

GANPAT UNIVERSITY**B. Tech. Semester: VI Electronics & Communication Engineering****CBCS Regular Examination April – June 2017****2EC607: Elective I Embedded Systems and Applications****Time: 3 Hours****Total Marks: 60****Instructions:**

1. Attempt all questions.
2. Answers to the two sections must be written in separate answer books.
3. Figures to the right indicate full marks.
4. Assume suitable data, if necessary.

SECTION-I

- Que. – 1**
- | | | |
|-----|---|---|
| (A) | Write short notes on the Co-operative Scheduling for Non-preemptive methods of Scheduling with example. | 4 |
| (B) | Explain about the following directive with example.
1. AREA 2. RN | 4 |
| (C) | Do embedded systems need operating systems? | 2 |

OR

- Que. – 1**
- | | | |
|-----|--|---|
| (A) | Write short notes on the Pre-emptive priority for preemptive methods of Scheduling with example. | 4 |
| (B) | Explain about the following directive with example.
1. ENTRY 2. DCB | 4 |
| (C) | What are the differences between Pre-indexed addressing mode and Post-indexed addressing mode? | 2 |
- Que. – 2**
- | | | |
|-----|---|---|
| (A) | Discuss on Race condition with example. | 4 |
| (B) | Write instructions to compare two numbers which are in registers R1 and R2. The bigger number is to be placed in R10. If the two numbers are equal, then the number is to be moved to R9. | 4 |
| (C) | Define Context switching, Context saving and Context retrieval. | 2 |

OR

- Que. – 2**
- | | | |
|-----|---|---|
| (A) | Write short notes on Binary semaphore and Counting Semaphore. | 4 |
| (B) | Which are the features of ARM that make it special? Explain any four of them. | 4 |
| (C) | How does multitasking affect the user? | 2 |
- Que. – 3**
- | | | |
|-----|---|---|
| (A) | What is the priority inversion? Give solutions for that. | 4 |
| (B) | Define the following terms:
1. Low level software utility 2. Boot loader
3. User interface 4. POSIX (Portable operating system interface) | 4 |
| (C) | What is the function of Barrel Shifter in ARM? | 2 |

SECTION-II

- Que. – 4** (A) Write conversion steps from source file to an executable file. 4
(B) Write short note on following: 4
1. DRAM 2. Flash Memory
(C) What is the reason for the shift from parallel to serial buses in embedded systems? 2

OR

- Que. – 4** (A) List out and explain various ways to download the Hex file to the Nonvolatile memory. 4
(B) Write short note on following sensors: 4
1. Light sensors 2. Encoders
(C) Explain the Daisy chaining arbitration schemes. 2
- Que. – 5** (A) List out application areas of Embedded systems. 4
(B) Write short note on the I2C protocol. 4
(C) Define the following terms: 2
1. Simulator 2. Emulator

OR

- Que. – 5** (A) PC is not considered to be an embedded system. Justify your answer 4
(B) Write short note on CAN protocol. 4
(C) Define the following terms: 2
1. Builder 2. Linker
- Que. – 6** (A) Write short note on Stepper motor. 4
(B) Write brief note on RS 232, RS 422 and RS 485. 4
(C) Distinguish between compilation and cross compilation. 2

END OF PAPER