

Model Paper
I Semester Diploma Examination
Concepts of Electrical and Electronics Engineering
(Course code: 9CS & 9IS)

Time :3Hours

Max Marks:100

Note: i)Section -I is compulsory

ii)Answer any six full questions choosing two questions each from sections-II,III and IV

Section I

- 1) a) Fill in the blanks with appropriate word/words. 5X1=5
i) The insulating material used in a capacitor is called
ii) Temperature sensitive resistor is called
iii) Power factor of a pure resistive circuit is
iv) Transformer works on the principle of.....
v) In a color coded carbon resistor the gold band representstolerance.
- b) Define oscillator? Mention the types of oscillator. 5

Section II

- 2) a) Derive an equation to find the equivalent resistance when three resistors are connected in series. 3
b) State ohm's law and mention the limitations of ohm's law. Applications of ohms law. 5
c) A resistance of $1K\Omega$ is connected in series with a parallel combination of 100Ω and 500Ω . The total combination is connected across 100V supply. Find the effective resistance and the total current in the circuit. 4
d) Define electric charge, electric field, permittivity. 3
- 3) a) State and explain coulombs law. 4
b) Mention the factors on which capacitor depends. Explain briefly charging and discharging of capacitor. 5
c) Derive the expression for dynamically induced emf. 6
- 4) a) Define the terms 3X2=6
1) Average value
2) RMS value
3) Form factor
b) State faradays laws. 4
c) Briefly explain types of reactance. 5

Section-III

- 5) a) Define turns ratio, current and voltage ratio. 3
b) Difference between shell type and core type. 3
c) Explain auto transformer. 5
d) Derive emf equation of a transformer. 4
- 6) a) Briefly explain plate earthing. 3
b) Explain briefly cartridge fuse. 3
c) Explain construction of brushless motor. 6
d) Define resistor. Mention the types of resistor. 3
- 7) a) Explain briefly wire wound resistor. 3
b) Give application of fixed resistor and variable resistor. 6
c) Briefly explain mica capacitor. 3

d)Mention the types of switches. **3**

Section IV

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| 8) a) Explain working operation of bridge rectifier | 5 |
| b)Briefly explain V-I characteristics of Zener diode | 4 |
| c)Explain how transistor acts as a amplifier | 4 |
| d)Define multivibrator, comparator | 2 |
| 9.a)Explain block diagram of linear power Supply | 5 |
| b)Define emission ? Explain secondary emission | 4 |
| c) Explain block diagram of offline UPS. Mention the merits and demerits. | 6 |
| 10) a)Write a note on heat sink. | 4 |
| b)Mention the merits and demerits of SMPS. | 3 |
| c)Give characteristics of op-amp and draw its symbol | 4 |
| d)Explain non-inverting amplifier. | 4 |