



BUDDHA INSTITUTE OF TECHNOLOGY, GIDA, GORAKHPUR
DEPARTMENT OF MECHANICAL ENGINEERING
CLASS TEST-1 (EVEN SEMESTER 2022-23)
APRIL-2023

Course: B.Tech Semester: 8TH
Subject: AUTOMATION & ROBOTICS Subject Code: KOE-091
M.M. 30 Time: 2:00 hrs Roll No. _____

SECTION-A

1. Attempt all questions. Each questions carry equal marks.

Marks: 5*1=5

Q. No.	Question	Level of Taxonomy	Course Outcome
a.	What are the basic components of an automated system?	L1	CO1
b.	What do you understand by <i>repeatability</i> of a robot?	L2	CO3
c.	How is <i>Robot</i> defined according to ISO?	L2	CO3
d.	Write the expression for <i>Grubler Criterion</i> for degree of freedom of spatial manipulator.	L2	CO3
e.	What do you understand by <i>Work Envelope</i> of a Robot?	L2	CO3

SECTION-B

Attempt all questions. Each questions carry equal marks.

Marks: 3*5= 15

Q. No.	Question	Level of Taxonomy	Course Outcome
a.	What is Fixed, Flexible and Programmable automation? Explain the features of each type of automation. <p style="text-align: center;">OR</p> Define Automation. Discuss the need for automation with suitable examples.	L2 L2	CO1
b.	Discuss in detail the integration of mechanical systems with electronic and computer systems <p style="text-align: center;">OR</p> Explain Open Loop Control and Feedback control Systems, with suitable diagrams	L2 L2	CO1
c.	With the help of suitable diagram, explain the working of <i>Hydraulic system</i> used in industrial automation.	L2	CO1

SECTION-C

Attempt all questions. Each questions carry equal marks.

Marks: 2*5=10

Q. No.	Question	Level of Taxonomy	Course Outcome
a.	How robots are classified on the basis of geometry? Discuss each category with the help of suitable diagrams. <p style="text-align: center;">OR</p> Write homogeneous transformation matrix for a rotation of 90° about the Z-axis, followed by a rotation of -90° about X-axis.	L3 L3	CO3
b.	Define Robot. Discuss the advantages and disadvantages of using robots. Also, write some important applications of industrial robots.	L2	CO3