

SOUTHWESTERN UNIVERSITY NIGERIA

KM 20, SAGAMU-BENIN EXPRESSWAY, OKUN OWA, IJEBU-ODE, OGUN STATE.

FACULTY OF PURE & APPLIED SCIENCES

DEPARTMENT OF COMPUTER SCIENCE

HND TO BSC CONVERSION PROGRAMME

2018/2019 FOURTH SEMESTER EXAMINATION

COURSE CODE: CMP 414 COURSE TITLE: Computer Graphics

INSTRUCTION: Answer question 1 and any other three (3). **TIME:** 2hrs

1. (a) Using a graph sheet, draw the following line segments
(1, 15) to (8, 15)
(3.5, 13.5) to (11.5, 13.5)
(1, 6) to (6, 11)
(1, 5) to (8, 7)
(1, 0) to (7, 4)
- 2) (b) Using Bresenham's Algorithm implementation, draw a line from (1, 1) to (4, 2)
- (c) Find the equation of the plane that passes through the points (2, 1, -1), (0, -2, 0) and (1, -1, 2)
- (d) Outline five advantages and five disadvantages of the z-buffer algorithm.
- (e) With the aid of a diagram prove that $x \cdot y = |x||y|\cos\theta$
2. (a) Write short note on the following:
(i) Pseudocolour frame buffer
(ii) Truecolour frame buffer
(iii) Greyscale frame buff
- (b) Find the distance between the points, (0.05m, 0.06m) and (0.008m, 0.03m)
Give final answer in centimetres
3. (a) Using appropriate diagram(s), describe the basic graphics rendering pipeline
(b) List four application areas of computer graphics
4. (a) Draw the block diagram of the Graphic pipeline transformation stages.
(b) Write short note on the two basic forms of camera projection.
5. (a) Write short note on the characteristics of the BSP tree
(b) Draw the RGB colour cube labelling the corner of the cube and the colour axis.