DEPARTMENT OF AERONAUTICAL AND AUTOMOBILE ENGINEERING MANIPAL INSTITUTE OF TECHNOLOGY, MANIPAL SEMESTER EVALUATION

Subject: AUTOMOTIVE CHASSIS AND SUSPENSION(AAE 3171)

Semester: V

Branch: Automobile Engineering

Date and Time: 21/12/2021; 9:20 AM. Duration:90 min.

Max. Marks: 20

Instructions: All the questions are compulsory and missing data may be suitably assumed.

Q1. With suitable sketch compare the energy absorbing and back bone type of vehicle body frame. **(03 Marks)**

Q2. A vertical chassis can be considered as a simply supported beam of 5 m long and is supported at A and B each being 1.0 m from its front and rear ends. Loads of 3 kN and 6 kN are carried 0.5 m in front of A and 2 m behind A respectively. Find the magnitude of reaction forces at A and B. If an extra load of 5 kN is to be added to the beam in such a position that the reactions at A and B are to be equal, what will these reactions can be, and at what distance from A must the 5 kN load be situated? **(03 Marks)**

Q3. What is an interconnected suspension system? Discuss the constructional features of any such system and also its working. **(04 Marks)**

Q4. Discuss the causes of any three troubles experienced in the suspension system of an automobile and suggest appropriate remedies in each case. (**03 Marks**)

Q5. Explain in detail the construction and operation of a brake chamber and brake valve. **(04 Marks)**

Q6. Explain the design consideration and material properties of disc and the friction pads of disc brakes. **(03 Marks)**