

**W.E.F. SESSION 2011-2012**  
**Course: Bachelor of Science (B. Sc.) 3<sup>rd</sup> year**  
**Subject: Electronic Equipment Maintenance**  
**Examination Scheme for Semester 5 & 6**

- i. **Theory: One paper of 45+5\* marks each in each semester is as follows:-**

Semester	Title of Paper	Max. Marks
V	Computer Hardware & Maintenance - I	45+5*
VI	Computer Hardware & Maintenance - I	45+5*

**\* Internal Assessment: 5+5=10 marks in both the semesters that will be based on the House Exams and Attendances.**

The syllabus in each paper is divided into 4 units. Two questions will be set from each unit. A student has to attempt 5 questions in all selecting one question from each unit. Question No. 1 is compulsory which will be based on 4 units.

- ii. **Practical: 100 marks**

**Note: On Practicals:**

1. A student is required to perform a minimum of 5 experiments from each section.
2. The practical examination will be held at the end of 6<sup>th</sup> semester in two sessions of three hours each with first session starting in the evening of the first day and second session in the following morning.
3. Maximum number of students should not exceed ten in one group during course of studies as well as annual examinations.
4. Distributions of marks is as under:

Experiment Performed: **20+20**

Lab Record: **20**

Viva Voce: **20+20**

- iii. **Lab Project: 100 marks**

An Electronics Project, relating to its design, fabrication, repairing, testing, etc. is to be developed by each student in the College Laboratory. Apart from Practical Lab classes, each student has to work for four hours per week in laboratory during the session. Each student has to submit a Project Report (in typed form). The project demonstration and report evaluation will be done by a panel of two examiners (One Internal and One External) at the end of 6<sup>th</sup> Semester.

**Note:-** Maximum number of students should not exceed ten in one group during project work in the laboratory.

**Semester-5**  
**Subject: EEM**  
**Paper-Theory**  
**Nomenclature: Computer Hardware & Maintenance-I**

**Max. Marks: 45+5\***  
**Time : 3 hrs.**

**Unit-I**

**Personal Computer:** Evolution PC through Pentium, specifications of different styles of PCs, Functional Block diagram of PC and its various parts, Input/Output ports.

**Unit-II**

**Inside PC:** Motherboard, Basic Input/Output System (BIOS), Bus Standards, SMPS and linear power supply (Brief Idea and comparison).

**On Board Memory & Magnetic Media:** PC Memory Organization, Memory Packages, Magnetic Storage Fundamentals, diskette basics, Disk organisation in DOS, FDD Types and capacity, HDD sub assemblies.

**Unit-III**

**Input Devices:** Keyboard basics, operation and types, keyboard signals, interface logic, keyboard functions; Mouse construction, principle of operation, mouse signals; Scanner types and principle of operation.

**Output Devices:** Basic mechanism of CRT Controller, types of display adaptors; Basic mechanism of Inkjet and Laser Printer.

**Unit-IV**

**CD-ROM Drive:** Principle of operation and construction, Comparison of DVD and CD, Caring for CD and DVD discs, rear and front view details of CD/DVD drives.

**Computer Communication:** Modem Construction and operation, Internet and its features.

**Ref.:**

1. IBM PC Clones by Govindarajalu
2. PC Hardware: The Complete Reference by C. Zacker, J. Rourke
3. PC Hardware by Ron Gilster

**Semester-6**  
**Subject: EEM**  
**Paper-Theory**  
**Nomenclature: Computer Hardware & Maintenance-II**

**Max. Marks: 45+5\***  
**Time : 3 hrs.**

**Unit-I**

PC Installation and room preparation, Power Supply problems, offline and online UPS (basic idea), Boot Process, basic functions of POST and its test sequences.

**Unit-II**

Motherboard (possible problems, diagnosis procedure and their troubleshooting), Keyboard (possible problems, diagnosis procedure and their troubleshooting), Mouse troubleshooting common symptoms, Monitor (troubleshooting common symptoms), Printers (possible problems, diagnosis procedure and their troubleshooting).

**Unit-III**

CDROM (Installation upgradation and replacement), FDD (Installation and Replacement and troubleshooting common symptoms), HDD (Preparation Concepts, Installation and replacement and troubleshooting common symptoms), Memory (upgradation and troubleshooting common symptoms)

**Unit-IV**

Computer Maintenance using various diagnostic software, universal troubleshooting process, computer viruses and their types, virus protection techniques, quick start bench testing, tips for windows startup problems.

**Ref.:**

1. IBM PC Clones by Govindarajalu
2. PC Hardware: The Complete Reference by C. Zacker, J. Rourke
3. PC Hardware by Ron Gilster

**SEMESTER 5 & 6**  
**Subject: EEM**  
**Paper-III (Practical)**

**Max. Marks: 100**  
**Time: 3+3 hrs.**

**Note: Minimum 5 experiments are to be performed from each section.**

**Section-A (Television Receiver)**

1. To identify various sections of a TV Receiver; to understand basic working of TV receiver and the main functions of various sections.
2. Location, Orientation and Connection of TV antenna; main faults of antenna and their rectification; knowledge of Balun unit and its replacement.
3. Study of Power supply cold tests and hot tests, voltage measurement at various points and the common faults in power supply.
4. Study of IF section testing by voltage measurement.
5. Study of Horizontal and vertical section testing.
6. Study of Audio section testing by voltage measurement.
7. Study of common faults and their rectification in a TV receiver.
8. Chroma processor: testing signals at various IC's.
9. Remote control studies: range, direction, various control transmitter and receiver, coding of signals.

**Section-B (Computer Installation and Maintenance)**

1. To set the working environment in DOS, DOS set-up, familiarization with basic DOS commands.
2. Installation of Windows operating system and other software.
3. Installation of various input devices (Mouse, Scanner) in a PC system.
4. Installation of various devices (printers, CDROM Drive) in a PC system.
5. Maintenance and cleaning of diskette drives, keyboard, mouse, etc.
6. To identify various cards, assembly and disassembly of a PC system.
7. To study Power supply problems, its various symptoms and solutions; testing and replacement of UPS battery pack; power management through windows.
8. Familiarization of various diagnostic tools and to understand, to detect and to remove the viruses in a system.
9. To study various faults of a CRT monitor and their troubleshooting.

10. To identify various parts/chips on a motherboard and to diagnose its basic faults.