Register Number:……..

KUMARAGURU
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GENERAL INSTRUCTIONS TO THE CANDIDATES

1. Candidates are instructed to answer the questions as per Bloom's Taxonomy knowledge level ($K_1$ to $K_6$)
2. Candidates are strictly instructed not to write anything in the question paper other than their roll number.
3. Candidates should search their pockets, desks and benches and handover to the Hall Superintendent/ Invigilator if any paper, book or note which they may find therein as soon as they enter the examination hall.
4. Candidates are not permitted to bring electronic watches with memory, laptop computers, personal systems, walkie-talkie sets, paging devices, mobile phones, cameras, recording systems or any other gadget / device /object that would be of unfair assistance to him / her.
5. Corrective measures as per KCT examination policies will be imposed for malpractice in the hall like copying from any papers, books or notes and attempting to elicit the answer from neighbours.

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**B.E/B.TECH DEGREE EXAMINATIONS: JUNE 2015**

(Regulation 2014)

Second Semester

**U14ITT201:FOUNDATIONS OF INFORMATION TECHNOLOGY**

(Common to CSE & IT)

**Time: Three Hours** **Maximum Marks: 100**

**Answer all the Questions:-**

**PART A (10 x 1 = 10 Marks)**

1. Assertion (A): Deadlock occurs if you have cycle in resource allocation graph. [$K_2$]
   Reason (R): It can be avoided if you have more instances of resources.
   a) Both A and R are individually true and R is the correct explanation of A
   b) Both A and R are individually true but R is not the correct explanation of A
   c) A is true but R is false
   d) A is false but R is true
2. If the magnetic disk has a rotational speed of 6000 rpm, has 200 sectors and 1024 bytes / sector, What would be the total transfer rate per second? [$K_3$]

a) 10.24 MB/sec b) 20.48 KB/sec

c) 20.48 MB/sec d) 12.00 MB/sec

3. How many address and data lines are needed to access 1024 X 8 memory unit? [$K_3$]

a) 10,8 b) 9,16

c) 20,8 d) 11,8

4. Which of the following statements about OS are correct? [$K_1$]

i. OS takes care of multiple thread execution

ii. OS takes care of allocating memory

iii. OS takes care of file editing

iv. OS takes care of directory structure

a) i, ii, iii b) ii, iii, iv

c) i, ii, iv d) i, iii, iv

5. Frames are handled by ------ layer [$K_1$]

a) Physical Layer b) Network Layer

c) Data Link Layer d) Presentation layer

6. Which level does the following item belong to? [$K_2$]

Code Character(5),ID Numeric(3), Age Numeric(3)

a) View b) Conceptual

c) Physical d) External

7. Sequence the following: [$K_1$]

i. Design

ii. Implementation

iii. Requirements gathering

iv. Analysis

a) iv,i,ii,iii b) iii, iv, i , ii

c) i,ii,iii,iv d) ii,iii,iv, i

8. Baud Rate is used in ---- [$K_1$]

a) Synchronous Transmission b) Routing

c) Switching d) Asynchronous transmission

9. Reusability is achieved by _____ . [$K_2$]

a) Abstraction b) Encapsulation

c) Polymorphism d) Inheritance

10. Matching the following: [$K_3$]

| List I | List II |
|---|---|
| A. Schema | i.Communication |
| B. IP Address | ii.MAC address |
| C. Machine Address | iii.125.125.12.56 |
| D.Phase shift | iv.Database |

| | A | B | C | D |
|---|---|---|---|---|
| a) | 2 | 1 | 4 | 3 |
| b) | 4 | 3 | 2 | 1 |
| c) | 4 | 3 | 1 | 2 |
| d) | 4 | 2 | 3 | 1 |

**PART B (10 x 2 = 20 Marks)**

**(Answer not more than 40 words)**

11. Let the instruction "Add A,B" be used to add A and B registers. Opcode corresponding to the instruction is AB residing at the location 2000. Illustrate the sequence and its content in the following: PC, MAR, MBR, Address bus, Data bus, IR [$K_3$]
12. List out the order of searching data in various memories while executing the program. [$K_2$]
13. Draw the state diagram of a process [$K_2$]
14. Distinguish between text file and data base. [$K_3$]
15. What do you mean by circuit switching? [$K_2$]
16. Differentiate between linear and non-linear data structures. [$K_2$]
17. Why is requirements gathering difficult in software development? [$K_3$]
18. Define a class representing a room. [$K_3$]
19. What is the use of RFID? [$K_1$]
20. What are the advantages of E-commerce? [$K_1$]

**Answer any FIVE Questions:-**

**PART C (5 x 14 = 70 Marks)**

**(Answer not more than 300 words)**

**Q.No. 21 is Compulsory**

21. (i) Unallocated blocks available in memory are: 16KB, 15KB, 222KB, 126KB, 25KB and 33KB. Use Best fit, First fit, Worst fit strategies for processes which require 14KB, 15KB 100KB and 208KB memory blocks. (5) [$K_3$]

| | | | | |
|---|---|---|---|---|
| | (ii) | What is SDLC? Explain about the phases of SDLC with examples. | (9) | [$K_2$] |
| 22. | (i) | Enumerate the steps involved in executing an instruction. | (7) | [$K_2$] |
| | (ii) | Illustrate magnetic disk types and their working procedures | (7) | [$K_1$] |
| 23. | (i) | Design an ER Diagram for Library Management System. Include Book, Librarian, Assistants and Users as Entities and show their relationships. | (7) | [$K_2$] |
| | (ii) | Explain any one scenario in which the system is in deadlock state. What is mutual exclusion? Why it is needed? If the mutual exclusion is not maintained in the system what are all the issues created? | (7) | |
| 24. | (i) | Explain about the modulation techniques available in communication. | (10) | [$K_2$] |
| | (ii) | Write a note on Unguided transmission media. | (4) | [$K_1$] |
| 25. | (i) | In what circumstances Linked List data structure is useful compared to an Array? Give the advantages and disadvantages of using linked list. | (7) | [$K_2$] |
| | (ii) | Explain about object oriented programming features with relevant examples. | (7) | [$K_2$] |
| 26. | (i) | Explain layered approach of Wireless Application Protocol | (7) | [$K_1$] |
| | (ii) | Write short notes on EDI and RFID. | (7) | [$K_1$] |

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