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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2019/2020**

COURSE NAME : COLOUR MEASUREMENT AND PRINTING
COURSE CODE : BNH 40603
PROGRAMME : BNH
EXAMINATION DATE : DECEMBER 2019 / JANUARY 2020
DURATION : 2 HOURS AND 30 MINUTES
INSTRUCTION : ANSWER ALL QUESTIONS IN PART A AND ONE (1) QUESTION IN PART B ONLY

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THIS QUESTION PAPER CONSISTS OF FIVE (5) PAGES

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PART A (Answer all questions)

- Q1** (a) Human eyes are sensitive to light. Explain the spectrum of light that visible to human eyes. (3 marks)
- (b) Light receptors within the eye transmit messages to the brain, which produces the familiar sensations of colour. Describe how we see banana as yellow in colour. (7 marks)
- (c) Our eyes are sensitive to colours. Identify and explain two cells in the eyes that analyze the colour we see before it send the information to our brain. (4 marks)
- (d) Department of Psychiatry and Mental Health was given two colour options for patient bedsheet; dark red and light blue. Considering the condition of the hypertension patient, compare the colour options and recommend one colour that suit the situation. (6 marks)
- Q2** (a) Identify basic elements of spectrophotometer aided with illustration. (5 marks)
- (b) **Figure Q2 (b)** shows the CIE tristimulus values for fabrics A and B under Illuminant. Calculate the CIE $L^*a^*b^*$ coordinates of the fabric samples A and B. The CIE XYZ values of the illuminant white point under D65 are [94.811, 100.00, 107.304] respectively. (9 marks)
- (c) Calculate the colour difference and total colour difference of fabric A and B. Describe the value. (6 marks)
- Q3** (a) Part A and B in **Figure Q3 (a)** use different colouring methods to embed colour on the t-shirt.
- (i) Justify proper method to colour each part. (4 marks)
- (ii) Explain the differences between both methods. (4 marks)
- (b) Rose forgot to use a thickener during a preparation of printing paste.
- (i) Assess the possibility that could happen during the preparation process and the effect on the printed product. (6 marks)
- (ii) List **TWO (2)** examples of thickening agent. (2 marks)

(iii) Explain the effect of viscosity on the printing paste. (4 marks)

- Q4** (a) Explain the differences between roller printing and rotary screen printing. (4 marks)
- (b) Patterned fabric as shown in **Figure Q4 (b)** was produced using fully automated flat screen printing machine. Explain the process involved to print the pattern. (6 marks)
- (c) Sketch the roller printing diagram aided with part labelled if the pattern in **Figure Q4 (b)** was prepared using roller printing. (6 marks)
- (d) There are two blades equipped each engraved roller in roller printing. Name the blade and give the function. (4 marks)

PART B (Choose ONE (1) question only)

- Q5** (a) Explain the differences between RGB and CMYK attribute colour? (4 marks)
- (b) Colour wheel consists of several colours. Demonstrate an example of colour wheel with the help of color label. Explain the colour temperature of the colour wheel. (8 marks)
- (c) Ayin requests to produce a t-shirt with colour combination as shown in **Figure Q5 (c)**.
- (i) Analyse the colour combination for the t-shirt. (4 marks)
- (ii) Outline two colour combinations that can be used in this design. (4 marks)
- Q6** (a) Describe **FOUR (4)** printing faults possibly happen in printing. (4 marks)
- (b) In the future, sustainable printing technologies are needed to reduce the impact of textile printing on the climate change. Discuss examples of future development in printing technology that consider sustainability. (8 marks)
- (c) Double-blade squeegee and magnetic-rod squeegee are two most popular squeegee used in screen printing. Discuss on how it is work. (8 marks)

-END OF QUESTION-

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Fabric A	Fabric B
X= 10	X= 11
Y= 13	Y= 15
Z = 15	Z = 30

Figure Q2 (b)

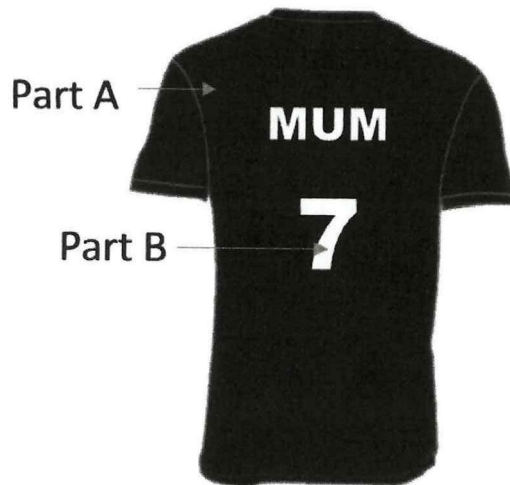


Figure Q3 (a)

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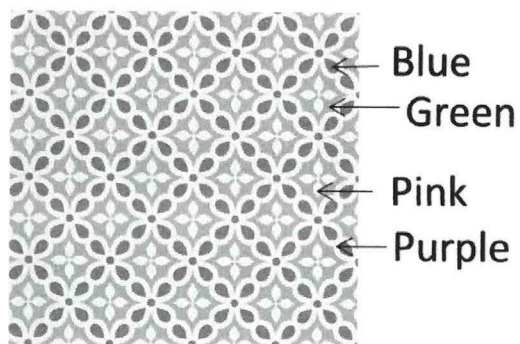


Figure Q4 (b)



Figure Q5 (c)

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