Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov/Dec– 2017**

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| **Code :** | **17EC3065** | **Duration :** | **3hrs** |
| **Sub. Name :** | **SOFTWARE FOR EMBEDDED SYSTEMS** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Explain in detail about the basic architecture of an embedded system. | CO1 | 10 |
| b. | Describe the various decision and conditional statements of C programming languages and its representations. | CO2 | 10 |
| (OR) | | | | |
| 2. | a. | Conversion of assembly code into machine implementable code is an essential step for designing an embedded software system. Justify your answer. | CO2 | 14 |
| b. | Point out the advantages of high level language programming in embedded system environment. | CO1 | 6 |
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| 3. | a. | Sketch the hardware connection between microcontroller and any output devices and write the embedded C code for activating it. | CO2 | 10 |
| b. | Write an embedded C program for interfacing switch with microcontroller. | CO2 | 10 |
| (OR) | | | | |
| 4. |  | Design an embedded system to implement real time clock. Select any known embedded processor of your interest. Support your hardware design with a block diagram and the software development with a flow diagram. | CO2 | 20 |
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| 5. | a. | Elaborate the concept of Model based development activities of ROPES Process. | CO3 | 14 |
| b. | Differentiate the various types of time constraints in realtime systems. | CO3 | 6 |
| (OR) | | | | |
| 6. | a. | Demonstrate the relationship between objects and classes in UML. | CO3 | 10 |
|  | b. | What is the significance of UML extension Mechanism? | CO3 | 10 |
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| 7. | a. | Explain in detail about all the key strategies for object identification. | CO5 | 10 |
|  | b. | Consider an instrument which is used for recording an ECG signal during surgery. Illustrate how the Use Cases can be applied for embedded implementation of above given system. | CO6 | 10 |
| (OR) | | | | |
| 8. | a. | Identify the role of different strategies for identifying threads. | CO5 | 10 |
| b. | Report the necessity to draw the timing diagram in UML with suitable example. | CO5 | 10 |
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|  | | **Compulsory**: |  |  |
| 9. | a. | Narrate the principles of various architectural patternsin UML. | CO3 | 14 |
| b. | Prioritize the different levels of design used in UML. | CO4 | 6 |