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**INTERNATIONAL CENTRE FOR APPLIED SCIENCES**  
(Manipal University)  
**II SEMESTER B.S. DEGREE EXAMINATION – APRIL/ MAY 2017**  
**SUBJECT: INTRODUCTION TO AUTOMOBILE ENGINEERING (AU 121)**  
(BRANCH: AUTOMOBILE)  
Wednesday, 26 April 2017

**Time: 3 Hours**

**Max. Marks: 100**

- ✓ Answer ANY FIVE full Questions.
- ✓ Missing data, if any, may be suitably assumed

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|------|---|----|
| 1 A) | Explain the working of Mechanical fuel pump, with the help of a neat sketch.                          | 8  |
| 1 B) | With the help of a neat sketch, explain tickler method of starting                                    | 8  |
| 1 C) | List any four effects of excessive cooling.   | 4  |
| 2 A) | With the help of a neat sketch, explain the working of Dry sump lubrication.                          | 10 |
| 2 B) | Explain Constant Mesh gear box with the help of a neat sketch and show the power flow path.           | 5  |
| 2 C) | Explain with a neat sketch, the working of Semi floating axle.  | 5  |
| 3 A) | Briefly discuss the working of sliding mesh gear box.   | 10 |
| 3 B) | With an example, explain how planetary gear box works.  | 5  |
| 3 C) | Discuss the mechanism of rack and pinion steering system.   | 5  |
| 4 A) | Sketch and explain MacPherson strut type of suspension system.  | 8  |
| 4 B) | With the help of a neat sketch, explain the operation of an Anti-lock Braking System.                 | 4  |
| 4 C) | Explain construction and working of telescopic shock absorber system with the help of a neat diagram. | 8  |
| 5 A) | Draw standard bendix drive of a starting system and explain briefly.                                  | 10 |
| 5 B) | Explain CDI electronic ignition system with help of a neat line diagram                               | 10 |
| 6 A) | Sketch and explain the working of motor/ generator system.  | 10 |
| 6 B) | Sketch and explain TCS.   | 10 |
| 7 A) | Compare bevel gear with helical gear.   | 5  |
| 7 B) | Sketch and explain the Pressurized lubrication system.  | 10 |
| 7 C) | Write a note on engine coolant.   | 5  |
| 8 A) | Explain the principle of operation of charging system, with the help of a block diagram.              | 10 |
| 8 B) | What is the job of steering? Sketch the steering layout and list the functions of Steering System     | 10 |

