

## Question 1

Figure 1 is an example of *Shopee* web app interface from <https://shopee.com.my>. Answer the following questions by referring to Figure 1.

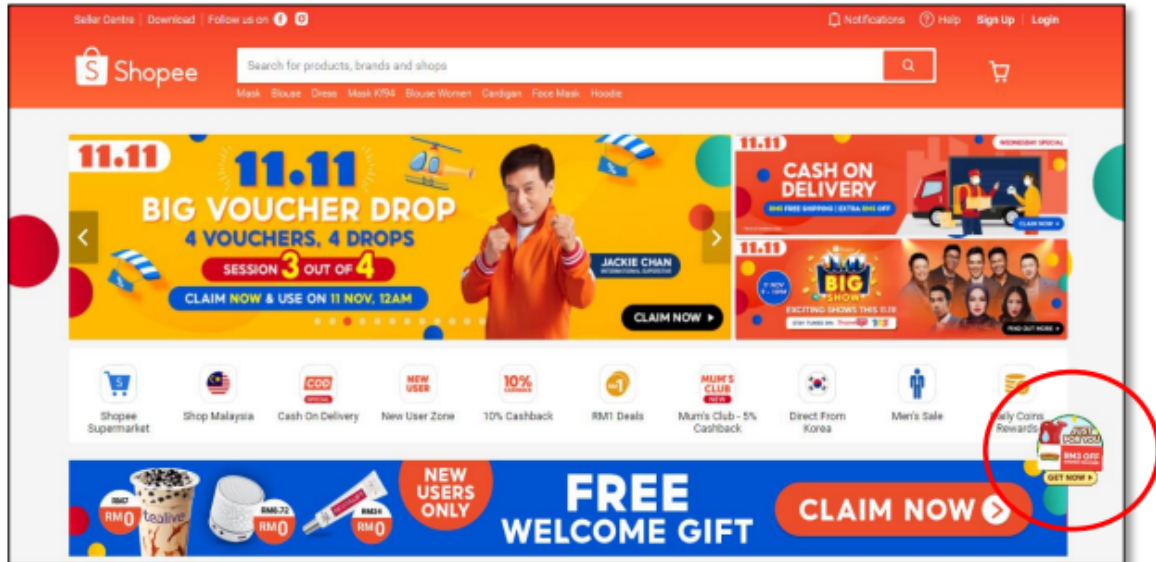


Figure 1

- a) (i) Discuss **TWO (2)** image types that can be found in this web application. Explain your answer with the image cropped from Figure 1. Provide **TWO (2)** cropped images for each image type. (8 marks)

Bitmap graphic – matrix of dots to represent the picture



Vector graphic – mathematical approach to render the pixels



- (ii) Discuss **TWO (2)** advantages and **TWO (2)** disadvantages of using each image type. (8 marks)

Adv of bitmap graphic

- Does not require a special software interpreter to read.
- Many software tools support Bitmap graphics like GIF and JPEG files. eg. Adobe Photoshop, Microsoft Paint
- Very little processing is required before displaying bitmap graphics.
- Can produce photos or photo-realistic graphics and background textures.

Disadvantage of bitmap graphic

- Normally large file size, sometimes also depends on the colors usage.
- Mainly used to represent 2D graphics.
- Resolution dependent. In bitmap graphic, the quality is dependent on the resolution, if bitmap graphic is enlarged, the quality will loss, result in loss of quality, blurriness, distortion, as there are not enough pixels to maintain the original sharpness of the bitmap graphic

(iii) Discuss the **TWO (2)** file formats recommended to be used in *Shopee* web app. (6 marks)

1)PNG - bitmap image,  
-used grid of pixels to represent an image  
-fixed resolution, cannot be scaled without loss of quality  
-only support maximum 24-bit color  
-can be saved with or without compression

2)SVG - vector image,  
- use mathematical formulas to represent an image  
-high-resolution scaling without losing image quality  
-support maximum 32-bit color  
-compression using XML syntax

b) (i) Examine the font design that is applied. (4 marks)

San-serif which is easier to be read by the customer.

(ii) Discuss on the style of writing the digital advertisement. (4 marks)

Persuasive writing, this is to convenient the customer to click on the advertisement in order to promote the products on the Shopee.

(iii) Describe **ONE (1)** type of text used in Figure 1.

(2 marks)

Hypertext, the text can be used to redirect to another page when the user clicks on it.

c) (i) Identify and discuss the colour space used in Figure 1.

(4 marks)

RGB has been used to create the website. This is because by using this color space, all the colors can be created through additive process of red, green and blue.

(ii) Justify on the **TWO (2)** main factors needed to be considered before assigning colour on the *Shopee* web app. (4 marks)

- Contrast and readability
- For example, the word and the background must be having a great contrast in order to increase the readability of the content
- Purpose and context
- For example, cancel button should be in red color

(iii) Identify the colour depth value used in Figure 1. Provide **ONE (1)** advantage and **ONE (1)** disadvantage of using such color depth value. (3 marks)

24-bit color depth

Advantage:

More reality

Disadvantage:

Large file size

- d) Figure 2 is an animated image found in *Shopee* web app as circled in Figure 1. Answer the following questions based on Figure 2.



Figure 2

- (i) Describe **ONE (1)** animation category as displayed in Figure 2. (2 marks)

2D animation, animated using only 2 dimensions, x axis, y axis. Has small file size.

- (ii) Discuss the animation technique that can be applied to create this animated image. (2 marks)

path animation. The object moves along a predetermined path on the screen.

- (iii) Analyse **ONE (1)** out of twelve animation principles used. (3 marks)

[Total: 50 marks]

slow-in and slow-out. The object moving from left to right does not have a uniform velocity. Instead, the object animation looks more appealing when it slows down before it stop and moves fast a while after it starts moving as it gains velocity.

## Question 2

- a) Given a compressed video with accompanying sound file with the size of 216MB which able to save up to 75% of the storage space.

- (i) Calculate the compressed ratio value. (3 marks)

$$216 \text{ MB} = 25\% = 0.25$$

$$\begin{aligned}\text{Compression ratio} &= \text{size uncompressed} : \text{size compressed} \\ &= 1 : 0.25 \\ &= 4 : 1\end{aligned}$$

(ii) Calculate the uncompressed file size.

(2 marks)

Compression ratio = 4 : 1

Uncompressed file size = 216MB \* 4 = 864MB

(iii) A standard definition resolution of 640 x 480 or 480p with 24 fps and 8 bit depth were used to construct the uncompressed version of the above video. While the stereo sound used contain of 16 bit sampling with 44.1KHz sampling rate. Estimate the time taken in minute to play the uncompressed video file.

(11 marks)

b) Discuss **FIVE (5)** important features that make google web designer as a popular HTML5 development tool.

(10 marks)

User-friendly Interface: Google Web Designer has a clean and intuitive user interface, making it easy for users to navigate and create engaging HTML5 content.

Rich Animation Features: Google Web Designer provides a comprehensive set of animation tools, allowing users to create engaging and interactive content.

Responsive Design Support: With the increasing prevalence of mobile devices, responsive design has become crucial for web development.

Google Ads Integration: As a Google product, Google Web Designer seamlessly integrates with Google Ads, allowing users to create, preview, and publish ad creatives directly from the tool.

Wide Range of Components: Google Web Designer comes with a vast selection of pre-built components, such as image galleries, video players, maps, and more.

- c) Figure 3 below show a 3D version of multimedia technology.



Image Source: <https://www.pm365.ga/products.aspx?cname=pokemon+go>

Figure 3

- (i) Describe the multimedia technology that can be applied to create this application. (3 marks)

Augmented Reality(AR) - to show the pokemon(pikachu) in 3D on the real life/world background using camera

- (ii) Explain the usage of this technology in education, medical and retail fields. (9 marks)

Education:

- Make learning more interactive and engage students' attention, making students easier to learn.
- Example: Show history scene using AR, show human body part or human anatomy using AR

Medical:

- Help in medical learning & training. / visualize and analyze complex medical data
- Show human anatomy using AR, use AR to simulate surgeries and procedures./ visualize the medical data such as MRI scans.

Retail:

- Provide products views in more detail using AR
- Example : using AR to let the customer try the virtual clothes before they buy it.

- d) Aisyah sent a large multimedia video file to her team mate Ruzain. Unfortunately, the time taken to transfer the file was very slow.

- (i) In your opinion, what could be the reason? Provide **TWO (2)** answers. (4 marks)

The internet connection is slow or unstable. The transfer speed for file over the website is affected by internet connection.  
The file needs to be compressed and decompressed when transferred to the internet. When the file size is large, it will take longer for the compression process.

- (ii) After Ruzain received the file, the video playback quality was not smooth enough. Give **TWO (2)** reasons why this could happen? (4 marks)

- improper frame rates and shutter speeds
- file transferring corrupted or damaged

- (iii) Aisyah plans to resend the file to Ruzain. Suggest **TWO (2)** methods she can apply to send the file to Ruzain in higher speed. (4 marks)

[Total: 50 marks]

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