N.B
- i) Solve any three questions in each section.
 - ii) Assume suitable data, if necessary.

SECTION-A

- Q1. a) Give the complete classification of automobile. 5
 b) Draw neat sketch of layout of an automobile with front mounted engine and rear wheel drive. 8
- Q2. a. What are the different types of clutches used in the automobiles? State the advantages, disadvantages and applications of each of them. 6
 b) With neat sketch explain the construction and working of a single plate clutch with helical (coil) springs. 7
- Q3. a) With neat sketch explain the epicyclic gear arrangement used in the automobiles. state the different conditions gear ratio's in this gear train, which enable its use in the gear Box. 7
 b) What are the different types of universal joints used in the propeller shaft? With neat sketch explain working of each in brief. 6
- Q4. a) With neat sketch explain construction and working of a Macpherson struct front independent suspension. 7
 b) What is the function of an anti roll bar? Explain with neat sketch its construction and application in an automobile. 6
- Q5. Write a short notes any two. 14
- i) Synchromesh gear box
 - ii) Centrifugal clutch.
 - iii) Air suspension.
 - iv) Springs used in suspension.

SECTION-B

- Q6. a) Explain with neat sketch the full floating, 3 quarter floating & half floating arrangement of axle in the final drive. 7
 b) What is wheel alignment? In the details explain the steering geometry and angles pertaining to the geometry applied in the suspension. 6
- Q7 a) Draw a near sketch of a recirculating ball nut & screw type steering gear box and explain its working. 7

- b) Explain. 6
- i) Under steer & over steer
 - ii) Steering effort and steering ratio .
 - iii) Wheel balancing.
- Q8. a) Draw a neat sketch showing the layout of hydraulic break system in the four wheeler using tandem master cylinder. 7
- b) Differentiate between 6
- 1) Disc brakes and Drum brakes
 - 2) Conventional brake system and antilock brake system.
- Q9) a) What are the different starting systems used in the automobile starts motor drive? With neat sketch explain the over-run clutch drive. 7
- b) With neat sketch explain the alternator used in automobiles. State its advantages over the dynamo. 6
- Q10. Write short notes any two. 14
- i) Power steering.
 - ii) Rear axle arrangement in the live rigid axle system.
 - iii) Brake shoes and brake pads.
 - iv) Automobile Tyres.