Code No: **RT41248** **R13** **Set No. 1**

IV B.Tech I Semester Supplementary Examinations, February/March - 2018

AUTOMOTIVE CHASSIS AND SUSPENSION

(Automobile Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any THREE questions from Part-B
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PART–A *(22 Marks)*

1. a) Explain the various functions of clutch in an automobile. [4]
   b) Define Castor angle and Camber angle. [4]
   c) Explain the working of wheel cylinder in braking system. [3]
   d) Describe the working of Torsion bar in automobile suspension. [4]
   e) Enumerate the importance of parking brake and emergency brakes. [4]
   f) Write down the several functions of carburetor in IC engine. [3]

PART–B *(3x16 = 48 Marks)*

2. a) Explain the various layouts available with reference to power plant. [8]
   b) Discuss the importance of frames and give the advantages of frameless chassis. [8]

3. a) Explain about ackerman steering gear mechanism. Compare its advantages over davis steering mechanism. [8]
   b) Explain the working principle of recirculating ball type steering in a four wheeler with sketch. [8]

4. a) Enumerate the working of master cylinder in hydraulic braking system. [8]
   b) Discuss the following factors influencing operation of brakes
      i) Operating temperature
      ii) brake clearance [8]

5. a) Explain with a neat sketch the working of a pneumatic brake used in automobiles. What are its merits and demerits compared to hydraulic brakes? [8]
   b) What are the advantages of independent suspension over rigid axle suspension system? [8]

6. a) What are the different cross sections used for the construction of chassis frame? Mention their relative merits. [8]
   b) What are the various loads acting on the chassis frame? [8]

7. a) Explain the different arrangement of cylinders in an IC engine. Illustrate with sketches. [8]
   b) Explain the working of Zenith carburetor with neat sketch. [8]