

FACULTY OF ENGINEERING

BE I – Semester (Main) Examinations, November / December 2018

Subject: Basic Electrical Engineering

Time: 3 Hours

Max. Marks: 70

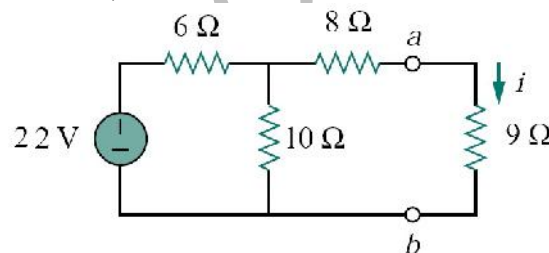
Note: Answer All Questions from Part – A & Any Five Questions from Part – B.

PART – A (10x2 = 20 Marks)

1. State Kirchhoff's current Law. 2M
2. State Superposition Theorem. 2M
3. A series circuit having the $R = 15$ and $X_L = 20$. Determine the power factor for the circuit? 2M
4. Write the relationship between phase and line values of voltage, current in delta connected system? 2M
5. Name the losses in a transformer. 2M
6. Mention various applications of three phase induction motor. 2M
7. Classify different types of single phase induction motor. 2M
8. Mention various applications of a DC series Motor. 2M
9. What is a Fuse? 2M
10. What is meant by earthing? 2M

PART – B (5x10 = 50 Marks)

11. a) State and explain Norton's Theorem. 5M
- b) Using Thevenin's Theorem, find the current "i" in 9 Ω Resistor. 5M



12. a) Derive Average and RMS value of a sinusoidal waveform. 5M
- b) A 220V, 1- ϕ , 50Hz ac supply is applied across series connection of $R=10$, $L=0.1H$. Calculate impedance, current, v_r , v_l , power factor, active power and reactive power. 5M
13. a) A 3kVA, 1 ϕ , 50 Hz, 230/115 V transformer gave the following test results:
OC test: 115V, 0.6A, 10W; **SC test:** 60V, 13A, 200W;
 Calculate the efficiency at full load and half load at p.f 0.8 lagging? 5M
- b) Explain the construction of three phase Induction Motor. 5M
14. a) Explain briefly about Capacitor Start & Capacitor Run 1 ϕ Induction motor? 5M
- b) Derive the E.M.F. equation of a DC generator. 5M
15. a) Explain different components of LT Switchgear? 5M
- b) Write a short note on power factor improvement using Static Capacitors. 5M
16. a) Explain the different types of voltage and current sources? 5M
- b) Analyze the single phase RC series AC circuit with a phasor diagram. 5M
17. Write short notes on:
 - a) Ideal Transformer on no load 5M
 - b) Types of DC generators. 5M

FACULTY OF ENGINEERING
B.E. I – Semester (Main) Examination, November / December 2018

Subject : Programming for Problem Solving

Time : 3 Hours

Max. Marks: 70

Note: Answer all questions from Part-A & any five questions from Part-B.

PART – A (20 Marks)

- 1 Write an algorithm for computing the sum of digits in a number. (2)
- 2 What are the advantages of structured programming? (2)
- 3 Develop an infinite loop using while construct. (2)
- 4 If a string 'str' contains a string literal "Oxford University Press", thus is it legal to print the string using the statement print (str) ; ? Justify your answer. (2)
- 5 Why is a function prototype required? (2)
- 6 Write a function for swapping two values without using temporary variable. (Use parameter passing by reference). (2)
- 7 Differentiate between recursion and iteration with an example. (2)
- 8 Define structure. How is it different from array? (2)
- 9 What will be the output of the following program?

```

in main ( )
{
    int val = 5 ;
    int *Ptr = & val ;
    printf ("% d % d", + + val, *ptr) ;
    return 0 ;
}

```
- 10 What is the difference between arr and & arr when arr is an array name, though both displays the base address of the array? (2)

PART – B (50 Marks)

- 11 (a) What do you mean by high-level and low-level programming languages? Differentiate between them. (4)
- (b) Write an algorithm to compute and print the sum of the following series (6)

$$x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \dots$$

..2..

- 12 (a) Write program to print the second largest number among a list of number using an array. (6)
(b) Distinguish between break and continue statement. (4)
- 13 Consider the array (10)
1 2 3 4 5 6 7 8 9
Construct the binary search algorithm for finding the key = 7.
- 14 Write a C program to store the data of 'n' employees where n is given by the user.
(a) use a function to display the employee records in ascending order of their salary. (5)
(b) Use a function to display the department wise employee records. (5)
- 15 (a) Write a program that open a file and counts the number of characters. The program should print the number of characters when finished. (6)
(b) Assume you have declared an array of structures and that ptr is a pointer to the first array element. How would you change ptr to point to the second array element? (4)
- 16 (a) Write a program to read a string ; and convert alpha beta from lower case letters to capital letters. (5)
(b) What is the difference between % f, % g and % C format specifiers when used to display a real value? Explain with an example. (5)
- 17 (a) Write a C program to remove the duplicates from an array. (6)
(b) Explain the use of pointers pointers in self-referential structures. (4)
