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| ***Regulation R-18 Subject code: B48PE3***  TKR COLLEGE OF ENGINEERING AND TECHNOLOGY  (Autonomous, Accredited by NAAC with ‘A’ Grade)  ***C:\Users\india\Desktop\tkrcet-logo.jpg*** **B.Tech IV-II Semester Regular Examinations, June 2022**    **ECE**  **EMBEDDED SYSTEMS (set-4)**  ***Maximum Marks: 70*** Duration: 3 hours  **Note:** **1.This question paper contains two parts A and B.**  **2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.**  **3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.**  **4. Each question carries 10 marks and may have a, b, c, d as sub questions.** | | |
| Part-A | | | |
| **All the following questions carry equal marks (10x2M=20 Marks)** | | | |
| 1 | | What are the various purposes of embedded systems? | |
| 2 | | Give the applications of an embedded system. | |
| 3 | | What are the components of embedded system? | |
| 4 | | What is an ASIC? | |
| 5 | | What is the purpose of reset circuit | |
| 6 | | What is assembly language | |
| 7 | | Define monolithic kernel? | |
| 8 | | Define round robin scheduling algorithm | |
| 9 | | Define deadlock? | |
| 10 | | Discuss critical section | |
| Part-B | | | |
| Answer All the following questions. **(10MX 5=50Marks)** | | | |
| 11 | What is an embedded system? Explain different application areas of embedded systems? | | |
|  | OR | | |
| 12 | Explain the different characteristics of embedded systems in detail? | | |
| 13 | What is embedded firmware? What are the different development languages available for embedded firmware? | | |
|  | OR | | |
| 14 | Explain the role of Watch dog Timer & Brown out protection circuit in embedded system? | | |
| 15 | Discuss the processor trends in embedded system. | | |
|  | OR | | |
| 16 | Explain the different external communication interfaces in brief. | | |
| 17 | What is kernel? What are the different functions handled by a general purpose kernel? | | |
|  | OR | | |
| 18 | Three processes with process IDs P1,P2,P3 with estimated completion time 4,6,5 milliseconds and priorities 1,0,3 (0-highest priority , 3-lowest priority) respectively enters Ready queue after 5 milliseconds. Calculate the waiting time and Turn Around Time (TAT) (assuming there no IO waiting for the processes) in non-preemptive priority based scheduling algorithm. | | |
| 19 | What is Inter Process Communication (IPC)? Give an overview of different IPC mechanisms adopted by various operating systems? | | |
|  | OR | | |
| 20 | Explain dining philosophers problem in the process synchronization context. | | |

Note: 1.Set the question paper as per Syllabus mentioned

2. Descriptive each question carries 10 marks and may have a,b,c,d or i,ii,iii,iv as sub questions.

1. Please indicate the weightage of marks