

Electrical and Electronics Engineering

S.E. Sem. III [CHEM]

EVALUATION SYSTEM

	Time	Marks
Theory Exam	3 Hrs	100
Practical Exam	–	25
Oral Exam	–	25
Term Work	–	25

SYLLABUS

1. DC Machines

- DC Generator : Constructional details, types (shunt, series and compound), principle of working, emf equation, characteristics.
- DC Motor : Motoring action, significance of back emf, torque and speed equations, torque-armature current, speed-armature current and torque-speed characteristics of different types of motors, speed control, starter, applications.

2. Induction Motor

Rotating magnetic field, construction and principle of operation, slip, rotor frequency, torque-slip characteristic, relationship between slip and rotor copper loss, speed control, starting methods, motor ratings.

3. Fractional Horse Power Motors

Construction and principle of operation of single phase induction motor, types of single phase induction motor (resistance split phase, capacitance split phase) and their applications. Shaded pole induction motor.

4. Synchronous Machines

- Alternator : Constructional features and principle of operation, synchronous speed, regulation.
- Synchronous Motor : Principle of operation, method of starting and applications.

5. Switchgear, Measuring Instruments and Utilization of Power

Autotransformer, Construction and principle of current and potential transformer, Introduction to relays, contactors, isolators and HRC fuses. Principle and working of circuit breakers. Introduction of induction and Dielectric heating.

6. Electronics

Diode rectifiers and filter, transistor characteristics and its three configurations (CE, CB, CC), Transistor as an amplifier, Opto-electronic devices (e-LDR, Photo transistors, Photodiode), SCRs (Silicon Controlled Rectifier) and its application to control speed of motors. Cathodes Ray Oscilloscope. A preliminary level treatment for introduction to digital electronics (number system and basic gates). Basic architecture block diagram of microprocessor 8085.

References :

1. Industrial Chemistry (*B.K. Sharma*) – Goel Publishing House (2006)
2. Vogel's Textbook of Quantitative Chemical Analysis (*Gogel A. L.*) – ELS Longman (1991).
3. Text book of Practical Organic Chemistry (*Vogel*).
4. A Textbook of physical chemistry, (*Kapoor*) – Vol. 1, 2 & 3, MacMillan India Ltd. (1991).
5. A Textbook of physical chemistry (*Glasston Samuel*) – MacMillan India Ltd. (1991).
6. Physical Chemistry (*Castellan G.W., Addison Heslay*) – Haroda Students Edition (1994).
7. Basic Physical Chemistry (*Mooro*) – PHI.
8. Principals of Physical Chemistry (*Puri and Sharma*)
9. Advanced Chemistry (*Mathews*)
10. Organic Chemistry (*Finar I.C.*) – Vol. 1 & 2, ELBS Longman (1994)
11. Organic Chemistry (*Morrison & Boyd PHI Ltd.*)
12. Instrumental Methods of Analysis (*B.K. Sharma*) – Goel Publishing House.
13. A guide book to mechanism inorganic chemistry (*Skyobpotor*) –Longman
14. A primer to mechanism inorganic chemistry (*Skyobpotor*) –Longman
15. Organic Reactions and Reagents (*O.P. Agrawal*) – Goel Publishing House
16. Organic Reactions and Reagents (*Chatwaal*)
17. Instrumental methods of Analysis (*Willard, Merriff*) – CBS Publishers and distributors.

