

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BCA DEGREE EXAMINATION MAY 2025
(Sixth Semester)
Branch – COMPUTER APPLICATIONS
MAJOR ELECTIVE COURSE – II: ROBOTICS

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (5 x 1 = 5)

- 1 What is the primary function of a robot arm?
 - (i) To provide mobility to the robot
 - (ii) To perform tasks that requires grasping and manipulation
 - (iii) To sense and interact with the environment
 - (iv) To provide structural support to the robot
- 2 Which of the following is a type of end effector used for handling ferromagnetic materials?
 - (i) Magnetic gripper
 - (ii) Vacuum gripper
 - (iii) Adhesive gripper
 - (iv) Hydraulic gripper
- 3 ____ types of sensors detects changes in physical contact.
 - (i) Proximity sensor
 - (ii) Range sensor
 - (iii) Touch sensor
 - (iv) Force sensor
- 4 Which of the following is an application of machine vision?
 - (i) Welding and assembly
 - (ii) Inspection and quality control
 - (iii) Material handling and transportation
 - (iv) All of the above
- 5 Which of the following IoT communication protocols is known for its low power consumption and low data rate?
 - (i) Bluetooth Low Energy (BLE)
 - (ii) Wi-Fi
 - (iii) Zigbee
 - (iv) Cellular Networks

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 3 = 15)

- 6 a Explain the advantage of Robotics.
OR
b Describe about the Robotics qualities.
- 7 a Explain about conversion of motion.
OR
b Describe about vacuum Grippers.
- 8 a Outline the touch sensors.
OR
b Describe about range sensors.

Cont...

- 9 a Classify the application of machine vision.
OR
b Describe the Robot Programming Languages.
- 10 a Sketch the resource management.
OR
b Summarise the internet of things applications.

SECTION -C (30 Marks)

Answer ALL questions
ALL questions carry EQUAL Marks

(5 x 6 = 30)

- 11 a Analyze the types of industrial Robots.
OR
b Discuss about various types of mechanical joints.
- 12 a Elucidate the types of end effectors.
OR
b Outline the magnetic Grippers and Adhesive Grippers.
- 13 a Enumerate the characteristics of sensing device.
OR
b Examine the position and displacement sensors.
- 14 a Discuss about the industrial applications of vision-controlled robotic system.
OR
b Elucidate the method to programme the Robot's work cycle.
- 15 a Discuss about internet of things architecture.
OR
b Examine internet of things data management and analysis.

Z-Z-Z

END