

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII • EXAMINATION – SUMMER • 2014****Subject Code: 171005****Date: 31-05-2014****Subject Name: Embedded Systems****Time: 02:30 pm - 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.

- Q.1** (a) Explain following terms in brief. **07**
 (i) GPP (ii) Device programmer (iii) IP Core
- (b) List design metrics used in the embedded systems and explain them in brief. **07**
- Q.2** (a) Define and classify the embedded systems, explain in brief skills required for an embedded system designer. **07**
- (b) Explain the following ARM instructions with suitable example. **07**
 (i) RSC (ii) MOVHI
- OR**
- (b) Explain the following ARM instructions with suitable example. **07**
 (ii) TEQ (ii) STMDB
- Q.3** (a) Discuss the ARM programmer's model in detail. **07**
- (b) Write an assembly language program for ARM processor to find sum of $3P+4Q+9R$, where $P=2$, $Q=5$ and $R=4$. **07**
- OR**
- Q.3** (a) Explain in detail with example 'Conditional Execution' feature of ARM processor. **07**
- (b) Write an assembly language program for ARM processor to calculate $3P^2+5Q^2$, where $P=6$ and $Q=8$. **07**
- Q.4** (a) Compare the advantages and disadvantages of data transfers using serial and parallel ports devices. **07**
- (b) Explain following terms in brief. **07**
 (i) Context (ii) Mutex (iii) Interrupt latency
- OR**
- Q.4** (a) List wireless and mobile system protocols and discuss any two in detail. **07**
- (b) Write a short note on Real-Time Operating System and its services. **07**
- Q.5** (a) List the various states of process/task. Explain them with state transition diagram. **07**
- (b) Write short note on OS security issues. **07**
- OR**
- Q.5** (a) What are the situations, which lead to priority inversion and deadlock problems? How does it is resolved? **07**
- (b) Discuss Earlier Deadline First (EDF) precedence and Rate Monotonic Scheduling (RMS) Models. **07**
