2. Data Intergrity

6.2 Data Integrity	
Candidates should be able to:	Notes and guidance
Describe how data validation and data verification help protect the integrity of data	
Describe and use methods of data validation	Including range check, format check, length check, presence check, existence check, limit check, check digit
Describe and use methods of data verification during data entry and data transfer	During data entry including visual check, double entry During data transfer including parity check (byte and block), checksum

- Validation
  - Check if the data entered is sensible, reasonable, acceptable
  - Does not check if the data is correct
  - Range check
    Checks whether data entered is between a lower and an upper limit
  - Format check
    Checks whether data has been entered in the agreed format
  - Length check
    Checks whether data has the required number of characters or numbers
  - Presence check
    Checks to make sure a field is not left empty when it should contain data
  - Existence check
    Checks if data in a file or file name actually exists
  - Limit check
    Checks only one of the limits (such as the upper limit OR the lower limit)
  - Check digit
    An additional digit, which is calculated from the existing number, added to the number to check integrity
- Verification
  - Check if the entered data exactly matches the original data
  - Does not check if data is sensible/acceptable
  - Visual check

    - Compare entered data and original data manually
    - By 2 different people
- Double entry
    - The data is entered twice by different people
    - The computer automatically compare 2 versions of data
- Parity check
    - Uses even or odd parity which is decided before the data sent
    - Each byte has a parity bit
    - Parity bit is set to 0 or 1 to make parity for byte correct
    - After transmission, parity of each byte is rechecked
    - If it is not consistent, an error is flagged
    - Parity blocks could be used to precisely locate the error
- Checksum
    - A calculation if carried out on the data to be sent
    - The result is sent, along with data to recipient
    - Checksum us re-calculated at receiving end
    - If both sums are the same, no error has occurred
    - If the sums are different, the data has been corrupted during transmission
    - Request is sent to re-send the data
