

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE - SEMESTER-V (NEW) - EXAMINATION – SUMMER 2018**

**Subject Code:2150202**

**Date:30/04/2018**

**Subject Name:Automobile Systems**

**Time:02:30 PM to 05:00 PM**

**Total Marks: 70**

**Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

	<b>MARKS</b>
<b>Q.1</b> (a) Draw layout of front engine four wheel drive and write advantages of it.	<b>03</b>
(b) Explain torsion bar.	<b>04</b>
(c) Explain and derive condition for correct steering (Correct steering angle).	<b>07</b>
<b>Q.2</b> (a) Draw layout of front engine front wheel drive and write advantages of it.	<b>03</b>
(b) Explain various types of vehicle chassis with neat sketch.	<b>04</b>
(c) What is an independent suspension? Explain the MacPherson strut type independent suspension in detail.	<b>07</b>
<b>OR</b>	
(c) Describe Hydro-Pneumatic suspension system with neat diagram.	<b>07</b>
<b>Q.3</b> (a) Define toe, camber and caster.	<b>03</b>
(b) Explain hotch kiss drive.	<b>04</b>
(c) Explain electronic power steering with neat sketch.	<b>07</b>
<b>OR</b>	
<b>Q.3</b> (a) Define steering axis inclination, combined angle and scrub radius.	<b>03</b>
(b) Explain differential.	<b>04</b>
(c) Explain hydraulic power steering with neat sketch.	<b>07</b>
<b>Q.4</b> (a) List different types of friction materials used in clutch.	<b>03</b>
(b) Explain electromagnetic clutch.	<b>04</b>
(c) Explain pneumatic brakes with diagram.	<b>07</b>
<b>OR</b>	
<b>Q.4</b> (a) List different types of lining materials used in brakes.	<b>03</b>
(b) Explain fluid flywheel.	<b>04</b>
(c) Why brake bleeding is required and write brake bleeding process?	<b>07</b>
<b>Q.5</b> (a) Explain CVT?	<b>03</b>
(b) Explain following terms: (1) Traction and Tractive effort (2) Wheel skidding	<b>04</b>
(c) Explain torque converter with neat sketch.	<b>07</b>
<b>OR</b>	
<b>Q.5</b> (a) Explain specification of tyre	<b>03</b>
(b) Compare radial tyre and cross ply tyre.	<b>04</b>
(c) List different types of automatic transmission and explain epicyclic gear train.	<b>07</b>

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