Chapter # 5
Chapter 5 – Maintenance and Repair of Printers

✅ Part I: Short Questions

Q1. What is jet ink printer?

- An **inkjet printer** sprays tiny droplets of liquid ink directly onto paper to create images or text.

- Known for **high-quality printing** and relatively **low cost**.

Q2. Identify common faults occurring in jet ink printer.

1. Paper jams.

2. Smudged or faint printing.

3. Misaligned print heads.

4. Clogged nozzles.

5. Ink cartridge errors.

Q3. Disassemble and assemble jet ink printer.

- **Disassemble:** Remove power → open cover → take out cartridges → unscrew casing → separate mechanical parts carefully.

- **Assemble:** Refit mechanical parts → screw back casing → install cartridges → test print.

Q4. Explain preventive and corrective maintenance of jet ink printer.

- **Preventive:** Regular cleaning of nozzles, dust removal, using quality paper, updating drivers.

- **Corrective:** Fixing faults such as replacing cartridges, repairing motors, realigning print heads.

Q5. Identify the laser printer parts.

1. Drum unit.

2. Toner cartridge.

3. Laser scanner.

4. Fuser unit.

5. Paper feed rollers.

6. Power supply unit.

Q6. Describe the laser printer common faults manual.

- Frequent paper jams.

- Faded or ghost printing.

- Toner not fusing properly.

- Error codes displayed on control panel.

Q7. Define corrective maintenance.

- **Corrective maintenance** refers to fixing issues **after they occur** by repairing or replacing faulty components.

Q8. Describe installation steps for a line printer.

1. Connect printer to power source.

2. Attach interface cable (parallel/USB).

3. Install printer driver/software.

4. Configure settings in OS.

5. Test print.

Q9. Explain the significance of result of test.

- Test printing ensures:
  - Printer is installed correctly.
  - Print quality is acceptable.
  - Hardware/software functioning properly.

Q10. Introduction of Laser Printing.

- A **laser printer** uses a laser beam to create an image on a drum → toner is transferred to paper → heat and pressure fuse toner to page.

- Known for **speed and sharp quality**.

Q11. Common Faults and Safety Measures (Laser Printer).

- **Faults:** Paper jams, ghosting, faint print, toner leakage.

- **Safety Measures:** Avoid touching hot fuser, keep away from laser exposure, use correct toner.

Q12. Preventive and Corrective Maintenance (Laser Printer).

- **Preventive:** Regular cleaning, use original toner, proper ventilation.

- **Corrective:** Replacing toner, fixing paper feed issues, replacing fuser.

Q13. Introduction of Plotter.

- A **plotter** is a printer used for printing large-scale graphics, CAD designs, and blueprints.

- Works by moving a pen across the surface of paper.

Q14. Common Faults and Safety Measures (Plotter).

- **Faults:** Misaligned drawings, paper feeding errors, ink smudging.

- **Safety Measures:** Keep clean, use proper paper rolls, avoid overloading.

Q15. Preventive and Corrective Maintenance (Plotter).

- **Preventive:** Clean print heads, lubricate moving parts, update firmware.

- **Corrective:** Replace ink cartridges, adjust alignment, repair rollers.

✅ **Part II: Long Questions**

Q1. Explain the operational principles of jet ink printer.

- Sprays liquid ink through tiny nozzles directly onto paper.

- Controlled by electronic signals for precision.

- Produces high-resolution prints (up to 1200+ dpi).

Q2. Identify working parts of jet ink printer.

1. Print head – sprays ink.

2. Cartridges – store ink.

3. Stepper motor – moves print head.

4. Paper feed – moves paper.

5. Control circuitry – manages printing process.

Q3. Describe the function of each part of jet ink printer.

- Print head: Deposits ink.

- Cartridges: Hold ink supply.

- Stepper motor: Moves head across page.

- Rollers: Feed paper.

- Control board: Processes instructions.

Q4. Install a jet ink printer.

1. Connect to power.

2. Connect USB/network cable.

3. Install drivers/software.

4. Insert cartridges.

5. Align print heads.

6. Perform test print.

Q5. Explain the operational principles of laser diode.

- Laser diode produces a coherent beam of light.

- Used in laser printers to "draw" the image onto the drum by altering its charge.

Q6. Describe the working of a photocopier for comparison with laser printer.

- **Photocopier:** Uses light to project an image onto a photosensitive drum → toner sticks to charged areas → transferred to paper.

- **Laser Printer:** Uses a laser diode instead of light to create image on drum.

Q7. Explain the danger against laser beam exposure of eyes and skin.

- Direct exposure may damage retina and skin.

- Safety shields are included in printers.

- Technicians must avoid looking at exposed beams.

Q8. Explain the steps for preventive maintenance with the help of a user.

- Regular cleaning with lint-free cloth.

- Use quality paper and ink/toner.

- Replace cartridges before drying.

- Keep printer in dust-free, ventilated area.

Q9. Explain print mechanism of line printer to print a complete line at a time.

- **Line printer** prints a whole line simultaneously using a chain or drum mechanism.

- Faster than character printers (up to 2000 lines per minute).

Q10. Explain every indicator especially the engineer's fault indicator of line printer control panel.

- Indicators show paper jam, ink/toner low, overheat, and fault errors.

- **Engineer's fault indicator:** Used by technicians to detect internal errors for servicing.

Q11. Explain with the help of the technical service manual.

- Manuals provide **diagnostic codes, error indicators, troubleshooting steps, and maintenance instructions** specific to each printer model.

🎇 **Extra Important Questions**

Q1. Difference between Inkjet and Laser printer.

- Inkjet: High-quality, slower, lower volume, cheaper initially.

- Laser: Fast, high-volume, cost-effective for bulk printing.

Q2. What is toner?

- Fine powder used in laser printers for printing.

Q3. Why is fuser unit important in laser printers?

- Applies heat & pressure to fuse toner permanently onto paper.

Chapter # 5
Q4. What is a thermal printer?

- Uses heat-sensitive paper; commonly used in receipts and POS systems.

Q5. What precautions must be taken while repairing printers?

- Power off before disassembly.

- Avoid touching hot fuser.

- Handle laser carefully.

- Wear gloves when dealing with toner.