



B111: Information and Communication Technology (Paper – II)

Lecture - 01

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outline

- Generations of Computer



Generations of Computers:

- First Generation (1946-1959)
- Second Generation (1959-1965)
- Third Generation (1965-1971)
- Fourth Generation (1971-1980)
- Fifth Generation (1980-onwards)



Generations of Computers:

- Generation in computer terminology is a change in technology a computer is/was being used.
- Initially, the generation term was used to distinguish between varying hardware technologies.
- Nowadays, generation includes both hardware and software, which together make up an entire computer system.



Generations of Computers: - cont.

- There are five computer generations known till date. Each generation has been discussed in detail along with their time period and characteristics.



First Generation (1946-1959)

- Features:

1. Vacuum tubes were used basic arithmetic operations took few milliseconds
2. Consume more power with limited performance
3. Uses assembly language to prepare programs. These were translated into machine level language for execution.
4. Mainly used for scientific computations



First Generation (1946-1959) – cont.

5. They used magnetic core for the memory
 6. Commercial production was difficulty and costly
 7. Non-portable
 8. Air conditioning required
- Example: ENIAC, UNIVAC-1, MARK.



Second Generation (1959-1965)

- Features:

1. Transistors were used in place of vacuum tubes
2. Smaller in size as compared to the first generation computers.
3. Lesser power consumption and better performance
4. Less heat generated



Second Generation (1959-1965) – cont.

5. More reliable
 6. Better portability
 7. Wider commercial use and lower cost
 8. High level languages such as FORTRAN, COBOL etc were used
 9. Separate input-output processors were developed that could operate in parallel with CPU
- Example: IBM-1620, IBM-1600



Third Generation (1965-1971)

- Features:

1. Smaller in size as compared to previous generation computers
2. Maintenance cost is low because hardware failure are rare
3. Easily portable
4. Less power requirement



Third Generation (1965-1971) – cont.

5. Widely used for various commercial applications all over the world.
6. Commercial production was easier and cheaper
7. Faster processors
8. These computers used integrated circuits (IC) on silicon chips.
9. Transistors were replaced by integrated circuits(IC)



Third Generation (1965-1971) – cont.

10. One IC could replace hundreds of transistors
 11. This made computers even smaller and faster
 12. In the beginning magnetic core memories were used. Later they were replaced by ser memories (RAM & ROM)
 13. Comparatively lesser cost and better performance
- Example: IBM-360, PDP-8



Fourth Generation (1971-1980)

- Features:
 1. These computers use microprocessor chips.
 2. Object-Oriented Programming (OOP) Languages such as Visual Basic, and JAVA are generation.
 3. This led to microcomputers-computers on a desk
 4. Introduced Graphical User Interface
 5. LAN and WAN were developed



Fourth Generation (1971-1980) – cont.

6. CRT screen, laser & ink jet printers, scanners etc were developed
 7. Easily portable because they are small in size
 8. Hardware failure is negligible and hence minimum maintenance is required
 9. Heat generated is negligible
 10. Cheapest among all generations
- Example: IBM-PC, HP-3000



Fifth Generation (1980-onwards)

- Features:
 1. The period of the fifth generation in 1980-onwards.
 2. This generation is based on artificial intelligence.
 3. ULSI technology (Ultra Large Scale Integration)
 4. Development of true artificial intelligence
 5. Development of Natural language processing



Fifth Generation (1980-onwards)

cont.

6. Advancement in Parallel Processing
7. Advancement in Superconductor technology
8. More user-friendly interfaces with multimedia features
9. Availability of very powerful and compact computers at cheaper rates
 - Example: Desktop, Laptop, NoteBook, UltraBook, ChromeBook etc.



Textbooks

- No particular text book, however, the following books might be useful
 - Computer Fundamentals – by Dr. M. Lutfur Rahman, Dr. M. Alamgir Hossain
 - Computer for Nurses - by N. C. Jain & Ms. Saakshi

Marks Distribution



- Total = 100 marks
 - Written = 70 marks
 - Oral & Practical = **30 marks**
 - Written (70)
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Formative = **10 marks**

✓ MCQ + Best answers(10 + 10) = **20 marks** (Time: 20 minutes)

Group A = 10 marks, Group B = 10 marks

✓ SAQ + EAQ = **40 marks** (Time: 2 hours 10 minutes)

Group A = 20 marks, Group B = 20 marks

✓ Group A = SAQ+EAQ = (2*5 = 10) + (1*10 = 10) = 20

✓ Group B = SAQ+EAQ = (2*5 = 10) + (1*10 = 10) = 20

- Each group will have 3 SAQ and 2 EAQ
- Student will answer 2 SAQ out of 3 and 1 EAQ out of 2
- Student will use separate answer script for each group



Any Questions?