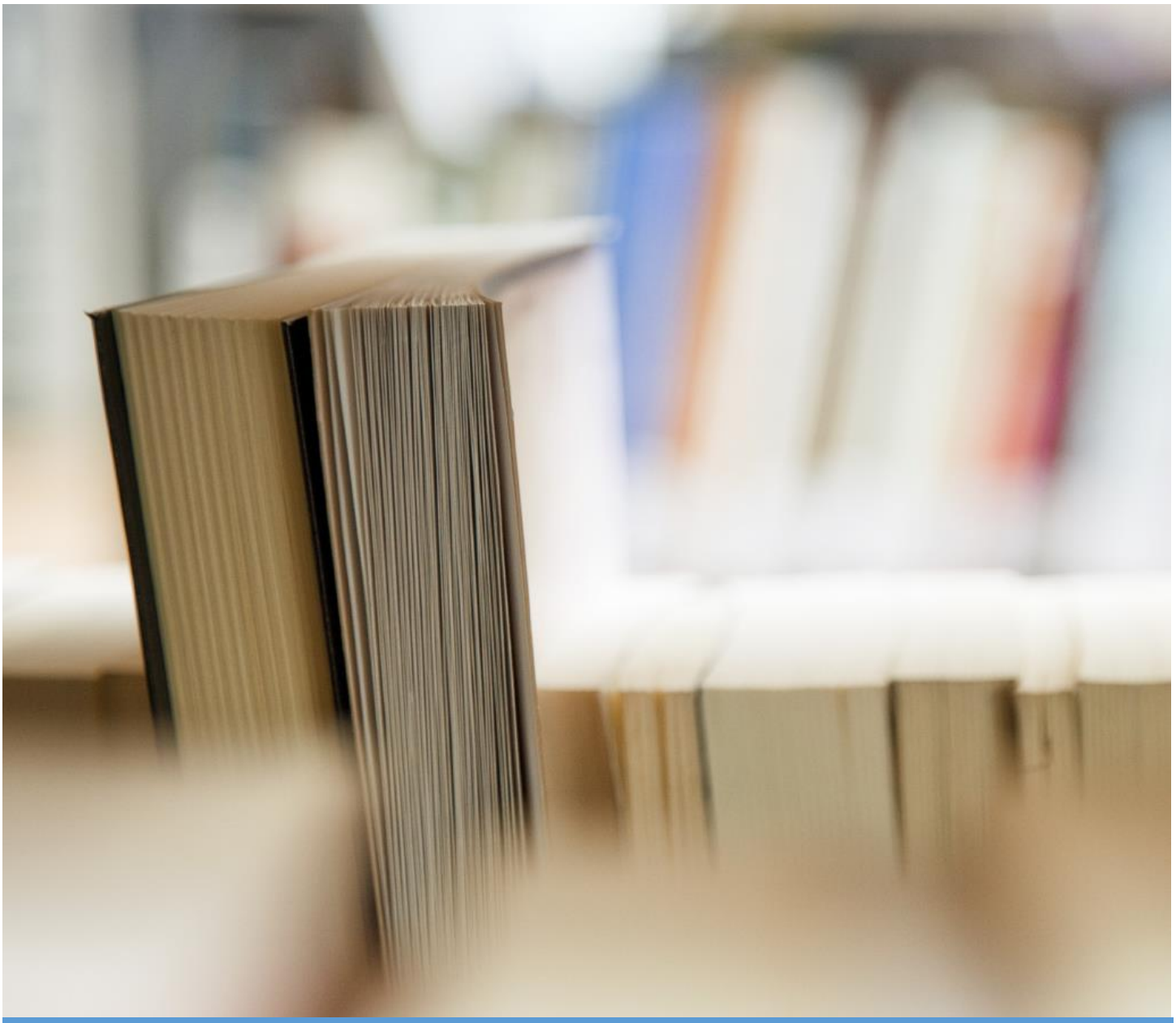

FUNDAMENTALS OF ELECTRICAL AND ELECTRONICS ENGINEERING

SUBJECT ASSIGNMENT

PARUL UNIVERSITY | DIPLOMA STUDIES | ELECTRICAL ENGINEERING DEPATEMENT

CHAPTER – 1 OVERVIEW OF ELECTRIC COMPONENTS AND SIGNALS

2 MARKS QUESTIONS

1. **Give application of Diode.**
2. **Give application of Transistor.**
3. **What are active Components?**
4. **Write Examples of active components.**
5. **What are passive Components?**
6. **Write Examples of passive components.**
7. **Define SCR and give applications of it.**

3 MARKS QUESTIONS

1. **Give compression between periodical and non-periodical signals.**
2. **Explain pulse Signal and Triangular Signal.**
3. **Draw and explain ideal and practical current source.**
4. **Draw and explain ideal and practical voltage source.**

4-MARKS QUESTIONS

1. **Explain Voltage controlled current source (VCCS) and Current controlled voltage source (CCVS).**
2. **Explain any two Passive components.**

CHAPTER-2 INTRODUCTION TO SEMICONDUCTOR COMPONENTS

2 MARKS QUESTIONS

1. **Draw the symbol of NPN and PNP transistor.**
2. **Define forward bias with diagram.**
3. **Define reverse bias with diagram.**
4. **What is knee voltage? Give its value for Ge and Si.**
5. **Give example of Trivalent Impurities.**
6. **Give example of Pentavalent Impurities.**

3 MARKS QUESTIONS

1. **Explain V-I characteristics of PN junction diode.**
2. **State and explain classification of transistor.**
3. **Explain the construction of NPN transistor.**
4. **Explain the construction of PNP transistor.**

CHAPTER-3 OVERVIEW OF DIGITAL ELECTRONICS

2 MARKS QUESTIIONS

1. **State the number system.**
2. **$(11010101)_2=(?)_{10}$**
3. **$(CB5.732)_{16}=(?)_2$**
4. **Prove that: A (A + B) = A**
5. **Define combinational circuit.**
6. **Write 2's Complement of number: 1010110,1101**
7. **Find the 2's complement of $(110101011)_2$.**

3 MARKS QUESTONS

1. **Explain basic Logic GATEs in detail.**
2. **$(DEFFA.CCA)_{16}=(?)_2=(?)_8$**
3. **Explain Commutative Property, Distributive Property, and Absorption Property with example.**
4. **Explain Multiplexer with diagram.**
5. **Explain Demultiplexer with diagram.**

4 MARKS QUESTIONS

1. **Explain half adder with logic circuit.**
2. **Explain half subtractor with logic circuit.**
3. **Explain universal gates.**
4. **Explain De-Morgan's theorems for two variables.**

CHAPTER – 4 ELECTRIC CIRCUIT

2 MARKS QUESTIONS

1. **Define the terms 1) electric current 2) Potential difference.**
2. **State law of energy conversion.**
3. **Define the terms 1) Inductor 2) Capacitor.**
4. **Define the terms 1) E.M.F 2) Resistance.**

3 MARKS QUESTIONS

1. **Draw and explain flow chart of energy transformation in thermal power plant and nuclear power plant.**
2. **Give comparisons between A.C and D.C forms of electricity.**
3. **Give difference between E.M.F and Potential Difference.**
4. **Give comparisons between 1-phase and 3-phase supply.**

4-MARKS QUESTIONS

1. **State and explain ohm's law with its limitation.**
2. **State and explain factors affecting the value of electrical resistor.**
3. **Derive the equation of equivalent resistance when "n" number of resistors are connected in series.**
4. **Derive the equation of equivalent resistance when "n" number of resistors are connected in parallel.**

CHAPTER-5 MAGNETIC CIRCUIT

2 MARKS QUESTIONS

1. **Draw the magnetic circuit and define magnetic flux.**
2. **Define the terms 1) M.M.F 2) Reluctance.**
3. **Define permeability of a magnetic material.**
4. **Define 1) Magnetic field strength 2) Permeance.**
5. **Define the terms 1) Cycle 2) Frequency.**
6. **Define the terms 1) Time period 2) Amplitude.**
7. **Define average value of a.c quantity.**
8. **Define R.M.S value of a.c quantity.**
9. **State Lenz's law.**

3 MARKS QUESTIONS

1. **State and explain Fleming's right-hand rule.**
2. **State and explain Fleming's left-hand rule.**
3. **Explain statically induced emf.**
4. **Explain dynamically induced emf.**

4 MARKS QUESTIONS

1. **State and explain Faraday's law of electromagnetic induction.**
2. **Draw and explain Hysteresis loop (B-H Curve).**

3. **Give comparison between electric and Magnetic circuit.**

CHAPTER-6 TRANSFORMER AND MACHINES

2 MARKS QUESTIIONS

1. **Define transformer.**
2. **State the types of transformers.**
3. **Give working principle of Induction motor.**
4. **Give working principle of d.c motor.**

3 MARKS QUESTONS

1. **Explain working principle of a 1-phase transformer.**
2. **Draw and explain core type transformer.**
3. **Draw and explain shell type transformer.**
4. **Explain current ration and turns ration of a 1-phase transformer.**

4 MARKS QUESTIONS

1. **Derive e.m.f equation of a 1-phase transformer.**
2. **Write short note on “Auto-transformer”.**
3. **Draw the construction of D.C Motor and explain any three parts of it.**