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PRESIDENCY UNIVERSITY BENGALURU

SCHOOL OF ENGINEERING

SUMMER TERM END TERM EXAMINATION – AUGUST 2024

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| **Semester :Summer term 2023-24** | **Date :05/8/2024** |
| **Course Code :MEC3017** | **Time :9:30 AM TO 12:30 PM** |
| **Course Name :CAD for Additive Manufacturing** | **Max Marks :100** |
| **Program :B.Tech** | **Weightage :50%** |

**Instructions:**

1. *Read all questions carefully and answer accordingly.*
2. *Question paper consists of 3 parts.*
3. *Scientific and non-programmable calculator are permitted.*
4. *Do not write any information on the question paper other than Roll Number.*

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| **PART A** | | | |
| **ANSWER ANY 5 QUESTIONS 5Q X 6M=30M** | | | |
| 1 | What is geometric modelling in computer graphics? List out the advantages | (CO1) | [Knowledge] |
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| 2 | What are the benefits of CAD in computer graphics? | (CO1) | [Knowledge] |
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| 3 | What is a STEP file? Why is STEP better than IGES? | (CO2) | [Knowledge] |
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| 4 | What is surface Modelling and where they are used | (CO3) | [Knowledge] |
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| 5 | List out the advantages of surface modelling | (CO3) | [Knowledge] |
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| 6 | What do you mean by ‘Geometry’ and ‘Topology’ in solid modelling? | (CO4) | [Knowledge] |
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| 7 | What are the disadvantages of wire frame modelling | (CO4) | [Knowledge] |
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| **PART B** | | | |
| **ANSWER ANY 4 QUESTIONS 4Q X 10M=40M** | | | |
| 8 | The CAD design process is an iterative process that ensures the compatibility of design. Explain the general design process used in CAD. | (CO1) | [Comprehension] |
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| 9 | What is translation in computer graphics? Show the transformation using a matrix, an analytical procedure, and a graphical representation | (CO2) | [Comprehension] |
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| 10 | When a space curve is rotated about an axis in space we obtain the swept surface. Explain the surface of revolution with example | (CO3) | [Comprehension] |
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| 11 | What is B-Spline surface? Explain open and closed surface with representation | (CO3) | [Comprehension] |
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| 12 | What is sweep representation in solid modelling? Explain the types of sweep representation | (CO4) | [Comprehension] |
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| 13 | Construct solid geometry (CSG) approach with Boolean operation. List out the limitations of CSG | (CO4) | [Comprehension] |
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| **PART C** | | | |
| **ANSWER ANY 2 QUESTIONS 2Q X 15M=30M** | | | |
| 14 | Given a line segment with starting point as (0,0) and end point as (4,4). Apply 30-degree rotation anticlockwise direction on the line segment and find out the new coordinates of the line. Show the graphical representation of the rotation | (C02) | [Application] |
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| 15 | Given a triangle with coordinates points A (3,4), B (6,4), and C (5,6). Apply the reflection on the y Axis and obtain the new coordinates of the objects. Show the graphical representation of the reflection | (CO2) | [Application] |
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| 16 | . Given a square object with coordinate points A (1,1), B (5,1), C (5,6), D (1,6). Apply the scaling parameters 0.5 towards x axis and 0.5 towards Y axis obtain the new coordinates of the square model in homogenous as well as analytical method. Draw the graph showing old and new coordinates. | (CO2) | [Application] |
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