Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**End Semester Examination – Nov/Dec – 2016**

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|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **16CS1001** | **Duration :** | **3hrs** |
| **Sub. Name :** | **COMPUTATIONAL THINKING AND PROGRAMMING** | **Max. marks :** | **100** |

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| **Q. No.** | **Questions** | | | | **Course outcome** | **Marks** |
| **PART-A (40X1=40 MULTIPLE CHOICE QUESTIONS)** | | | | | | |
| 1. | Which of the following is a continuous data? | | | | CO1 |  |
|  | a. Age | b. Temperature | c. Count | d. Color |  | (1) |
| 2. | The conversion of a digital signal into a sequence of characters is called | | | | CO1 |  |
|  | a. Encoding | b. Decoding | c. Modulation | d. Demodulation |  | (1) |
| 3. | Which of the following is the compressed format for video data? | | | | CO1 |  |
|  | a. jpeg | b. mpeg | c. mp3 | d. gif |  | (1) |
| 4. | ---------------------- are devices used for mass collection of data in a single location. | | | | CO1 |  |
|  | a. Data collectors | b. Clickers | c. Checkers | d. Crawlers |  | (1) |
| 5. | --------------------------- is a statement that set forth the evidence. | | | | CO2 |  |
|  | a. Proposition | b. Logic | c. Conclusion | d. Premise |  | (1) |
| 6. | -------------------------------- requirements specify the tasks to be performed by an application. | | | | CO2 |  |
|  | a. Specification | b. Design | c. Functional | d.Non-functional |  | (1) |
| 7. | Which of the following graphs is best for trend analysis? | | | | CO2 |  |
|  | a. Pie Chart | b. Line Graph | c. Bar Chart | d. 3D Graph |  | (1) |
| 8. | Hiding irrelevant details and focusing on relevant details is known as --------------- | | | | CO2 |  |
|  | a. Abstraction | b. Decomposition | c. Encapsulation | d. Polymorphism |  | (1) |
| 9. | The process of checking whether a program works without any errors is called -------- | | | | CO2 |  |
|  | a. Testing | b. Debugging | c. Coding | d. Compiling |  | (1) |
| 10. | The pictorial representation of algorithm is called | | | | CO2 |  |
|  | a. Data representation | b. Flow chart | c.Bar chart | d. Pseudocode |  | (1) |
| 11. | Applications of Propositional Logic are | | | | CO2 |  |
|  | a. Querying search engines | b. Analysis and synthesis of digital circuits | c. Querying databases | d.All of the above |  | (1) |
| 12. | Which of the following is **not** a process used in computational thinking to tackle a problem? | | | | CO2 |  |
|  | a. Patterns and Generalization | b. Abstraction | c. Decomposition | d. Testing |  | (1) |
| 13. | The following process applies *divide and conquer* technique to solve a problem | | | | CO2 |  |
|  | a. Abstraction | b. Decomposition | c. Generalization | d. Slicing |  | (1) |
| 14. | A logic gate in which any one of inputs is 1 results in output as 1 is said to be\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | | CO2 |  |
|  | a. IN gate | b. AND gate | c. OR gate | d. OUT gate |  | (1) |
| 15. | The ------------------------ structure is used for repeating a set of tasks. | | | | CO2 |  |
|  | a. Sequential | b. Selection | c. Modular | d. Iteration |  | (1) |
| 16. | What is the output of the following code snippet?  *pi=3.14 print(“The value of pi is “,pi)* | | | | CO3 |  |
|  | a. The value of pi is pi | b. *The value of pi is 3.14* | c. *The value of pi is, 3.14* | d. *The value of pi is, pi* |  | (1) |
| 17. | Identify what **does not** suit a variable from the following options | | | | CO3 |  |
|  | a. A variable holds data in a program | b. A variable can change its memory location during program execution | c. A variable identifies a memory location where data is stored. | d. A variable can change its value during program execution. |  | (1) |
| 18. | The association of an identifier with a value is called ------------------------ | | | | CO3 |  |
|  | a. Association identification | b. Name mangling | c. Name binding | d. Name association |  | (1) |
| 19. | -------------------------- statement skips the current iteration and continues the loop from the next iteration. | | | | CO3 |  |
|  | a. Break | b. Continue | c. Pass | d. Skip |  | (1) |
| 20. | A function calling itself is called ---------------------------. | | | | CO3 |  |
|  | a. Recursion | b. Callback | c. Function call | d. Formal call |  | (1) |

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| 21. | The ----------------------- function is used along with for loop to process a set of statements between two limits. | | | | CO3 |  |
|  | a. range | b. rangeOf | c. range\_of | d. step |  | (1) |
| 22. | What values will be printed if the loop below is executed?  *for value in range(1,5):*  *print(value)* | | | | CO3 |  |
|  | a. 1 2 3 4 5 | b. 1 2 3 4 | c. 0 1 2 3 4 | d. 0 1 2 3 4 5 |  | (1) |
| 23. | Which is the symbol used for modulus operator in Python? | | | | CO3 |  |
|  | a. mod | b. // | c. % | d. ^ |  | (1) |
| 24. | What is the output of the following code?  *x,y,z= -2, -4, -5*  *print(z)* | | | | CO3 |  |
|  | a. -2 | b. -4 | c. -5 | d. 0 |  | (1) |
| 25. | A variable that can be accessed across all functions is called as a ----------------------- variable | | | | CO3 |  |
|  | a. Local | b. Global | c. Glocal | d. Static |  | (1) |
| 26. | -------------------- keyword is used to define a function in Python. | | | | CO3 |  |
|  | a. #define | b. #def | c. def | d. define |  | (1) |
| 27. | Which one of the following is a tuple? | | | | CO3 |  |
|  | a. [‘t’,’u’,’p’,’l’,’e’] | b. (‘t’,’u’,’p’,’l’,’e’) | c. {‘t’,’u’,’p’,’l’,’e’} | d. ‘t’,’u’,’p’,’l’,’e’ |  | (1) |
| 28. | Which of the following is an iteration structure in Python? | | | | CO3 |  |
|  | a. range | b. for | c. do…while | d. repeat |  | (1) |
| 29. | Which of the following is **not** true about lists in Python | | | | CO3 |  |
|  | a. Mutable | b. Immutable | c. Can contain elements of multiple data type | d. Can be concatenated. |  | (1) |
| 30. | Which of the following is true for keyword arguments? | | | | CO3 |  |
|  | a. Function calls can be made with variable number of arguments | b. One or more arguments can be skipped | c. Arguments need not follow positional order | d. Arguments should follow a positional order. |  | (1) |
| 31. | What is the output of 1\*\*3 | | | | CO3 |  |
|  | a. 1 | b. 3 | c. 13 | d. 0.333 |  | (1) |
| 32. | ----------------------- are used for pattern matching | | | | CO3 |  |
|  | a. Regular expressions | b. Quotations | c. Tuples | d. Strings |  | (1) |
| 33. | If book=’The Apple’, what is the output of print(book[0:3] | | | | CO3 |  |
|  | a. Apple | b. elppA | c. The Apple | d. The |  | (1) |
| 34. | --------------------- is the slicing operator in Python | | | |  |  |
|  | a. [ : ] | b. + | c. [] | d. \* |  | (1) |
| 35. | If n=20, what is the output of the operation n<<2? | | | | CO3 |  |
|  | a. 40 | b. 10 | c. 5 | d. 80 |  | (1) |
| 36. | If k= -5, what is the output of ~k | | | | CO3 |  |
|  | a. -6 | b. -4 | c. +6 | d. +4 |  | (1) |
| 37. | A **-----------------------**  is a type of malware that is often disguised as legitimate software. | | | | CO4 |  |
|  | a. Trojan | b. Virus | c. Boot virus | d. Macro virus |  | (1) |
| 38. | Pick the odd man out | | | |  |  |
|  | a. Safari | b. Firefox | c. Opera | d. Zoomerang |  | (1) |
| 39. | Google is a --------------------------. | | | | CO4 |  |
|  | a. Search engine | b. Database | c. Datawarehouse | d.Trojan |  | (1) |
| 40. | What is the output of the following code?  flowers=('Rose','Lotus','Sun Flower', 'Lily')  for f in flowers:  print(len(f)) | | | | CO3 |  |
|  | a. 4 5 10 4 | b. Rose Lotus Sun Flower Lily | c. 5 6 11 5 | d. 3 4 9 3 |  | (1) |

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| **PART B(8 X 5 = 40 MARKS) (ANSWER ANY EIGHT)** | | | |
| 41. | The piano notes for the rhyme ‘Incywincy spider’ is as follows. Compress it using run-length encoding:  GCCCDEEEDCDECEEFGGFEFGECCDEEDCDECGGCCCEEEDCDEC | CO1 | (5) |
| 42. | Draw the truth table for : a. XOR b. NAND | CO1 | (5) |
| 43. | Describe image encoding with an example. | CO1 | (5) |
| 44. | List the functional requirements of a Media player application. | CO1 | (5) |
| 45. | Explain any one application of deductive reasoning | CO2 | (5) |
| 46. | Write a Python program to find the largest number among three numbers. | CO3 | (5) |
| 47. | Define a Python function that accepts a number as input and returns the number of digits. Use it to print the number of digits of a given number. | CO3 | (5) |
| 48. | Differentiate a list and a tuple. | CO3 | (5) |
| 49. | Demonstrate the working of a selection sort on the list of values: 5,7,5,8,12,15 | CO3 | (5) |
| 50. | Differentiate a virus and a Trojan. | CO4 | (5) |
| **PART C( 2 X 10 = 20 MARKS) (ANSWER ANY TWO)** | | | |
| 51. | a. Convert (AD7)16 to octal  b. Explain the different categories of data with examples. | CO1 | (4)  (6) |
| 52. | a. State the algorithm to find the roots of a quadratic equation and draw a flowchart for the same.  b. Explain problem decomposition with an example. | CO2 | (6)  (4) |
| 53. | a. Define a function in Python that returns the factorial of a number and use it to evaluate nCr.  b. i. Define a tuple that contains the colors of a rainbow  ii. How do you print the number of elements in the tuple?  iii. Create another tuple that contains three more colors and join both the tuples.  iv. Create a list with three colors : red, green and blue.  v. Add a color ‘Purple’ to the above list. | CO3 | (5)  (5) |

ALL THE BEST