**Ph.D. COMMON ENTRANCE TEST**

**SUBJECT: COMPUTER SCIENCE AND ENGINEERING**

**Roll No:**

**PART B**

**Duration: 60 minutes Maximum Marks: 50**

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| **Instructions:**   1. **This entrance test question paper is not to be taken out of the examination hall** 2. **Question paper consists of Section A and Section B** 3. **Section A consists of 30 MCQs carrying 1 Mark each. Write the Alphabet of the correct answer in the space given.** 4. **Section B consists of Descriptive questions carrying 5 marks each. Restrict your answer to 500 words. Additional plain sheets have been attached to the question paper to answer Section B** |

**SECTION – A**

**Answer the following questions by writing the Alphabet of the correct answer in the Box given: 30 X 1 = 30**

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|  | The \_\_\_\_\_\_\_\_\_\_\_ is also known as the Physical Address or Hardware Address.   1. Host Address 2. Socket Address 3. IP Address 4. MAC Address |
|  | Find the port number of File Transfer Protocol.  A. 22  B. 20  C. 24  D. 26 |
|  | The commonly used protocol for webpage transfer is?  A. HTTP  B. FTP  C. SMTP  D. TCP |
|  | Which of the following is not an e-mail protocol?  A. IMAP  B. FTP  C. SMTP  D. POP |
|  | A classless address is given as 167.199.170.82/27. Find the number of addresses.  A. 32  B. 64  C. 128  D. 256 |
|  | Which of the following is the property of transaction that protects data from system failure?  A. Atomicity  B. Isolation  C. Consistency  D. Durability |
|  | Which normalization form is based on the transitive dependency?  A. BCNF  B. 3NF  C. 2NF  D. 1NF |
|  | Which is the lowest level of abstraction that describes how the data are actually stored?  A. View  B. User  C. Physical  D. Abstract |
|  | The address generated by CPU is called as \_\_\_\_\_\_\_\_\_\_\_\_\_\_  A. Absolute Address  B. Logical Address  C. Physical Address  D. MAC Address |
|  | Which one of the following is the deadlock avoidance algorithm?  A. Banker’s algorithm  B. Round-robin algorithm  C. Elevator algorithm  D. Karn’s Algorithm |
|  | A problem encountered in multitasking when a process is perpetually denied necessary resources is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  A. Deadlock  B. Inversion  C. Starvation  D. Aging |
|  | When we execute a C program, CPU runs in \_\_\_\_ mode.  A. User  B. Kernel  C. Safe mode  D. Supervisor Mode |
|  | How will you define compiler?  A. system program that writes instructions to perform  B. system program that converts instructions to machine language  C. system program that converts machine language to assembly language  D. system program that writes instructions to execute |
|  | Who is responsible for the creation of the symbol table?  A. Compiler  B. Assembler  C. Parser  D. Interpreter |
|  | Which of the following is known as a compiler for a high-level language that runs on one machine and produces code for a different machine?  A. One-pass Compiler  B. Optimizing Compiler  C. Multi-pass Compiler  D. Cross Compiler |
|  | Which of the following is a linear data structure?  A. Array  B. AVL Trees  C. Binary Trees  D. Graphs |
|  | From following which is not the operation of data structure?  A. Operations that perform a computation  B. Operations that check for syntax errors  C. Operations that manipulate data in someway  D. Operations that monitor an object for the occurrence of a controlling event |
|  | Which of the following data structures finds its use in recursion?  A. Stack  B. Queue  C. List  D. Graph |
|  | Which of the following sorting algorithms provide the best time complexity in the worst-case scenario?  A. Bubble Sort  B. Quick Sort  C. Merge Sort  D. Selection Sort |
|  | Which of the following is the disadvantage of the array?  A. Stack and Queue data structures can be implemented through an array.  B. Wastage of memory if the elements inserted in an array are lesser than the allocated size  C. Index of the first element in an array can be negative  D. Elements can be accessed sequentially. |
|  | Which of the following is a type of architecture used in the computers nowadays?  A. Micro Architecture  B. IBM Architecture  C. Harvard Architecture  D. Von-Neumann Architecture |
|  | Which of the architecture is power efficient?  A. RISC  B. CISC  C. ISA  D. PCI |
|  | To reduce the memory access time we generally make use of \_\_\_\_\_\_\_\_\_  A. SDRAM  B. Cache  C. Heap  D. SDROM |
|  | The interrupt which cannot be delayed and require the processor to process them immediately is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  A. Maskable Interrupts  B. Non-Maskable interrupts  C. Software Interrupts  D. Hardware Interrupts |
|  | In DMA transfers, the required signals and addresses are given by the \_\_\_\_\_\_\_  A. Processor  B. Device Drivers  C. DMA Controllers  D. Self-Input |
|  | In which circuit the output is depend only on the present input?  A. Combinational Circuit  B. Analog Circuit  C. Sequential Circuit  D. Flip-Flops |
|  | Race Around condition can be removed by using \_\_\_\_\_\_\_\_\_\_\_\_\_\_  A. Shift Register  B. Half Adder  C. Full Adder  D. Master Slave JK Flip-Flop |
|  | Which of the following data types represents the value 136.23?  A. Int  B. Float  C. Double  D. Short |
|  | Convert the Hexa-Decimal value ‘C6’ to Binary.  A. 11000110  B. 11100110  C. 11000010  D. 11000111 |
|  | If the base of system is b, then which of the following complement is possible?  A. (b+1)'s complement  B. (b-1)'s complement  C. (b+2)'s complement  D. (b-2)'s complement |

**Section – B**

**Answer any four questions (Each question carries 5 marks 4\*5 = 20**

1. Draw and explain the Internet’s Layered Network Architecture and justify how it is related with IoT Layer Architecture?

2. Draw and explain the E-R diagram for Netflix’s User Access.

3. Describe about the architecture of Android/iOS Operating System.

4. How can you measure the performance of an algorithm? Explain with your own example.

5. Write a C/C++/Java code to remove the middle element of an array.

6. “Is 4G Internet speed sufficient?” – Justify your answer

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