21MT384

USN | | | | | | | | | |

Question Paper Version : D

Third Semester B.E. Degree Examination, Jan./Feb. 2023
Robotics Eco System

Time: 1 hrs.]

[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 the following branch process with sensory feedback in robotics?
   a) Computer Engineering
   b) Mechanical Engineering
   c) Electrical Engineering
   d) Electronic Engineering

2. What is EKF?
   a) Existence Kalman Filter
   b) Extended Kalman Filter
   c) Each Kalman Filter
   d) Evaluation Kalman Filter

3. Which one of the following sensor work based on radio detection and ranging?
   a) Sonar   b) Radar   c) Intertial   d) Biosensor

4. What is the name of algorithm in which a loop that continually moves in the direction of increasing value that is uphill?
   a) Up-Hill Search
   b) Hill-Climbing
   c) Hill Algorithm
   d) Platue Climbing Valley

5. A computer software that provide the services to software applications beyond those available from the operating system is called
   a) Sensor   b) Middleware   c) Actuator   d) Transducer

6. Which of the following sensor is not used to measure the distance?
   a) Radar
   b) Sonar
   c) Laser Range finder
   d) Inertial sensor

7. Triangulation is a technique associate with
   a) Pose   b) Landmarks classes   c) Robot   d) Odometry

8. Why do the robot need sensor?
   a) To collect information from environment
   b) To map environment attribute to a quantitative measurement
   c) Only option a is true
   d) Both option a and b are true

9. What is the necessity for a lot of sensible mobile robotics function?
   a) Map discovery   b) Geometric maps   c) Perceptual maps   d) Sensorial maps

10. If something is open or closed in the system then it is informed by following sensor.
    a) Contact Sensor   b) Inertial Sensor   c) Sonar Sensor   d) Biosensor

11. Who first introduced the word "robot"?
    a) Isaac Asimov   b) Kernel Capek   c) Isaac Newton   d) R2-D2

12. Robot is derived from Czech word
    a) Rabota   b) Robota   c) Rebota   d) Ribota

13. A Robot is a
    a) Programmable   b) Multi functional manipulator
    c) Both (a) and (b)   d) None of these

14. Industrial Robots are generally designed to carry which of the following coordinate system(s).
    a) Cartesian coordinate systems   b) Polar coordinate system
    c) Cylindrical coordinate system   d) All of these

15. The robot designed with Cartesian coordinate systems has
    a) Three linear movements
    b) Three rotational movements
    c) Two linear and one rotational movements
    d) Two rotational and one linear movements

16. Ability to position back to a point that was preciously taught
    a) Accuracy   b) Precision   c) Spatial Resolution   d) Repeatability

17. The maximum horizontal distance from the centre of the robot base to the end of its wrist is called _____.
    a) Envelope   b) Reach   c) Maximum speed   d) Spatial Resolution

18. Which one of the component is a brain of the robot?
    a) Sensors   b) Controller   c) Processor   d) Power systems

19. Who is the largest robot manufacturer?
    a) ABB   b) Kawasaki   c) Fanuc   d) Boston Dynamics

20. What is the name for space inside which a robot unit operates?
    a) Environment   b) Spatial base   c) Work envelope   d) Exclusion zone

21. Most applications of robotics are used in area of
    a) Cooking   b) Manufacturing   c) Teaching   d) Farming

22. A place where power, information or a result leaves a system
    a) Chasis   b) Output   c) Sensor   d) Troubleshooting

23. Which of the following is not an advantage of Robots?
a) They can assist humans with disabilities.
b) They can replace jobs.
c) They can be used in dangerous environment
d) They don't get tired or required a break

24. The Hummingbird _____ require extra power to be able to work.
a) Sensor   b) LEDs   c) Motors   d) Tri-color LEDs

25. Which is mode of mining?
a) Close pit mining   b) Mining
c) Pit mining   d) Underground mining

26. A rigid external covering for the body in some invertebrate animals but also robots
a) Exoskeleton   b) Armor   c) Endoskeleton   d) Hardware

27. One of these is "not" a type of robot.
a) Medical   b) Industrial   c) Household   d) Apologetic

28. The three characteristic capabilities that define a robot _____.
a) Comment   b) Sensor   c) Sense-Plan-Act   d) NXT Brick

29. The primary source of physical motion in the Mind storms NXT systems
a) Interactive Servo Motor   b) Behaviour
c) Light Sensor   d) Touch Sensor

30. A mechanism having its motive power so concealed that it appears to move spontaneously
a) Automatic   b) Clock Jack   c) Robot   d) Automata

31. The "end-effector" of a robot
a) can be an actual tool   b) is the robot "hand"
c) may have a gripping action   d) all of these

32. Grippers are used to
a) Hold the objects   b) Sense the objects
c) Move the object   d) Both (a) and (c)

33. The finger pads are mounted on the inside part of the fingers for which of the grippers?
a) Internal grippers   b) External grippers
c) All of these   d) None of these

34. The principal methods of transmitting power and control signals to the end effector are
a) Pneumatic and Hydraulic   b) Electric
c) Mechanical   d) All of these

35. Which one is not the type of grippers?
a) Vacuum cups   b) Magnetic grippers   c) Adhesive grippers   d) Motor

36. The following drive is used for lighter class of robot
a) Pneumatic drive   b) Hydraulic drive   c) Electric drive   d) All of these

37. Internal state sensors are used for measuring _____ of the end effector.
a) Position   b) Position and velocity
c) Velocity & Acceleration   d) Position, Velocity and Acceleration

38. Which of the following sensors determine the relationship of the robot and its environment and the objects handled by it?
    a) Internal state sensors
    b) External state sensors
    c) Both (a) and (b)
    d) None of these

39. Which one of the following is not a programming language for computer controlled robot?
    a) AMU
    b) VAL
    c) RAIL
    d) HELP

40. In which of the following operations continuous path system is used
    a) Pick and Place
    b) Loading and unloading
    c) Continuous welding
    d) All of these

41. For a robot unit to be considered a functional industrial robot, typically, how many degrees of freedom would the robot have?
    a) Three
    b) Four
    c) Eight
    d) Six

42. Which one of following terms refers to the rotational motion of a robot arm?
    a) Swivel
    b) Axle
    c) Retrograde
    d) Roll

43. _____ is the up and down motion of wrist.
    a) Pitch
    b) Yaw
    c) Roll
    d) None of these

44. Polar configuration robot notation.
    a) TRL
    b) TTL
    c) TRR
    d) TVL

45. What is the notation of Roll, Pitch and Yaw?
    a) RRL
    b) TVL
    c) TRR
    d) RRT

46. What is the rule of robotics?
    a) Obey the human being
    b) Do not harm human being
    c) Protects itself from harm
    d) All of these

47. Traffic light system is the example of
    a) Open loop system
    b) Closed loop system
    c) Both (a) and (b)
    d) None of these

48. Control system in which the output has no influence or effect on the control action of the input signal is called
    a) Closed loop control system
    b) Open loop control system
    c) Automatic control system
    d) Optimal control system

49. In an open loop control system
    a) Output is independent of control input
    b) Output is dependent on control input
    c) Only system parameters have effect on the control output
    d) None of the above

50. A good control system has all the following features except
    a) Good stability
    b) Slow response
    c) Good accuracy
    d) Sufficient power handling capacity

* * * * *