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**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

**FINAL EXAMINATION  
SEMESTER I  
SESSION 2021/2022**

COURSE NAME : DISPLAY SYSTEM AND TECHNOLOGY  
COURSE CODE : BWC 41303  
PROGRAMME CODE : BWC  
EXAMINATION DATE : JANUARY / FEBRUARY 2022  
DURATION : 3 HOURS  
INSTRUCTION : 1. ANSWER ALL QUESTIONS.

2. THIS FINAL EXAMINATION IS AN  
**ONLINE ASSESSMENT AND  
CONDUCTED VIA CLOSED BOOK.**

THIS QUESTION PAPER CONSISTS OF **THREE (3) PAGES**

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**TERBUKA**

- Q1** (a) Over the past few decades, the performance of displays has continuously improved, with resolution increasing from a few thousand to millions of pixels, from black and white displays through multiple gray levels to vivid full-color reproduction.
- (i) What is a pixel?  
(2 marks)
- (ii) Explain further the function of pixels in a display system.  
(5 marks)
- (b) Display module is a device that consists of a display glass, an interface system, electronics and a power supply.
- (i) Explain the display module function.  
(2 marks)
- (ii) Draw the schematic block diagram of the display module.  
(4 marks)
- (c) What is the optical device used to delay one polarization component to its orthogonal component? Explain the principle function of the device.  
(7 marks)
- Q2** (a) Define an optical aberration.  
(2 marks)
- (b) Discuss the factors that limit the resolution of the Cathode Ray Tube (CRT).  
(8 marks)
- (c) By sketching a related diagram, discuss the technique to produce color images on a cathode ray tube.  
(10 marks)
- Q3** (a) List the **THREE (3)** basic components of color LCD.  
(3 marks)
- (b) Draw the schematic diagram of basic components of the color LCD.  
(7 marks)
- (c) Based on **Q3(a)** and **(b)**, discuss the function of each component of color LCD.  
(10 marks)

- Q4** (a) What is OLED? (2 marks)
- (b) (i) Sketch a simple diagram of a simple OLED structure. (5 marks)
- (ii) Based on the sketched diagram in **Q4(b)(i)**, explain the principle function of each part. (7 marks)
- (c) There are several technologies required to fabricate OLEDs on flexible substrates or FOLEDs. FOLEDs are OLEDs built on non-rigid substrates such as plastic or metal foil. For use in displays, FOLEDs can also provide some significant advantages over conventional incandescent and fluorescent lighting. Discuss the significant benefits of FOLEDs. (6 marks)
- Q5** (a) Describe a flat panel display? (3 marks)
- (b) (i) List **THREE (3)** examples of the emissive display. (3 marks)
- (ii) Explain the emissive display. (5 marks)
- (iii) Explain the non-emissive display. (5 marks)
- (c) Passive Matrix (PM) and Active Matrix (AM) driving techniques are often employed to drive a flat panel display. Differentiate between the PM and the AM. (4 marks)

- END OF QUESTIONS -

