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| **Scheme of Valuation/Answer Key**  (Scheme of evaluation (marks in brackets) and answers of problems/key) | | | | | |
| **APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  **FOURTH SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019** | | | | | |
| **Course Code: AE202** | | | | | |
| **Course Name: COMPUTER PROGRAMMING (AE)** | | | | | |
| Max. Marks: 100 | | |  | Duration: 3 Hours | |
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| **PART A** | | | | | |
| ***Answer any two full questions. Each question carries 15 marks*** | | | | | |
|  |  |  | | |  |
| 1 | a) | What is a compiler? How does it differ from an interpreter?  Definitions + differences – (2.5+2.5 ) =5 marks | | | 5 |
|  | b) | Write a C program to find the roots of a quadratic equation  Correct program – 5 marks  Correct algorithm – 2.5 marks | | | 5 |
|  | c) | Draw a flowchart to find the sum of digits of an integer.  Correct flow chart – 5 marks | | | 5 |
| 2 | a) | Explain switch and goto statements in C with suitable examples  Switch:- definition + syntax + example – 2.5 marks. goto:- definition + syntax + example – 2.5 marks | | | 5 |
|  | b) | Write a C program to enter a 3 digit number and print it in reverse.  Correct program – 6 marks  3 marks can be given for correct algorithm. | | | 6 |
|  | c) | Define 1). Loader 2). Linker. Definitions (2 + 2= 4marks ) | | | 4 |
| 3 | a) | Differentiate between **++i** and **i++** with help of examples  Differences + examples (2.5 +2.5 = 5 marks) | | | 5 |
|  | b) | Draw the flowchart of a switch statement. Write a C program to print the days of a week using switch statement.  Flowchart of switch 3 marks + correct program 3 marks. | | | 6 |
|  | c) | Compare while and do\_ while loops with proper examples  While loop- flow chart, syntax and example  Do\_while loop - flow chart, syntax and example (2+2= 4 marks) | | | 4 |
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| **PART B** | | | | | |
| ***Answer any two full questions. Each question carries 15 marks*** | | | | | |
| 4 | a) | Write with suitable examples 1).Array declaration 2). Array initialization  Definitions with examples- (2.5 +2.5 = 5 marks) | | | 5 |
|  | b) | Write a C program to sort an array using selection sort  Correct program – 6 marks  3 marks can be given for correct algorithm. | | | 6 |
|  | c) | What is user defined functions? Explain with an example.  Definition + syntax + examples – 4 marks | | | 4 |
| 5 | a) | Explain dynamic memory allocation in C.  Write 4 memory allocation methods – 6 marks | | | 6 |
|  | b) | Write a C program to swap the values of two variables using pointer.  Correct program – 5 marks  3 marks can be given for correct algorithm. | | | 5 |
|  | c) | Write a C program to find the transpose of a matrix  Correct program – 4 marks  2 marks can be given for correct algorithm. | | | 4 |
| 6 | a) | Compare structure and union  Definition of structure – 2 marks , Definition of union – 2 marks | | | 4 |
|  | b) | What are enumerated data types? Write a program to create enumerated data type for 12 months.  Definition 3 marks ,Correct program – 3 marks  2 marks can be given for correct algorithm. | | | 6 |
|  | c) | Write a C program to find the factorial of a number using recursion. Correct program – 5 marks  2.5 marks can be given for correct algorithm. | | | 5 |
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| **PART C** | | | | | |
| ***Answer any two full questions. Each question carries 20 marks*** | | | | | |
| 7 | a) | Compare the use of different loops in Python with C?  Loops in python & C –syntax + examples – 4 + 4= 8 marks | | | 8 |
|  | b) | Write a python program to read a number and display whether it is positive or negative or zero. Correct program – 6 marks  3 marks can be given for correct algorithm. | | | 6 |
|  | c) | What are the operators used in python explain with examples  Explanations of operators with examples - 3 + 3 marks | | | 6 |
| 8 | a) | Explain, recursion in python with a suitable example  Recursion:- definitions + example (program)- 3+ 4 =7 marks | | | 7 |
|  | b) | Explain Dictionary in python with example  definitions + example (program)- 3+ 4 =7 marks | | | 7 |
|  | c) | Write a python program to check whether the given year is leap year or not.  Correct program – 6 marks  3 marks can be given for correct algorithm. | | | 6 |
| 9 | a) | What is tuple in python? What is the difference between list and tuple?  definitions + example + differences – 2+2+2 =6 marks | | | 6 |
|  | b) | Write a python program to check whether the given number is prime or not.  Correct program – 6 marks  3 marks can be given for correct algorithm. | | | 6 |
|  | c) | Explain how exceptions are handled in python. Illustrate with examples  Explanations with suitable examples. 4+4=8 marks | | | 8 |