



CBCS SCHEME

21MT384

Question Paper Version : A

Third Semester B.E. Degree Examination, June/July 2023 Robotics Ecosystem

Time: 1 hr.]

[Max. Marks: 50

INSTRUCTIONS TO THE CANDIDATES

1. Answer all the **fifty** questions, each question carries one mark.
2. Use only **Black ball point pen** for writing / darkening the circles.
3. **For each question, after selecting your answer, darken the appropriate circle corresponding to the same question number on the OMR sheet.**
4. Darkening two circles for the same question makes the answer invalid.
5. **Damaging/overwriting, using whiteners** on the **OMR** sheets are strictly prohibited.

1. Which one of these is not a law of Robotics by Asimov?
a) Robot may not injure a Human being or through its actions allow a Human to be harmed.
b) A Robot must obey orders given by Humans except where they conflict the first law.
c) A Robot may harm a Human being when threatened to its safety.
d) A Robot must protect its own existence unless that conflicts with first and second law.
2. The first ever concept of Robots was seen through this Vancanson invention :
a) Mechanical pencils b) Mechanical dolls
c) Mechanical looms d) Mechanical ink presses
3. The first work of relevance to Robotics in science fiction by Mary Shelley is
a) Frankenstein b) Frank and Morty c) Frankenstein d) Franurmein
4. Rossum's Universal Robots were a
a) Slovakian play b) Russian play
c) Czechoslovakian play d) Swedish play
5. _____ is a General purpose, Programmable Machine possessing certain Human like characteristics.
a) Robot b) Manipulator c) Gripper d) None of these
6. The Technology of Automations
a) Avionics b) Cryogenics c) Cryotronics d) Robotics
7. Which of these is not an application of Robotics?
a) Hills b) Industrial c) Medical field d) Agriculture
8. Which one of these is not a part of Robot System?
a) Drives system b) Controller c) End effector d) Peripheral tools

9. Disadvantages of Robots are
 a) Produces labours
 b) Improve product quality
 c) Reduces manufacturing
 d) Can be used in hazardous environments
10. A programmable, multifunction manipulator designed to move materials, parts, tools or specific devices.
 a) Industrial Robot b) Android c) Actuator d) End effectors
11. Which type of controller produces offsets in system response?
 a) Integral controller b) Derivative controller
 c) Proportional controller d) PID controller
12. What concept is used in solving and analyzing steady state response?
 a) Final derivative equation b) Final value theorem
 c) Final Integrals equation d) Final variable set
13. What is Delay time?
 a) Time taken to reach one half of final value for first time.
 b) Time taken to cycle of system of system response
 c) Time taken to reach 50% of system peak value
 d) Time taken to reach maximum overshoot
14. Which kind of system response produces decaying amplitude of oscillations?
 a) Overdamped b) Underdamped c) Critically damped d) Undamped
15. Which controller gives no output during constant error?
 a) Proportional controller b) Integral controller
 c) Derivative controller d) PID controller
16. Which control system type has no feedback loop?
 a) Open loop b) Closed loop c) Both A and B d) None of these
17. Which robot configuration has rectangular workspace?
 a) Jointed arm b) Cylindrical c) Polar d) Cartesian
18. Which joint's output link axis is parallel to the input link axis?
 a) Twisting joint b) Linear joint c) Rotational joint d) Revolving joint
19. Which robot arm resembles a Human arm?
 a) Polar b) Cylindrical c) Jointed arm d) Cartesian
20. Which Controller Mode acts as a switch?
 a) Proportional controller b) Multi position controller
 c) Derivative controller d) On – off controller
21. "Only one surface required to grasp or hold the object" by
 a) Vacuum gripper b) Magnetic gripper c) Adhesive gripper d) Any of these
22. DC motors and stepper motors are mainly used in Robots instead of AC motors because they can
 a) Be Electronically controlled b) Be operated by electric - pulses
 c) Withstand large over loads d) Run at varying speed.

23. From which of the following is type of gripper used in _____ .
 a) Mechanical gripper b) Adhesive gripper c) Both (a) & (b) d) None of these
24. The rotor of a stepper Motor has no
 a) Windings b) Commutator
 c) Brushes d) All of the mentioned
25. One advantage of hydraulic actuator in industrial robots includes _____
 a) great force capability handling heavy loads
 b) lower operating cost than the other type
 c) low initial cost than the other type d) Clean & no oil leaks
26. _____ includes two of the actuator type used in industrial robots.
 a) Pneumatic and jointed - arm b) Hydraulic and pneumatic
 c) Electric and Spherical d) Hydraulic and Cylindrical
27. Which one of these is not an end effector?
 a) Rollers b) Grippers c) Machine tool d) Shaft
28. Which of these is not a part of robot anatomy?
 a) End effector b) Body c) Arm d) Wrist
29. The finger pads are mounted on the inside part of the fingers for which of the grippers?
 a) Internal grippers b) External gripper c) Both d) None of the above
30. Choose ODD MAN OUT.
 a) Spot welding tools b) Arc welding torch
 c) Magnetic gripper d) Spray painting nozzle
31. Following is not an example of transducer :
 a) Analog voltmeter b) Thermocouple
 c) Photo electric cell d) Pneumatic cylinder
32. Any radiation of appropriate wavelength fall on the depletion layer of p-n junction develops a potential difference between the junction is working principle of
 a) Hall effect sensor b) Proximity sensor c) Light sensor d) All of these
33. Which of the following is not an analog sensor?
 a) Potentiometer b) Force - sensing resistors
 c) Accelerometers d) None of the mentioned
34. Which of the following is correct for tactile sensors?
 a) Touch sensitive b) Pressure sensitive
 c) Input voltage sensitive d) Humidity sensitive
35. Thermocouple generate output voltage according to
 a) Circuit parameters b) Humidity c) Temperature d) Voltage
36. An automotive robot might best keep itself travelling down a specific lane of traffic by using
 a) Binaural hearing b) Epipolar navigation
 c) Edge detection d) A second - generation - end effector

37. Which one of the following is not a pressure sensor?
 a) Piezoelectric sensor
 b) Inductive sensor
 c) Strain gauge
 d) Fuel cell
38. What is the function of tactile sensor?
 a) To measure speed
 b) To measure power
 c) To measure torque
 d) To measure touch
 Information based on physical contact with the environment
39. What is the function of Proximity and Range sensor?
 a) To measure distance between two objects
 b) To measure force between two objects
 c) To measure pressure between two objects
 d) To measure speed between two objects
40. Inductive proximity transducer can sense only _____
 a) Semiconductors
 b) Metals
 c) Liquids
 d) Glass
41. Which elements are from waiting and processing conditions in the work cycle?
 a) Delay elements
 b) Gripper elements
 c) Time elements
 d) Lag elements
42. Which elements are for the manipulator movements performed with or without load?
 a) Delay elements
 b) Gripper elements
 c) Machine elements
 d) Motion elements
43. From which operation does not belong to a manufacturing work cycle?
 a) Palletization
 b) Tool sharpening
 c) Pick and Place
 d) Conveyor tracking
44. Most applications of robotics are in which area?
 a) Education
 b) Forecasting
 c) Manufacturing
 d) None
45. Unimate 200 robot performs, what kind of operation.
 a) Palletization
 b) Spray painting
 c) Machine loading and unloading
 d) None of the above
46. What are the advantages of robot are welding?
 a) Higher productivity
 b) Improved safety and quality of work life
 c) Greater quality of product
 d) All of the above
47. Which among the below is not a type of spray coating method?
 a) Immersion
 b) Flow coat
 c) Peel coat
 d) All of the above
48. What is a Bowl feeder?
 a) Type of material gripper
 b) Type of feeder in assembly operation
 c) Type of teach pendant
 d) None of the above
49. Which among the given types of fasteners do not belong to the category?
 a) Fastening screws
 b) Retainers
 c) Press fits
 d) Staplers
50. Crimping is a type of _____
 a) Fastener
 b) Assembly line
 c) Gripper
 d) Microcontroller

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