

AMIETE – ET/CS/IT {NEW SCHEME}

Time: 3 Hours

JUNE 2015

Max. Marks: 100

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

NOTE: There are 9 Questions in all.

- Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.
- The answer sheet for the Q.1 will be collected by the invigilator after 45 minutes of the commencement of the examination.
- Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.
- Any required data not explicitly given, may be suitably assumed and stated.

Q.1 Choose the correct or the best alternative in the following: (2×10)

a. OCR stands for

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|----------------------------|-----------------------------------|
| (A) Open Character Reader | (B) Optical Character Recognition |
| (C) Output Computer Reader | (D) None of these |

b. Which of the following is a valid Octal number?

- | | |
|---------|-------------------|
| (A) F03 | (B) 991 |
| (C) 125 | (D) None of these |

c. Typically an Operating System is classified as:

- | | |
|---------------------|--------------------------|
| (A) System software | (B) Application software |
| (C) Both (A) & (B) | (D) None of these |

d. Which of the following does not represent a variable?

- | | |
|---------|-------------|
| (A) xy1 | (B) m_width |
| (C) % | (D) Height |

e. ispunct(c) does which of the following?

- | |
|---|
| (A) Determines whether c is a punctuation character |
| (B) Determines whether c is a printable character |
| (C) Determines whether c is a special character |
| (D) None of these |

f. Which of the following is the correct statement for computing logical AND?

- | | |
|----------------------|---------------------|
| (A) ((a<b) & (x>y)) | (B) (a<b) && (x>y)) |
| (C) (a<b) AND (x>y)) | (D) None of these |

g. The structured programming approach suggests avoiding the use of which of the following statement?

- | | |
|--------------|------------|
| (A) goto | (B) exit |
| (C) continue | (D) sizeof |

- Answer any FIVE Questions out of EIGHT Questions.**
Each question carries 16 marks.

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- d. Given the real number $y = 98.7654$, write the printf statement to get the output as: (4)

- (i) 98.77
- (ii) 0098.77
- (iv) 9.88e+001
- (v) 9.876540e+001

- Q.6** a. Given the values of the variable x, y and z, write a program to rotate their values such that x has the value of y, y has the value of z, and z has the value of x. (5)

- b. What is the use of bitwise operators? Describe any two bitwise operators with example. (5)

- c. Explain the following with help of example: (6)
- (i) Comma operator
 - (ii) sizeof operator

- Q.7** a. What is function declaration? What are the places in a program where a function declaration can be declared? Is prototype declaration is essential? Give reason. (2+2+2)

- b. What is recursion? Write a C program to calculate X^Y using recursion where values of X and Y are entered through keyboard. Don't use pow() function. (6)

- c. Write a function prime that returns 1 if its argument is a prime number and returns zero otherwise. (4)

- Q.8** a. Given a number, write a program using while loop to find the sum and reverse the digits of the number where the number is user input. For example, if the number entered is "1234" the sum would be (1+2+3+4) and reverse of the number should be written as 4321. (6)

- b. Explain the following with examples: (2½ × 4)
- (i) while statement
 - (ii) if else ladder statement
 - (iii) continue statement
 - (iv) The ? : operator

- Q.9** a. Using multidimensional array, write a program in C to sort a list of names in alphabetical order. (8)

- b. Write a function that accepts two strings str1 and str2 as arguments and finds which of the two is alphabetically greater (without using the library functions). The function should return 1 if str1 is greater than str2, 0 if str1 is equal to str2, and -1 if str1 is smaller than str2. (8)