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PRESIDENCY UNIVERSITY BENGALURU

SCHOOL OF ENGINEERING

MAKE UP EXAMINATION - JULY 2024

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| **Semester : III** | **Date : 09-07-2024** |
| **Course Code : MEC3065** | **Time :** **01.30pm to 04.30pm** |
| **Course Name : Introduction to Robotics and Automation** | **Max Marks : 100** |
| **Program : B.Tech** | **Weightage :** |

**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 4 QUESTIONS 4Q X 5M=20M** | | | |
| 1 | Along with neat diagram, explain the working of Inductive Proximity Sensor. | (CO 1) | [Knowledge] |
|  | | | |
| 2 | What is Automation? Write any 2 reasons for automation. | (CO 2) | [Knowledge] |
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| 3 | List all the joints used in robots. And also list the configurations of robots. | (CO 3) | [Knowledge] |
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| 4 | Write the parameters which impact the size of work volume. | (CO 4) | [Knowledge] |
| 5 | Write the reason for automation in detail. | (CO 4) | [Knowledge] |

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| **PART B** | | | |
| **ANSWER ANY 5 QUESTIONS 5Q X 10M=50M** | | | |
| 7 | Explain the Cylindrical robot configuration along neat sketch and also write applications of it. | (CO 1) | [Comprehension] |
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| 8 | Explain the Cartician robot configuration with neat sketch and also write the applications of it. | (CO 2) | [Comprehension] |
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| 9 | Write any 5 advantages of Automation. Also write any 5 applications of automation. | (CO 3) | [Comprehension] |
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| 10 | Explain the working principle of Touch sensor with neat sketch. Also explain the force sensors along with applications of it. | (CO 4) | [Comprehension] |
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| 11 | Explain the working of Eddy Current Sensor along with neat sketch. Write the applications of it. | (CO 2) | [Comprehension] |
| 12 | Explain the Polar robot configuration along neat sketch and also write applications of it. | (CO 1) | [Comprehension] |
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| **PART C** | | | |
| **ANSWER ANY 2 QUESTIONS 2Q X 15M=30M** | | | |
| 14 | a) Explain about the anatomy of robot structure in detail. Also explain about all joints used in robots with neat sketch and list all configurations of robots.  b) Explain about any 3 End effectors used as grippers. | (CO 1) | [Application] |
|  | | | |
| 15 | Write different types of flexible manufacturing systems and explain each of them in details. | (CO 4) | [Application] |
| 16 | Explain any 3 sensors used in robots in detail. | (CO 2) | [Application] |
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