

UNIVERSITY EXAMINATIONS

1ST SEMESTER 2022/2023 ACADEMIC YEAR

SECOND YEAR EXAMINATION FOR THE DEGREE OF
BACHELOR OF SCIENCE (ICT)

BICT 215: COMPUTER AIDED DESIGN

STREAM: R

TIME: 2 HRS

DAY: WED [8.30PM – 10.30AM]

DATE: 07/12/2022

THIS QUESTION PAPER CONSISTS OF THREE (3) PAGES

PLEASE DO NOT OPEN UNTIL THE INVIGILATOR SAYS SO.

INSTRUCTION: - Answer question ONE and any OTHER TWO**QUESTION ONE****30 marks**

- (a) With a help of a diagram describe the various step involved in Shirley's design model .
(5 marks)
- (b) Discuss the following processes involved in CAD: -
(6 marks)
- (i) Design engineering,
 - (ii) computer graphics
 - (iii) geometric modelling
- (c) Explain Concurrent and Sequential Engineering with neat diagram and also mention their advantages and disadvantages. (7 marks)
- (d) Define the following (6 marks)
- (i) Computer aided design
 - (ii) Transformation
 - (iii) Open GL
- (e) Explain the techniques involved in surface modeling (4 marks)
- (f) Describe various light sources used in shading? (3 marks)

QUESTION TWO**20 marks**

- (a) Explain what meant by Interactive Computer Graphics? Explain its various elements.
(4 marks)
- (b) Describe the various approaches used to achieve visual realism? (6 marks)
- (c) Explain Gourand shading model with a neat diagram (4 marks)
- (d) Explain the need for CAD standards? Explain them in detail (4 marks)

QUESTION THREE**20 marks**

- (a) Explain how CAD helps to synthesize a product design and do engineering analysis for getting optimal design. (5 marks)
- (b) Describe the basic types of coordinate transformation in CAD, (4 marks)
- (c) Outline various shading techniques (3 marks)
- (d) Explain the techniques involved in line drawing algorithm. (4 marks)



- (e) Discuss various elements of cad/cam structure? (4 marks)

QUESTION FOUR

20 marks

- (a) Define assembly modeling and describe the various assembly modelling approaches available (6 marks)
- (b) Explain the various approaches used in data exchange format. (4 marks)
- (c) List the advantages of computer aided design (4 marks)
- (d) Define the following terms (3 marks)
- (i) Clipping?
 - (ii) Viewing
 - (iii) Concatenation transformation
- (e) Describe the various interface standards available? 4 marks

QUESTION FIVE

20 marks

- (a) Describe the various light sources with example. (4 marks)
- (b) In what ways CAD can help manufacturing activity? Discuss. (6 marks)
- (c) Elaborate on the basic requirements that CAD software has to satisfy. (6 marks)
- (d) Explain any hidden surface removal algorithm with a suitable example. (4 marks)

