

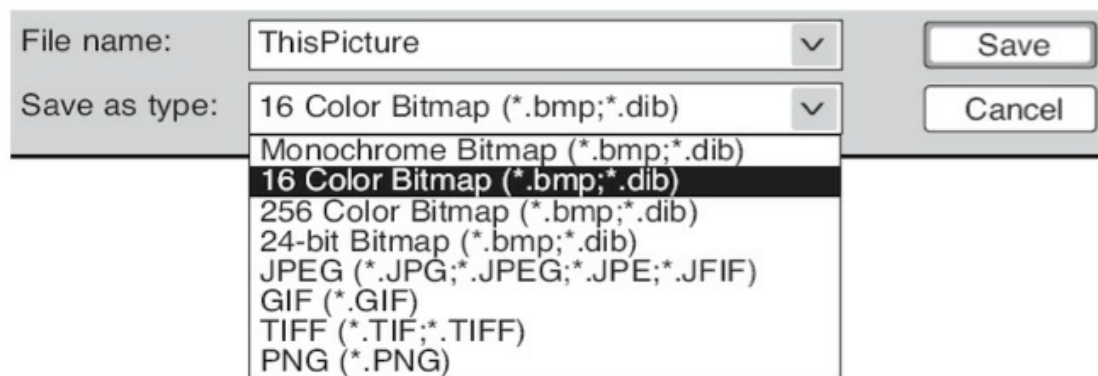
Graphics Homework

You should refer to the **homework policy** for details on how this homework should be submitted.

Attempt all questions and show all working.

Question 1

The screenshot below shows the file type options available when saving a file with bit-mapped graphics software.



- How many bits are used to store each pixel if the resolution selected is as shown ('16 color bitmap')? **(1 mark)**
65536 ✗
- '256 color' images are stored with 1 byte per pixel. Explain this statement. **(1 mark)** ✓
If each pixel corresponds to 1 byte in memory then 1 byte will allow for 256 colours.
- Read again the statement in part (ii). A picture with size 1024 by 768 pixels is saved as a '256 color' image. Calculate the picture size in Kilobytes. **(1 mark)**

Number of pixels = 1024 x 768 pixels

Number of bits per pixel = 8

Total number of bits = 8 x 1024 x 768 = 6,291,456

Number of kilobytes = 786.432 ✗

- Black and white (monochrome) bit-mapped files store each pixel with a single bit. A black and white image of size 512 by 256 pixels has a calculated file size of 16 Kilobytes. The actual file size is larger than this calculated size as the bitmap file

contains other data. What is this other data? (1 mark)

Height and Width data/value



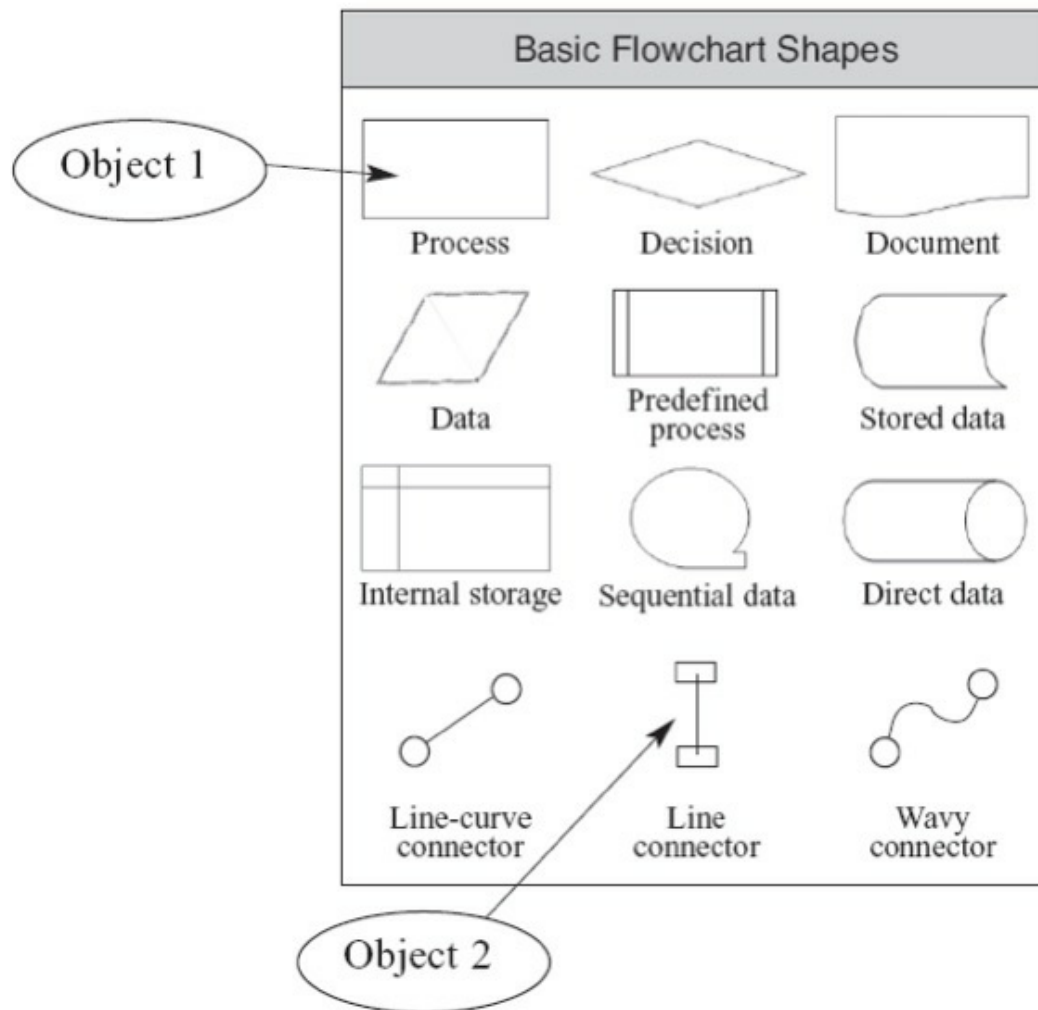
Question 2

it patterns can be interpreted in a number of different ways. A computer word contains the bit pattern 1011 0110.

- What is its decimal value if it represents:
 - a pure binary integer: 182(10) 182 to the base number of 10 (1 mark) ✓
 - A two's complement integer: -74(1 mark) ✓
- The ASCII value for the character '2' is 50.
 - What is the character stored in the computer word 0011 0100? (1 mark) ✓
ASCII: 4
Answer = 52
 - Name one other standard coding system for coding information expressed in character or text-based form. (1 mark)
Unicode ✓

Question 3

The diagram below shows a number of drawing objects from the toolbox of a vector graphics drawing program.



1. For object 1 and object 2, state two properties common to both types of object, which would be recorded when used in a drawing. **(2 marks)**

The Line thickness/style and the line colour. Also the co-ordinates of the two objects.

2. State one other property for object 1 which would be recorded when used in a drawing. **(1 mark)**

Label the object

3. Graphics can be created with either vector graphics software or bit-mapped software. If the graphic is enlarged it may become distorted if created with bit-mapped software but show no distortion if created with vector graphics software. Explain this statement. **(2 marks)**

The size of each pixel is enlarged and the vector graphics will re-calculate the equations.

X NE

Total 14 Marks

Written with [StackEdit](#).