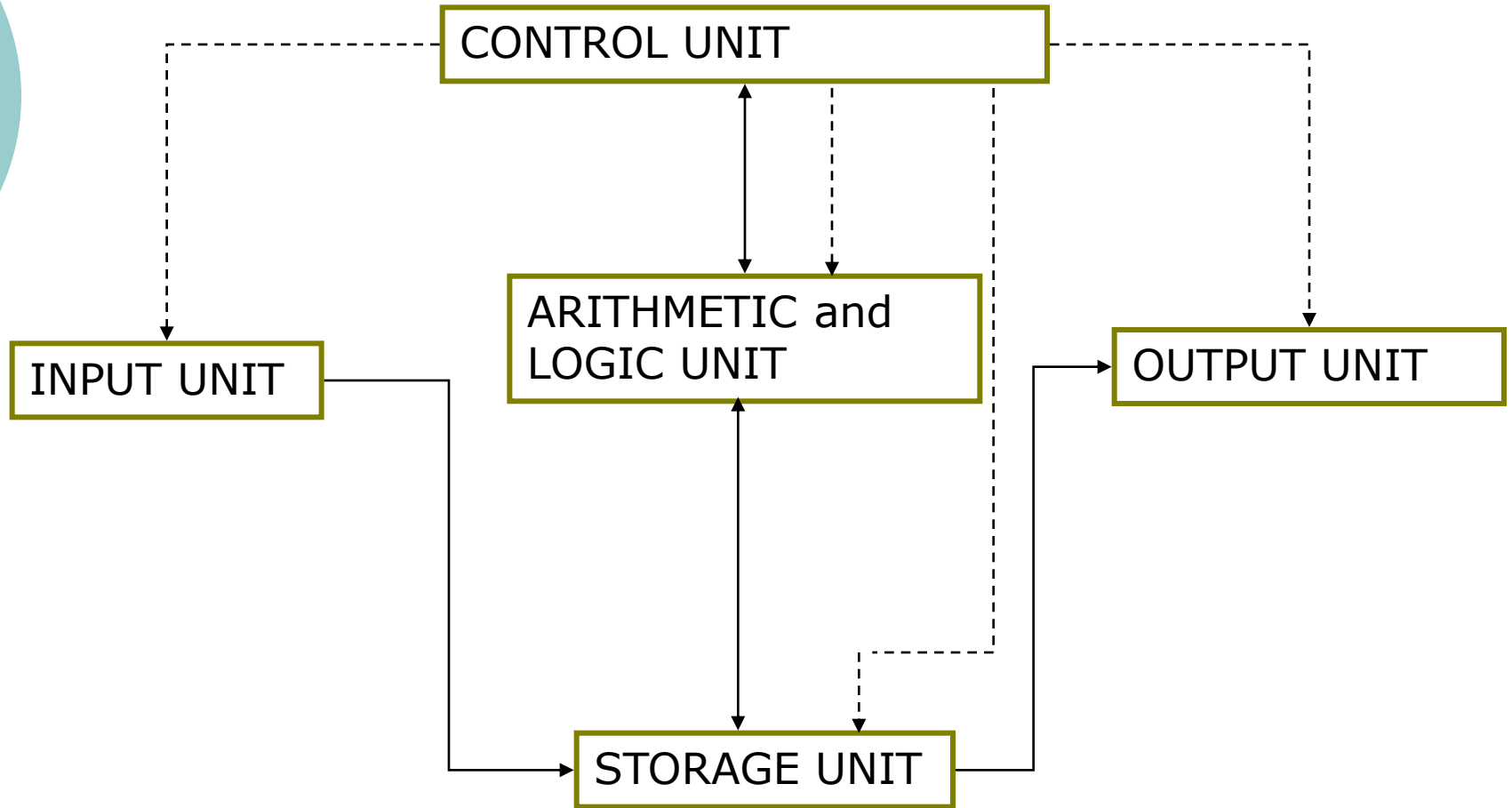




FUNCTIONAL ORGANISATION OF A COMPUTER

TRADE : Certificate in Software Programming

BLOCK DIAGRAM



NOTE: - - -> Control Lines, —————> Data Lines

INPUT UNIT

- TO SOLVE ANY PROBLEM. THEREFORE ,WE NEED TO PUT THE DATA AND INSTRUCTION INTO THE COMPUTERS. THE INPUT UNIT CONSISTS OF ONE OR MORE INPUT DEVICES. THERE ARE A NUMBER OF DEVICES THAT PERFORM THE FUNCTION OF INPUT DEVICES.THE KEYBOARD OF YOUR COMPUTER IS ONE OF THE MOST COMMONLY USED INOPUT DEVICES.OTHER COMMONLY USED INPUT DEVICES ARE THE MOUSE,FLOPPY DISK DRIVE,HARD DISK DRIVE AND MAGNETIC TAPE.REGARDLESS OF THE TYPE OF INPUT DEVICE USED IN A COMPUTER SYSTEM,ALL INPUT DEVICES PERFORM THE FOLLOWING FUNCTIONS:
 - ACCEPT DATA AND INSTRUCTIONS FROM THE OUTSIDE WORLD.
 - CONVERT IT TO A FROM THAT THE COMPUTER UNDERSTAND
 - SUPPLY THE CONVERTED DATA TO THE COMPUTER SYSTEM FOR FURTHER PROCESSING.

STORAGE UNIT

- THE STORAGE UNIT OF THE COMPUTER HOLDS THE DATA AND INSTRUCTIONS THAT YOU ENTER THROUGH THE INPUT UNIT BEFORE THESE ARE PROCESSED. IT PRESERVES THE INTERMEDIATE AND FINAL RESULTS BEFORE THESE ARE SENT TO THE OUTPUT DEVICES. IT IS ALSO USED TO PRESERVE THE DATA FOR LATER USE: E.G. YOU MAY LIKE TO SAVE A LETTER YOU TYPE TODAY FOR PRINTING AFTER ONE WEEK. THE VARIOUS STORAGE DEVICES USED IN COMPUTER SYSTEMS ARE CLASSIFIED INTO TWO CATEGORIES-PRIMARY AND SECONDARY
- **PRIMARY STORAGE**

THE PRIMARY STORAGE, ALSO CALLED THE PRIMARY MEMORY, STORES AND PROVIDES INFORMATION VERY FAST. THIS IS GENERALLY USED TO HOLD THE PROGRAM BEING CURRENTLY EXECUTED IN THE COMPUTER; THE DATA BEING RECEIVED FROM THE INPUT UNIT AND THE INTERMEDIATE AND FINAL RESULTS OF THE PROGRAM. THE PRIMARY GENERALLY LOSES ITS CONTENTS WHEN YOU SWITCH OFF THE COMPUTER. THEREFORE, IF YOU NEED TO PRESERVE THE RESULT OR THE INPUT DATA, YOU HAVE TO TRANSFER IT TO THE SECONDARY STORAGE. THE COST OF THE PRIMARY STORAGE IS MORE COMPARED TO THE SECONDARY STORAGE. THEREFORE, MOST COMPUTERS HAVE LIMITED PRIMARY STORAGE. MOST OF THE COMPUTERS USE 'SEMICONDUCTOR MEMORY' AS PRIMARY STORAGE.
- **SECONDARY STORAGE**

ON THE OTHER HAND, THE SECONDARY STORAGE (MEMORY) IS USED LIKE AN ARCHIVE. IT MAY STORE SEVERAL PROGRAMS, DOCUMENTS, DATABASES, ETC, THE PROGRAM THAT YOU WANT TO RUN ON THE COMPUTER IS FIRST TRANSFERRED TO THE PRIMARY MEMORY BEFORE IT CAN RUN. SIMILARLY, AFTER RUNNING THE PROGRAM, IF YOU NEED TO SAVE THE RESULTS, YOU WILL TRANSFER THEM TO THE SECONDARY STORAGE. THE SECONDARY MEMORY IS SLOWER AND CHEAPER THAN THE PRIMARY MEMORY. SOME OF THE COMMONLY USED SECONDARY MEMORY DEVICES ARE FLOPPY DISKETTE, ZIP DISKETTE, HARD DISK AND MAGNETIC TAPE.



OUTPUT UNIT

- THE OUTPUT UNIT OF A COMPUTER PROVIDES THE INFORMATION AND RESULTS OF A COMPUTATION TO THE OUTSIDE WORLD. AS YOU KNOW, COMPUTERS DO NOT WORK IN THE BINARY SYSTEM THEREFORE, IF REQUIRED, THE OUTPUT UNIT ALSO CONVERTS THE BINARY DATA INTO A FORM THAT USERS CAN UNDERSTAND. PRINTER AND VIDEO DISPLAY UNIT (VDU; ALSO CALLED DISPLAY SCREEN) ARE COMMONLY USED OUTPUT DEVICES. OTHER COMMONLY USED OUTPUT DEVICES ARE FLOPPY DISK DRIVE AND MAGNETIC TAPE DRIVE. IN THE EARLIER GENERATION COMPUTERS, PAPER TAPE PUNCH UNITS AND PUNCH UNITS WERE ALSO USED AS OUTPUT DEVICES.

ARITHMETIC-LOGIC UNIT

- ALL CALCULATION ARE PERFORMED IN THE ARITHMETIC-LOGIC UNIT(ALU)OF THE COMPUTER.ALU ALSO DOES COMPARISONS AND TAKES DECISIONS.WHENEVER ANY CALCULATION HAS TO BE DONE,THE CONTROL UNIT(DISCUSSED NEXT) TRANSFERS THE REQUIRED DATA FROM THE STORAGE UNIT TO THE ALU.THE CAN ALSO DO LOGICAL OPERATION SUCH AS ADDITION, SUBTRACTION, MULTIPLICATION, DIVISION, ETC. THE ALU CAN ALSO DO LOGICAL OPERATIONS;E.G.IT CAN CHECK IF THE NUMBER A IS LESS THAN,EQUAL TO OR GREATER THAN THE NUMBER'B.AFTER THE ALU HAS PERFORMED THE CALCULATION OR THE LOGICAL OPERATION.THE RESULT IS TRASFERRED TO THE STORAGE UNIT.



CONTROL UNIT

- THE CONTROL UNIT CONTROLS ALL OTHER UNITS IN THE COMPUTER. THE INPUT UNIT DOES NOT KNOW WHERE TO RECEIVE DATA AND WHERE TO PUT THE DATA IN THE STORAGE UNIT AFTER RECEIVING IT. IT IS THE CONTROL UNIT THAT GIVES THE NECESSARY INSTRUCTIONS TO THE INPUT UNIT. SIMILARLY, THE CONTROL UNIT INSTRUCTS THE INPUT UNIT WHERE TO STORE THE DATA AFTER RECEIVING IT FROM THE USER. IN THE SAME WAY, IT CONTROLS THE FLOW OF DATA AND INSTRUCTION FROM THE STORAGE UNIT TO ALU. IT ALSO CONTROLS THE FLOW OF THE RESULTS FROM ALU TO THE STORAGE UNIT. THE CONTROL UNIT ALSO CONTROLS WHAT SHOULD BE SENT TO THE OUTPUT UNIT AND WHEN. IN BRIEF, THE CONTROL UNIT IS THE CENTRAL NERVOUS SYSTEM OF THE COMPUTER THAT CONTROLS AND SYNCHRONISES ITS WORKING.



CENTRAL PROCESSING UNIT

- THE CONTROL UNIT AND ALU OF THE COMPUTER ARE TOGETHER KNOWN AS THE CENTRAL PROCESSING UNIT(CPU).IN MOST MORDEN COMPUTERS,A SINGLE IC DOES THE JOB OF CONTROLLING ALL UNITS OF THE COMPUTER.THE SAME IC ALSO CONTAINS THE ALU.THE CPU IS LIKE A COMPUTER'S BRAIN
- IT PERFORMS ALL CALCULATION.
- IT TAKES ALL DECISITIONS.
- IT CONTROLS ALL UNITS OF THE COMPUTER.
- YOUR PC MAY HAVE A CPU IC,SUCH AS INTEL 8088, 80286, 80386,80486, CELERON, PENTIUM,PENTIUM PRO, PENTIUM III, PENTIUM IV , PENTIUM CORE 2 DUO, AMD K6 etc..