

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV (NEW) EXAMINATION – SUMMER 2022****Subject Code:3140203****Date:23-06-2022****Subject Name:Basics of Automobile Systems****Time:10:30 AM TO 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

MARKS

- Q.1** (a) Write down the difference between chassis, frame and body. **03**
 (b) Compare Front engine front wheel drive vehicle with Rear engine rear wheel drive vehicle based on any four aspects. **04**
 (c) Explain the various vehicle layouts and Explain with neat sketch the vehicle layout for Automobile of Front engine four-wheel drive. **07**
- Q.2** (a) Define the following terms: **03**
 (i) Air resistance (ii) Gradeability (iii) Traction and Tractive effort.
 (b) Explain various resistances acting on a vehicle in motion. **04**
 (c) Explain electromagnetic clutch. **07**
- OR**
- (c) Explain in brief with neat sketch Fluid Flywheel. **07**
- Q.3** (a) Why gear box is required in automobile vehicle. **03**
 (b) Give the difference between automatic and manual transmission. **04**
 (c) Explain with neat sketch, constructional working of CVT. **07**
- OR**
- Q.3** (a) Discuss the function of universal joints in power transmission. **03**
 (b) Explain fully floating rear axles with the aid of suitable sketch. **04**
 (c) Explain in brief with neat sketch differential in vehicle? **07**
- Q.4** (a) Explain types of suspension system? **03**
 (b) Explain the Mac Pherson strut type of independent suspension in detail. **04**
 (c) Which are the basic considerations for suspension system? Explain in detail Telescopic type shock absorber. **07**
- OR**
- Q.4** (a) List different types of lining materials used in brakes. **03**
 (b) Give the comparisons of disc brake and drum brake. **04**
 (c) Explain in brief with neat sketch hydraulic braking system. **07**
- Q.5** (a) Define the different terms related to the steering geometry: **03**
 (i) Camber, (ii) Caster, (iii) Toe Condition.
 (b) Explain Bleeding of Brake with neat sketch. **04**
 (c) Explain hydraulic power steering with neat sketch. **07**
- OR**
- Q.5** (a) Define: Wheel base, Wheel track, Ground Clearance. **03**
 (b) Briefly discuss about specification of tyres with example. **04**
 (c) Explain and derive condition for correct steering. **07**
