

Total number of questions : 60

11363\_Artificial Intelligence and Robotics

Time : 1hr

Max Marks : 50

N.B

- 1) All questions are Multiple Choice Questions having single correct option.
  - 2) Attempt any 50 questions out of 60.
  - 3) Use of calculator is allowed.
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- 

**Q.no 1. Classification of data points is a technique of**

- A : Recursive filtering
- B : Filtering
- C : Laandmark
- D : Pose estimation

**Q.no 2. What is the evaluation function in greedy approach?**

- A : Heuristic function
- B : Path cost from start node to current node
- C : Path cost from start node to current node + Heuristic cost
- D : Average of Path cost from start node to current node and Heuristic cost

**Q.no 3. Which of the following branch is not a parts of robotics?**

- A : Computer Engineering
- B : Mechanical Engineering
- C : Electrical Engineering
- D : Chemical Engineering

**Q.no 4. The sensor that sends out sound pulses called pings, then receives the returning sound echo is called**

- A : Active Sonar
- B : Passive Sonar
- C : Radar
- D : Laser Rangefinder

**Q.no 5. what is HDOP**

- A : Horizontal geometric dilution of position
- B : Horizontal geometric dilution of precision
- C : Vertical geometric dilution of precision
- D : Vertical geometric dilution of position

**Q.no 6. Which of the following is an example of infrared sensor?**

- A : Thermometer
- B : Accelerometer
- C : Gyroscope
- D : TV Remote

**Q.no 7. Which of the following sensor work based on sound navigation ranging?**

- A : Sonar
- B : Radar
- C : Intertial
- D : Biosensor

**Q.no 8. The robot that repeats the same motions according to recorded information is called**

- A : Fixed Sequence Robot
- B : Variable sequence robot
- C : Playback Robot
- D : Numerical Control robot

**Q.no 9. Adaptive localization at multiple scales is a technique of**

- A : Recursive filtering
- B : Filtering
- C : Laandmark
- D : Pose estimation

**Q.no 10. Which of the following is not functionality of robotics?**

- A : Re-programmability
- B : Multi-functionality
- C : Efficient performance
- D : Responsibility

**Q.no 11. Which sensor is used in today's mobile phone screen?**

- A : Contact Sensor
- B : Inertial Sensor
- C : Infrared Sensor
- D : Biosensor

**Q.no 12. What is Global Hawk**

- A : Atonomous aircraft
- B : Aircraft
- C : Airopplan
- D : Robot

**Q.no 13. Natural or artificial can be category of**

A : Localization

B : Landmarks classes

C : Pose evaluation

D : Robot

**Q.no 14. What is AGV**

A : Automated guided Vehical

B : Automated grid Vehical

C : Automated grid Van

D : Automatic guided Vehical

**Q.no 15. A device that is used to detect event or changes in the environment is called**

A : Sensor

B : Middleware

C : Actuator

D : Transducer

**Q.no 16. SONAR is example of**

A : Video sensing

B : GPS

C : Robot

D : Machine

**Q.no 17. Which is type of Robotics Perception**

A : Map related

B : Path related

C : Position related

D : Edge related

**Q.no 18. Which of the following is not true?**

A : For robotics, you should have a knowledge of different sensors

B : For robotics, you must be able to write different planning algorithms

C : For robotics, you may have to use actuators

D : For robotics, you do not require help of computer engineers, mechanical engineers and electrical engineers

**Q.no 19. Which of the following is not advantage of robotics?**

A : Greater flexibility and re-programmability

B : Greater response time to inputs than human

C : Greater unemployment

D : Improved product quality

**Q.no 20. Which of the following branch process with sensory feedback in robotics?**

A : Computer Engineering

B : Mechanical Engineering

C : Electrical Engineering

D : Electronics Engineering

**Q.no 21. Best-First search can be implemented using the following data structure**

A : Queue

B : Stack

C : Priority Queue

D : Circular Queue

**Q.no 22. What is EKF**

A : Existence Kalman filter

B : Extended Kalman Filter

C : Each Kalman filter

D : Evalution Kalman Filter

**Q.no 23. Weighted voting of correction vectors is a technique of**

A : Recursive filtering

B : Filtering

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D : Pose estimation

**Q.no 24. Which of the following sensor work based on radio detection and ranging?**

A : Sonar

B : Radar

C : Intertial

D : Biosensor

**Q.no 25. 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

**Q.no 26. Which of the following is the component of machine that is responsible for controlling a mechanism system?**

A : Sensor

B : Middleware

C : Actuator

D : Transducer

**Q.no 27. 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

**Q.no 28. What is reckoning**

A : Evaluating existing location

B : Evaluating Previous location

C : Information acquired

D : Finding the location

**Q.no 29. The original LISP machines produced by both LMI and Symbolics were based on research performed at**

A : CMU

B : MIT

C : Stanford University

D : RAMD

**Q.no 30. Robot that perform the successive stages of a task according to predetermined, unchanging method is called as**

A : Fixed Sequence Robot

B : Variable sequence robot

C : Playback Robot

D : Numerical Control robot

**Q.no 31. What are the main cons of hill-climbing search?**

A : Terminates at local optimum & Does not find optimum solution

B : Terminates at global optimum & Does not find optimum solution

C : Does not find optimum solution & Fail to find a solution

D : Fail to find a solution

**Q.no 32. The Signals which represent 2D & 3D odjects gathered from sensor data are referred as**

A : Relational maps

B : Sensorial maps

C : Perceptul maps

D : Geomatic Maps

**Q.no 33. Convergenese of the estimates is a technique of**

A : Recursive filtering

B : Filtering

C : Laandmark

D : Pose estimation

**Q.no 34. Which of the following sensor is not used to measure the distance?**

A : Radar

B : Sonar

C : Laser Rangefinder

D : Intertial Sensor

**Q.no 35. Triagulation is a technique associate with**

A : Pose

B : Landmarks classes

C : Robot

D : Odometry

**Q.no 36. Which of the following is NOT one of the advantages associated with a robotics implementation program?**

A : Low costs for hardware and software

B : Robots work continuously around the clock

C : Quality of manufactured goods can be improved

D : Reduced company cost for worker fringe benefits

**Q.no 37. Sensor based servoing associate with**



A : Robot pose

B : Robot action

C : Robot position

D : Robot path

**Q.no 38. Why do the robot need sensor?**

A : To collect information from environment

B : To map environment attribute to a quantitative measurement

C : only option 1 is true

D : Both option 1 and 2 are true

**Q.no 39. The device that is used to convert energy from one form to another is called**

A : Emitter

B : Transducer

C : Transmitter

D : Receiver

**Q.no 40. Which of the following is true?**

A : Robot minimize the labor cost

B : Robot minimize the productivity

C : Robot minimize the life of production machine

D : Robot minimize the quality of work

**Q.no 41. Which is mode of mining**

A : Close pit mining

B : Mining

C : Pit Mining

D : Underground Mining

**Q.no 42. Which is type of Robotics Perception**

A : Marker related

B : Map related

C : Path related

D : Position related

**Q.no 43. Which is fundamental approach of mapping**

A : Mapping without localization

B : Sensorial maps

C : Perceptual maps

D : Geometric Maps

**Q.no 44. Which localization does not require any previous information**

A : Absolute

B : Local

C : Global

D : Passive

**Q.no 45. What is necessity for a lot of sensible mobile robotics function**

A : Map discovery

B : Geometric Maps

C : Perceptual maps

D : Sensorial maps

**Q.no 46. 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

**Q.no 47. With regard to the physics of power systems used operate robots, which statement or statements are most correct?**

A : hydraulics involves the compression of liquids

B : hydraulics involves the compression of air

C : pneumatic involves the compression of air

D : chemical batteries produce AC power

**Q.no 48. Which of the following is an example of inertia sensor?**

A : Thermometer

B : Accelerometer

C : Touch screen

D : TV Remote

**Q.no 49. Which of the following is an example of contact sensor?**

A : Thermometer

B : Accelerometer

C : Gyroscope

D : TV Remote

**Q.no 50. Which of the following sensor is used to monitor the motor activities?**

A : Contact Sensor

B : Inertial Sensor

C : Infrared Sensor

D : Biosensor

**Q.no 51. Industrial Robots are generally to designed to carry which of the following coordinate system(s).**

A : Cartesian coordinate systems

B : Polar systems.

C : Cylindrical systems

D : Spherical Sytem

**Q.no 52. 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 : Six

D : Eight

**Q.no 53. Radial movement (in & out) to the manipulator arm is provided by**

A : Elbow extension

B : Wrist bend

C : Wrist swivel

D : Wrist yaw

**Q.no 54. Which of the following robotic control paradigm make use of planning?**

A : Horizontal and Vertical

B : Vertical and Hybrid

C : Horizontal and Hybrid

D : Horizontal, Vertical and Hybrid

**Q.no 55. Which of the following is the serial robot?**

A : Commercial robot

B : Industrial robot

C : In-house robot

D : Mobile Robot

**Q.no 56. A clearly different group of maps showing particular application to robots is called as**

A : Relational maps

B : Sensorial maps

C : Perceptul maps

D : Geomatic Maps

**Q.no 57. The Robot designed with Cylindrical coordinate system has**

A : A Three linear movements

B : Three rotational movement

C : Two liner & one rotational movement

D : Two rotational & one liner movement

**Q.no 58. The Robot designed with Polar coordinate system has**

A : Three linear movements

B : Three rotational movement

C : Two liner & one rotational movement

D : Two rotational & one liner movement

**Q.no 59. Which of the following work is done by General purpose Robot?**

A : Part drive

B : Welding

C : Spray picking

D : Part panting

**Q.no 60. The number of moveable joints in the base, the arm, and the end effectors of the robot determines**

A : degrees of freedom

B : payload capacity

C : operational limits

D : flexibility

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**Answer for Question No 1. is a**

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**Answer for Question No 2. is a**

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**Answer for Question No 3. is d**

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**Answer for Question No 4. is a**

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**Answer for Question No 5. is b**

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**Answer for Question No 6. is d**

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**Answer for Question No 7. is a**

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**Answer for Question No 8. is c**

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**Answer for Question No 9. is a**

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**Answer for Question No 10. is d**

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**Answer for Question No 11. is a**

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**Answer for Question No 12. is a**

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**Answer for Question No 13. is b**

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**Answer for Question No 14. is a**

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**Answer for Question No 15. is a**

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**Answer for Question No 16. is b**

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**Answer for Question No 17. is d**

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**Answer for Question No 18. is d**

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**Answer for Question No 19. is c**

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**Answer for Question No 20. is a**

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**Answer for Question No 21. is c**

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**Answer for Question No 22. is b**

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**Answer for Question No 23. is a**

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**Answer for Question No 24. is b**

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**Answer for Question No 25. is b**

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**Answer for Question No 26. is c**

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**Answer for Question No 27. is b**

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**Answer for Question No 28. is a**

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**Answer for Question No 29. is b**

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**Answer for Question No 30. is a**

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**Answer for Question No 31. is a**

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**Answer for Question No 32. is d**

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**Answer for Question No 33. is a**

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**Answer for Question No 34. is d**

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**Answer for Question No 35. is a**

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**Answer for Question No 36. is a**

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**Answer for Question No 37. is a**

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**Answer for Question No 38. is d**

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**Answer for Question No 39. is b**

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**Answer for Question No 40. is a**

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**Answer for Question No 41. is d**

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**Answer for Question No 42. is a**

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**Answer for Question No 43. is a**

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**Answer for Question No 44. is c**

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**Answer for Question No 45. is a**

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**Answer for Question No 46. is a**

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**Answer for Question No 47. is c**

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**Answer for Question No 48. is b**

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**Answer for Question No 49. is a**

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**Answer for Question No 50. is b**

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**Answer for Question No 51. is a**

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**Answer for Question No 52. is c**

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**Answer for Question No 53. is a**

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**Answer for Question No 54. is c**

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**Answer for Question No 55. is b**

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**Answer for Question No 56. is c**

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**Answer for Question No 57. is c**

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**Answer for Question No 58. is d**

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**Answer for Question No 59. is b**

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**Answer for Question No 60. is a**

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**Q.no 1. Which of the following sensor work based on sound navigation ranging?**

- A : Sonar
- B : Radar
- C : Intertial
- D : Biosensor

**Q.no 2. The sensor that requires physical touch of an object is called**

- A : Contact Sensor
- B : Inertial Sensors
- C : Infrared Sensor
- D : Laser Rangefinder

**Q.no 3. Which of the following sensor make use of light emitting diode?**

A : Sonar

B : Radar

C : Infrared

D : Laser Rangefinder

**Q.no 4. What is GPS**

A : Global Positioning system

B : Global Point System

C : Global System

D : Global path System

**Q.no 5. Robots Localization indicates the robots**

A : Performance

B : Capability

C : Direction

D : Measurements

**Q.no 6. What is AGV**

A : Automated guided Vehical

B : Automated grid Vehical

C : Automated grid Van

D : Automatic guided Vehical

**Q.no 7. Best-First search can be implemented using the following data structure**

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**Q.no 8. The robot that repeats the same motions according to recorded information is called**

- A : Fixed Sequence Robot
- B : Variable sequence robot
- C : Playback Robot
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**Q.no 9. Which of the following sensor is most suitable for clinical, agricultural and food industry?**

- A : Contact Sensor
- B : Inertial Sensor
- C : Infrared Sensor
- D : Biosensor

**Q.no 10. what is HDOP**

- A : Horizontal geometric dilution of position
- B : Horizontal geometric dilution of precision
- C : Vertical geometric dilution of precision
- D : Vertical geometric dilution of position

**Q.no 11. What is EKF**

- A : Existence Kalman filter
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**Q.no 13. The sensor that sends out sound pulses called pings, then receives the returning sound echo is called**

- A : Active Sonar
- B : Passive Sonar
- C : Radar
- D : Laser Rangefinder

**Q.no 14. Which of the following search strategy uses a problem specific knowledge**

- A : uninformed Search
- B : Breadth-First-Search
- C : Heuristic Search
- D : Best search

**Q.no 15. Weighted voting of correction vectors is a technique of**

- A : Recursive filtering
- B : Filtering
- C : Laandmark
- D : Pose estimation

**Q.no 16. Best-First search is a type of informed search, which of the following principle used to choose the best next node for expansion**

- A : Evaluation function returning lowest evaluation
- B : Evaluation function returning highest evaluation
- C : Evaluation function returning lowest & highest evaluation
- D : no evaluation function

**Q.no 17. Adaptive localization at multiple scales is a technique of**

- A : Recursive filtering
- B : Filtering
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**Q.no 18. Which of the following sensor work based on radio detection and ranging?**

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**Q.no 19. Which sensor is used in today's mobile phone screen?**

A : Contact Sensor

B : Inertial Sensor

C : Infrared Sensor

D : Biosensor

**Q.no 20. Which of the following is a visual sensor?**

A : Laser Rangefinder

B : Radar

C : Smart Camera

D : Sonar

**Q.no 21. Who work on space Robotics mission**

A : Soviet

B : IBM

C : Google

D : Yahoo

**Q.no 22. Which of the following is not advantage of robotics?**

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**Q.no 24. Which is type of Robotics Perception**

A : Map related

B : Path related

C : Position related

D : Edge related

**Q.no 25. What is Global Hawk**

A : Autonomous aircraft

B : Aircraft

C : Airoplan

D : Robot

**Q.no 26. Image based servoing associate with**

A : Robot pose

B : Robot action

C : Robot position

D : Robot path

**Q.no 27. what is heuristic function**

A : Lowest path cost

B : Cheapest path from root to goal node

C : Average path cost

D : Estimated cost of cheapest path from root to goal node

**Q.no 28. If a robot can alter its own trajectory in response to external conditions it is considered to be**

A : Intelligent

B : Mobile

C : Open loop

D : Non-servo

**Q.no 29. In a rule-based system procedural domain knowledge is in the form of**

A : Production rules

B : Rule interpreters

C : Meta-rules

D : control rules

**Q.no 30. Who work on space Robotics mission**

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B : IBM

C : Google

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A : Path

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**Q.no 34. Algorihtm used for path planning is**

A : Dijkstra's Algorithm

B : DFS Algorithm

C : BFS Algorithm

D : Searching Algorithm

**Q.no 35. The Signals which represent 2D & 3D odjects gathered from sensor data are referred as**

A : Relational maps

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**Q.no 36. To measure heat of an object which of the following sensor is used?**

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A : hydraulics involves the compression of liquids

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B : Evaluating Previous location

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D : Finding the location

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A : Pose

B : Landmarks classes

C : Robot

D : Odometry

**Q.no 42. What are the main cons of hill-climbing search?**

A : Terminates at local optimum & Does not find optimum solution

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A : Low costs for hardware and software

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- B : Geomatic Maps
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- A : Marker related
- B : Map related
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- D : Position related

**Q.no 50. The sensor that receive sound echoes without transmitting their own sound signals is called**

- A : Active Sonar
- B : Passive Sonar
- C : Radar
- D : Laser Rangefinder

**Q.no 51. The following is true for a Robot & NC Machine**

- A : Similar power drive technology is used in both
- B : Different feedback systems are used in both
- C : Programming is same for both
- D : Programming is not same for both

**Q.no 52. Which of the following is the serial robot?**

A : Commercial robot

B : Industrial robot

C : In-house robot

D : Mobile Robot

**Q.no 53. Radial movement (in & out) to the manipulator arm is provided by**

A : Elbow extension

B : Wrist bend

C : Wrist swivel

D : Wrist yaw

**Q.no 54. The Vertical decomposition of the robotic control system is based on**

A : Sensing

B : Sensing and Planning

C : Sensing and Acting

D : Sensing, Planning and Acting

**Q.no 55. A clearly different group of maps showing particular application to robots is called as**

A : Relational maps

B : Sensorial maps

C : Perceptul maps

D : Geomatic Maps

**Q.no 56. Robot is derived from Czech word**

A : Rabota

B : Robota

C : Rebota

D : Ribota

**Q.no 57. Artificial landmarks positioned exclusively for the functions of**

A : Robot localization

B : Global localization

C : Path finding

D : Approximation location

**Q.no 58. The Robot designed with Cylindrical coordinate system has**

A : A Three linear movements

B : Three rotational movement

C : Two liner & one rotational movement

D : Two rotational & one liner movement

**Q.no 59. Drives are also known as**

A : Actuators

B : Controller

C : Sensors

D : Manipulator

**Q.no 60. Drives are also known as**

A : Sensor

B : Controller

C : Actuators

D : Manipulator

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**Answer for Question No 1. is a**

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**Answer for Question No 2. is a**

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**Answer for Question No 3. is c**

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**Answer for Question No 4. is a**

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**Answer for Question No 5. is b**

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**Answer for Question No 6. is a**

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**Answer for Question No 7. is c**

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**Answer for Question No 8. is c**

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**Answer for Question No 9. is d**

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**Answer for Question No 10. is b**

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**Answer for Question No 11. is b**

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**Answer for Question No 12. is d**

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**Answer for Question No 13. is a**

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**Answer for Question No 14. is c**

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**Answer for Question No 15. is a**

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**Answer for Question No 16. is a**

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**Answer for Question No 17. is a**

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**Answer for Question No 18. is b**

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**Answer for Question No 19. is a**

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**Answer for Question No 20. is c**

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**Answer for Question No 21. is a**

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**Answer for Question No 22. is c**

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**Answer for Question No 23. is b**

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**Answer for Question No 24. is d**

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**Answer for Question No 25. is a**

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**Answer for Question No 26. is a**

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**Answer for Question No 27. is d**

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**Answer for Question No 28. is a**

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**Answer for Question No 29. is a**

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**Answer for Question No 30. is a**

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**Answer for Question No 33. is c**

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**Answer for Question No 35. is d**

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**Answer for Question No 38. is d**

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**Answer for Question No 39. is b**

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**Answer for Question No 40. is a**

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**Answer for Question No 41. is a**

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**Answer for Question No 42. is a**

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**Answer for Question No 43. is a**

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**Answer for Question No 44. is a**

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**Answer for Question No 45. is d**

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**Answer for Question No 46. is b**

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**Answer for Question No 47. is a**

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**Answer for Question No 48. is a**

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**Answer for Question No 49. is a**

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**Answer for Question No 50. is b**

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**Answer for Question No 51. is a**

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**Answer for Question No 52. is b**

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**Answer for Question No 53. is a**

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**Answer for Question No 54. is b**

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**Answer for Question No 55. is c**

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**Answer for Question No 56. is b**

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**Answer for Question No 57. is a**

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**Answer for Question No 58. is c**

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**Answer for Question No 59. is a**

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**Answer for Question No 60. is c**

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Total number of questions : 60

11363\_Artificial Intelligence and Robotics

Time : 1hr

Max Marks : 50

N.B

- 1) All questions are Multiple Choice Questions having single correct option.
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**Q.no 1. Which of the following sensor make use of light emitting diode?**

- A : Sonar
- B : Radar
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- D : Laser Rangefinder

**Q.no 2. Which sensor is used in today's mobile phone screen?**

- A : Contact Sensor
- B : Inertial Sensor
- C : Infrared Sensor
- D : Biosensor

**Q.no 3. Which of the following is not true?**

A : For robotics, you should have a knowledge of different sensors

B : For robotics, you must be able to write different planning algorithms

C : For robotics, you may have to use actuators

D : For robotics, you do not require help of computer engineers, mechanical engineers and electrical engineers

**Q.no 4. What is EKF**

A : Existence Kalman filter

B : Extended Klamman Filter

C : Each Kalman filter

D : Evalution Kalman Filter

**Q.no 5. Classification of data points is a technique of**

A : Recursive filtering

B : Filtering

C : Laandmark

D : Pose estimation

**Q.no 6. Which of the following sensor work based on sound navigation ranging?**

A : Sonar

B : Radar

C : Intertial

D : Biosensor

**Q.no 7. Which of the following sensor work based on radio detection and ranging?**

A : Sonar

B : Radar

C : Intertial

D : Biosensor

**Q.no 8. SONAR is example of**

A : Video sensing

B : GPS

C : Robot

D : Machine

**Q.no 9. A\* algorithm is based on which of the following concept?**

A : Best-First-Search

B : Breadth-First-Search

C : Depth-First –Search

D : Hill climbing

**Q.no 10. Which of the following is a visual sensor?**

A : Laser Rangefinder

B : Radar

C : Smart Camera

D : Sonar

**Q.no 11. Which is level of performance**

A : Driving system

B : Convoy system

C : Convoy assistant

D : Automatic guided Vehical

**Q.no 12. 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

**Q.no 13. what is GDOP**

- A : Geometric dilution of position
- B : Geometric dilution of precision
- C : Geometric dilution of path
- D : Geometric dilution of pointer

**Q.no 14. What is AGV**

- A : Automated guided Vehical
- B : Automated grid Vehical
- C : Automated grid Van
- D : Automatic guided Vehical

**Q.no 15. Best-First search can be implemented using the following data structure**

- A : Queue
- B : Stack
- C : Priority Queue
- D : Circular Queue

**Q.no 16. Robots Localization indicates the robots**

- A : Performance
- B : Capability
- C : Direction
- D : Measurements

**Q.no 17. Who work on space Robotics mission**

- A : Soviet
- B : IBM
- C : Google
- D : Yahoo

**Q.no 18. Adaptive localization at multiple scales is a technique of**

A : Recursive filtering

B : Filtering

C : Laandmark

D : Pose estimation

**Q.no 19. Which of the following branch is not a parts of robotics?**

A : Computer Engineering

B : Mechanical Engineering

C : Electrical Engineering

D : Chemical Engineering

**Q.no 20. Which of the following is an example of infrared sensor?**

A : Thermometer

B : Accelerometer

C : Gyroscope

D : TV Remote

**Q.no 21. Weighted voting of correction vectors is a technique of**

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B : Filtering

C : Laandmark

D : Pose estimation

**Q.no 22. Which of the following branch process with sensory feedback in robotics?**

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B : Mechanical Engineering

C : Electrical Engineering

D : Electronics Engineering

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A : uninformed Search

B : Breadth-First-Search

C : Heuristic Search

D : Best search

**Q.no 24. What is Global Hawk**

A : Atonomous aircraft

B : Aircraft

C : Airopplan

D : Robot

**Q.no 25. Local localization follows the location of a robots from**

A : Initial Point

B : Final Point

C : Middle point

D : End point

**Q.no 26. Which of the following is an example of contact sensor?**

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B : Accelerometer

C : Gyroscope

D : TV Remote

**Q.no 27. Robot that perform the successive stages of a task according to predetermined, unchanging method is called as**

A : Fixed Sequence Robot

B : Variable sequence robot

C : Playback Robot



D : Numerical Control robot

**Q.no 28. What is necessity for a lot of sensible mobile robotics function**

A : Map discovery

B : Geometric Maps

C : Perceptual maps

D : Sensorial maps

**Q.no 29. Servoing is generally used to enable**

A : Path

B : Position

C : Robot

D : Direction

**Q.no 30. Convergence of the estimates is a technique of**

A : Recursive filtering

B : Filtering

C : Landmark

D : Pose estimation

**Q.no 31. Which is mode of mining**

A : Close pit mining

B : Mining

C : Pit Mining

D : Underground Mining

**Q.no 32. Which is type of Robotics Perception**

A : Marker related

B : Map related

C : Path related

D : Position related

**Q.no 33. Which is fundamental approach of mapping**

A : Mapping without localization

B : Sensorial maps

C : Perceptual maps

D : Geometric Maps

**Q.no 34. what is heuristic function**

A : Lowest path cost

B : Cheapest path from root to goal node

C : Average path cost

D : Estimated cost of cheapest path from root to goal node

**Q.no 35. Triangulation is a technique associated with**

A : Pose

B : Landmarks classes

C : Robot

D : Odometry

**Q.no 36. The original LISP machines produced by both LMI and Symbolics were based on research performed at**

A : CMU

B : MIT

C : Stanford University

D : RAND

**Q.no 37. Sensor based servoing associated with**

A : Robot pose

B : Robot action

C : Robot position

D : Robot path

**Q.no 38. Which of the following is an example of inertia sensor?**

A : Thermometer

B : Accelerometer

C : Touch screen

D : TV Remote

**Q.no 39. Which of the following is NOT one of the advantages associated with a robotics implementation program?**

A : Low costs for hardware and software

B : Robots work continuously around the clock

C : Quality of manufactured goods can be improved

D : Reduced company cost for worker fringe benefits

**Q.no 40. With regard to the physics of power systems used operate robots, which statement or statements are most correct?**

A : hydraulics involves the compression of liquids

B : hydraulics involves the compression of air

C : pneumatic involves the compression of air

D : chemical batteries produce AC power

**Q.no 41. Active or inactive can be category of**

A : Localization

B : Landmarks classes

C : pose evaluation

D : Robot

**Q.no 42. The device that is used to convert energy from one form to another is called**

A : Emitter

B : Transducer

C : Transmitter

D : Receiver

**Q.no 43. Which of the following statements concerning the implementation of robotic systems is correct?**

A : implementation of robots CAN not save existing jobs

B : implementation of robots CAN not create new jobs

C : robotics could prevent a business from closing

D : robotics could not prevent a business from closing

**Q.no 44. Which of the following sensor is used to monitor the motor activities?**

A : Contact Sensor

B : Inertial Sensor

C : Infrared Sensor

D : Biosensor

**Q.no 45. Which of the following sensor is not used to measure the distance?**

A : Radar

B : Sonar

C : Laser Rangefinder

D : Intertial Sensor

**Q.no 46. Why do the robot need sensor?**

A : To collect information from environment

B : To map environment attribute to a quantitative measurement

C : only option 1 is true

D : Both option 1 and 2 are true

**Q.no 47. In a rule-based system procedural domain knowledge is in the form of**

A : Production rules

B : Rule interpreters

C : Meta-rules

D : control rules

**Q.no 48. What is reckoning**

A : Evaluating existing location

B : Evaluating Previous location

C : Information acquired

D : Finding the location

**Q.no 49. 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

**Q.no 50. To measure heat of an object which of the following sensor is used?**

A : Sonar

B : Radar

C : Infrared

D : Laser Rangefinder

**Q.no 51. 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 : Six

D : Eight

**Q.no 52. The Vertical decomposition of the robotic control system is based on**

A : Sensing

B : Sensing and Planning

C : Sensing and Acting

D : Sensing, Planning and Acting

**Q.no 53. Which of the following robotic control paradigm make use of planning?**

A : Horizontal and Vertical

B : Vertical and Hybrid

C : Horizontal and Hybrid

D : Horizontal, Vertical and Hybrid

**Q.no 54. Which of the following work is done by General purpose Robot?**

A : Part drive

B : Welding

C : Spray picking

D : Part panting

**Q.no 55. What is the name for space inside which a robot unit operates?**

A : Environment

B : Spatial base

C : Work envelop

D : Exclusion zone

**Q.no 56. Triangulation problem is defined as**

A : Side-side-side

B : Side-angle-side

C : Both a&b

D : Side-by-side

**Q.no 57. PROLOG is an AI programming language which solves problems with a form of symbolic logic known as predicate calculus. It was developed in 1972 at the University of Marseilles by a team of specialists. Can you name the person who headed this team?**

A : Alain colmerauer

B : Niklaus Wirth

C : Seymour papert

D : John McCarthy

**Q.no 58. Which of the basic parts of a robot unit would include the computer circuitry that could be programmed to determine what the robot would do?**

A : Sensor

B : Controller

C : Arm

D : End effector

**Q.no 59. The horizontal decomposition of robotic control system is based on**

A : Sensing

B : Sensing and Planning

C : Sensing and Acting

D : Sensing, Planning and Acting

**Q.no 60. When will Hill-Climbing algorithm terminate?**

A : Stopping criterion met

B : Global Min/Max is achieved

C : No neighbour has higher value

D : no criteria to terminate

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**Answer for Question No 1. is c**

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**Answer for Question No 2. is a**

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**Answer for Question No 3. is d**

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**Answer for Question No 4. is b**

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**Answer for Question No 5. is a**

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**Answer for Question No 6. is a**

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**Answer for Question No 7. is b**

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**Answer for Question No 8. is b**

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**Answer for Question No 9. is a**

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**Answer for Question No 10. is c**

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**Answer for Question No 11. is b**

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**Answer for Question No 12. is b**

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**Answer for Question No 13. is b**

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**Answer for Question No 14. is a**

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**Answer for Question No 15. is c**

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**Answer for Question No 16. is b**



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**Answer for Question No 17. is a**

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**Answer for Question No 18. is a**

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**Answer for Question No 19. is d**

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**Answer for Question No 20. is d**

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**Answer for Question No 21. is a**

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**Answer for Question No 22. is a**

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**Answer for Question No 25. is a**

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**Answer for Question No 26. is a**

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**Answer for Question No 27. is a**

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**Answer for Question No 28. is a**

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**Answer for Question No 29. is c**

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**Answer for Question No 30. is a**

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**Answer for Question No 31. is d**

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**Answer for Question No 32. is a**

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**Answer for Question No 33. is a**

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**Answer for Question No 34. is d**

---

**Answer for Question No 35. is a**

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**Answer for Question No 36. is b**

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**Answer for Question No 37. is a**

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**Answer for Question No 38. is b**

---

**Answer for Question No 39. is a**

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**Answer for Question No 40. is c**

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**Answer for Question No 41. is b**

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**Answer for Question No 42. is b**

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**Answer for Question No 43. is c**

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**Answer for Question No 44. is b**

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**Answer for Question No 45. is d**

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**Answer for Question No 46. is d**

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**Answer for Question No 47. is a**

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**Answer for Question No 48. is a**

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**Answer for Question No 49. is b**

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**Answer for Question No 50. is c**

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**Answer for Question No 51. is c**

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**Answer for Question No 52. is b**

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**Answer for Question No 53. is c**

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**Answer for Question No 54. is b**

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**Answer for Question No 55. is c**

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**Answer for Question No 56. is c**

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**Answer for Question No 57. is a**

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**Answer for Question No 58. is b**

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**Answer for Question No 59. is d**

---

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11363\_Artificial Intelligence and Robotics

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A : Automated guided Vehical

B : Automated grid Vehical

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C : Smart Camera

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**Q.no 9. Which of the following sensor work based on radio detection and ranging?**

A : Sonar

B : Radar

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D : Biosensor

**Q.no 10. The sensor that requires physical touch of an object is called**

A : Contact Sensor

B : Inertial Sensors

C : Infrared Sensor

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**Q.no 11. Which of the following sensor work based on sound navigation ranging?**

A : Sonar

B : Radar

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**Q.no 12. Natural or artificial can be category of**

A : Localization

B : Landmarks classes

C : Pose evalution

D : Robot

**Q.no 13. Local localization follows the location of a robots from**

A : Initial Point

B : Final Point

C : Middle point

D : End point

**Q.no 14. Best-First search is a type of informed search, which of the following principle used to choose the best next node for expansion**

A : Evaluation function returning lowest evaluation

B : Evaluation function returning highest evaluation

C : Evaluation function returning lowest & highest evaluation

D : no evaluation function

**Q.no 15. Which of the following is an example of infrared sensor?**

A : Thermometer

B : Accelerometer

C : Gyroscope

D : TV Remote

**Q.no 16. What is Global Hawk**

A : Atonomous aircraft

B : Aircraft

C : Airopplan

D : Robot

**Q.no 17. Weighted voting of correction vectors is a technique of**

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B : Filtering

C : Laandmark

D : Pose estimation

**Q.no 18. What is GPS**

A : Global Positioning system

B : Global Point System

C : Global System

D : Global path System

**Q.no 19. Which is level of performance**

A : Driving system

B : Convoy system

C : Convoy assistant

D : Automatic guided Vehical

**Q.no 20. A device that is used to detect event or changes in the environment is called**

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B : Middleware

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D : Transducer

**Q.no 21. Best-First search can be implemented using the following data structure**

A : Queue

B : Stack

C : Priority Queue

D : Circular Queue

**Q.no 22. Which sensor is used in today's mobile phone screen?**

A : Contact Sensor

B : Inertial Sensor

C : Infrared Sensor

D : Biosensor

**Q.no 23. What is the evaluation function in greedy approach?**



A : Heuristic function

B : Path cost from start node to current node

C : Path cost from start node to current node + Heuristic cost

D : Average of Path cost from start node to current node and Heuristic cost

**Q.no 24. Which of the following search strategy uses a problem specific knowledge**

A : uninformed Search

B : Breadth-First-Search

C : Heuristic Search

D : Best search

**Q.no 25. What is EKF**

A : Existence Kalman filter

B : Extended Kalman Filter

C : Each Kalman filter

D : Evaluation Kalman Filter

**Q.no 26. Which is fundamental approach of mapping**

A : Mapping without localization

B : Sensorial maps

C : Perceptual maps

D : Geometric Maps

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A : Robot pose

B : Robot action

C : Robot position

D : Robot path

**Q.no 28. To measure heat of an object which of the following sensor is used?**

A : Sonar

B : Radar

C : Infrared

D : Laser Rangefinder

**Q.no 29. Which localization does not require any previous information**

A : Absolute

B : Local

C : Global

D : Passive

**Q.no 30. If a robot can alter its own trajectory in response to external conditions it is considered to be**

A : Intelligent

B : Mobile

C : Open loop

D : Non-servo

**Q.no 31. Natural Environment are not particularly organized or skilled for**

A : Machines

B : Robots

C : Path finding

D : Odometry

**Q.no 32. Which of the following is NOT one of the advantages associated with a robotics implementation program?**

A : Low costs for hardware and software

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C : Quality of manufactured goods can be improved

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A : Thermometer

B : Accelerometer

C : Touch screen

D : TV Remote

**Q.no 34. The Signals which represent 2D & 3D objects gathered from sensor data are referred as**

A : Relational maps

B : Sensorial maps

C : Perceptual maps

D : Geomatic Maps

**Q.no 35. Which of the following sensor is not used to measure the distance?**

A : Radar

B : Sonar

C : Laser Rangefinder

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**Q.no 36. Which is mode of mining**

A : Close pit mining

B : Mining

C : Pit Mining

D : Underground Mining

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- B : Landmarks classes
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**Q.no 40. what is heuristic function**

- A : Lowest path cost
- B : Cheapest path from root to goal node
- C : Average path cost
- D : Estimated cost of cheapest path from root to goal node

**Q.no 41. Which of the following laws is ASIMOV'S first and most important law of robotics?**

- A : Robot actions must never result in damage to the robot
- B : Robots must never take actions harmful to humans
- C : Robot must follow the directions given by human
- D : Robots must make business a greater profit

**Q.no 42. With regard to the physics of power systems used operate robots, which statement or statements are most correct?**

- A : hydraulics involves the compression of liquids
- B : hydraulics involves the compression of air
- C : pneumatic involves the compression of air

D : chemical batteries produce AC power

**Q.no 43. Which of the following terms refers to the rotational motion of a robot arm**

A : Swivel

B : Axle

C : Retrograde

D : Roll

**Q.no 44. Who work on space Robotics mission**

A : NASA

B : IBM

C : Google

D : Yahoo

**Q.no 45. The device that is used to convert energy from one form to another is called**

A : Emitter

B : Transducer

C : Transmitter

D : Receiver

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C : pose evaluation

D : Robot

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B : Evaluating Previous location

C : Information acquired

D : Finding the location

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A : Thermometer

B : Accelerometer

C : Gyroscope

D : TV Remote

**Q.no 51. Topological Maps referred as**

A : Relational maps

B : Geomatic Maps

C : Perceptul maps

D : Sensorial maps

**Q.no 52. The following is true for a Robot & NC Machine**

A : Similar power drive technology is used in both

B : Different feedback systems are used in both

C : Programming is same for both

D : Programming is not same for both

**Q.no 53. The main objective (s) of Industrial robot is to**

A : To maximize the labor requirement

B : To increase productivity

C : To decrease the life of production machines

D : To decrease productivity

**Q.no 54. Internal state sensors are used for measuring which of below parameter of the end effector.**

A : Position

B : Position & Velocity

C : Velocity & acceleration

D : Position, Velocity & acceleration

**Q.no 55. Which of the following is the serial robot?**

A : Commercial robot

B : Industrial robot

C : In-house robot

D : Mobile Robot

**Q.no 56. Which of the following module is not related to horizontal decomposition?**

A : Perception

B : Planning

C : Execute

D : Building Map

**Q.no 57. Triangulation problem is defined as**

A : Side-side-side

B : Side-angle-side

C : Both a&b

D : Side-by-side

**Q.no 58. Industrial Robots are generally to designed to carry which of the following coordinate system(s).**

A : Cartesian coordinate systems

B : Polar systems.

C : Cylindrical systems

D : Spherical Sytem

**Q.no 59. Radial movement (in & out) to the manipulator arm is provided by**

A : Elbow extension

B : Wrist bend

C : Wrist swivel

D : Wrist yaw

**Q.no 60. Robot is derived from Czech word**

A : Rabota

B : Robota

C : Rebota

D : Ribota



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**Answer for Question No 1. is c**

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**Answer for Question No 2. is a**

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**Answer for Question No 3. is a**

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**Answer for Question No 4. is d**

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**Answer for Question No 5. is a**

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**Answer for Question No 6. is a**

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**Answer for Question No 7. is b**

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**Answer for Question No 8. is c**

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**Answer for Question No 9. is b**

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**Answer for Question No 10. is a**

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**Answer for Question No 11. is a**

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**Answer for Question No 12. is b**

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**Answer for Question No 13. is a**

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**Answer for Question No 14. is a**

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**Answer for Question No 15. is d**

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**Answer for Question No 16. is a**

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**Answer for Question No 17. is a**

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**Answer for Question No 18. is a**

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**Answer for Question No 19. is b**

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**Answer for Question No 20. is a**

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**Answer for Question No 21. is c**

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**Answer for Question No 22. is a**

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**Answer for Question No 23. is a**

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**Answer for Question No 24. is c**

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**Answer for Question No 25. is b**

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**Answer for Question No 26. is a**

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**Answer for Question No 27. is a**

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**Answer for Question No 28. is c**

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**Answer for Question No 29. is c**

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**Answer for Question No 30. is a**

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**Answer for Question No 31. is b**

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**Answer for Question No 32. is a**

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**Answer for Question No 33. is b**

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**Answer for Question No 34. is d**

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**Answer for Question No 35. is d**

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**Answer for Question No 36. is d**

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**Answer for Question No 37. is a**

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**Answer for Question No 38. is a**

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**Answer for Question No 39. is a**

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**Answer for Question No 40. is d**

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**Answer for Question No 41. is b**

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**Answer for Question No 42. is c**

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**Answer for Question No 44. is a**

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**Answer for Question No 45. is b**

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**Answer for Question No 46. is b**

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**Answer for Question No 47. is a**

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**Answer for Question No 48. is d**

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**Answer for Question No 49. is a**

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**Answer for Question No 50. is a**

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**Answer for Question No 51. is a**

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**Answer for Question No 52. is a**

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**Answer for Question No 53. is b**

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**Answer for Question No 54. is d**

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**Answer for Question No 55. is b**

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**Answer for Question No 56. is d**

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**Answer for Question No 57. is c**

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**Answer for Question No 58. is a**

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**Answer for Question No 59. is a**

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**Answer for Question No 60. is b**

---

Total number of questions : 60

11363\_Artificial Intelligence and Robotics

Time : 1hr

Max Marks : 50

N.B

- 1) All questions are Multiple Choice Questions having single correct option.
  - 2) Attempt any 50 questions out of 60.
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- 

**Q.no 1. Which of the following is an example of infrared sensor?**

A : Thermometer

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C : Gyroscope

D : TV Remote

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A : Horizontal geometric dilution of position

B : Horizontal geometric dilution of precision

C : Vertical geometric dilution of precision

D : Vertical geometric dilution of position

**Q.no 3. Which of the following sensor make use of light emitting diode?**

A : Sonar

B : Radar

C : Infrared

D : Laser Rangefinder

**Q.no 4. What is EKF**

A : Existence Kalman filter

B : Extended Kalman Filter

C : Each Kalman filter

D : Evaluation Kalman Filter

**Q.no 5. The sensor that sends out sound pulses called pings, then receives the returning sound echo is called**

A : Active Sonar

B : Passive Sonar

C : Radar

D : Laser Rangefinder

**Q.no 6. Which of the following sensor work based on sound navigation ranging?**

A : Sonar

B : Radar

C : Inertial

D : Biosensor

**Q.no 7. Adaptive localization at multiple scales is a technique of**

A : Recursive filtering

B : Filtering

C : Landmark

D : Pose estimation

**Q.no 8. Which is type of Robotics Perception**

A : Map related

B : Path related

C : Position related

D : Edge related

**Q.no 9. A device that is used to detect event or changes in the environment is called**

A : Sensor

B : Middleware

C : Actuator

D : Transducer

**Q.no 10. Natural or artificial can be category of**

A : Localization

B : Landmarks classes

C : Pose evaluation

D : Robot

**Q.no 11. Weighted voting of correction vectors is a technique of**

A : Recursive filtering

B : Filtering

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**Q.no 12. What is AGV**

A : Automated guided Vehical

B : Automated grid Vehical

C : Automated grid Van

D : Automatic guided Vehical

**Q.no 13. Which is level of performance**

A : Driving system

B : Convoy system

C : Convoy assistant

D : Automatic guided Vehical

**Q.no 14. Who work on space Robotics mission**

A : Soviet

B : IBM

C : Google

D : Yahoo

**Q.no 15. What is GPS**

A : Global Positioning system

B : Global Point System

C : Global System

D : Global path System

**Q.no 16. Which sensor is used in today's mobile phone screen?**

A : Contact Sensor

B : Inertial Sensor

C : Infrared Sensor

D : Biosensor

**Q.no 17. Robots Localization indicates the robots**

A : Performance

B : Capability

C : Direction

D : Measurements

**Q.no 18. SONAR is example of**



A : Video sensing

B : GPS

C : Robot

D : Machine

**Q.no 19. The robot that repeats the same motions according to recorded information is called**

A : Fixed Sequence Robot

B : Variable sequence robot

C : Playback Robot

D : Numerical Control robot

**Q.no 20. Which of the following is not functionality of robotics?**

A : Re-programmability

B : Multi-functionality

C : Efficient performance

D : Responsibility

**Q.no 21. Which of the following branch process with sensory feedback in robotics?**

A : Computer Engineering

B : Mechanical Engineering

C : Electrical Engineering

D : Electronics Engineering

**Q.no 22. Which of the following sensor is most suitable for clinical, agricultural and food industry?**

A : Contact Sensor

B : Inertial Sensor

C : Infrared Sensor

D : Biosensor

**Q.no 23. What is Global Hawk**

A : Atonomous aircraft

B : Aircraft

C : Airopplan

D : Robot

**Q.no 24. Which of the following sensor work based on radio detection and ranging?**

A : Sonar

B : Radar

C : Intertial

D : Biosensor

**Q.no 25. Best-First search is a type of informed search, which of the following principle used to choose the best next node for expansion**

A : Evaluation function returning lowest evaluation

B : Evaluation function returning highest evaluation

C : Evaluation function returning lowest & highest evaluation

D : no evaluation function

**Q.no 26. To measure heat of an object which of the following sensor is used?**

A : Sonar

B : Radar

C : Infrared

D : Laser Rangefinder

**Q.no 27. Sensor based servoing associate with**

A : Robot pose

B : Robot action

C : Robot position

D : Robot path

**Q.no 28. Which localization does not require any previous information**

A : Absolute

B : Local

C : Global

D : Passive

**Q.no 29. Convergence of the estimates is a technique of**

A : Recursive filtering

B : Filtering

C : Landmark

D : Pose estimation

**Q.no 30. Which of the following is NOT one of the advantages associated with a robotics implementation program?**

A : Low costs for hardware and software

B : Robots work continuously around the clock

C : Quality of manufactured goods can be improved

D : Reduced company cost for worker fringe benefits

**Q.no 31. What are the main cons of hill-climbing search?**

A : Terminates at local optimum & Does not find optimum solution

B : Terminates at global optimum & Does not find optimum solution

C : Does not find optimum solution & Fail to find a solution

D : Fail to find a solution

**Q.no 32. A computer software that provides the services to software applications beyond those available from the operating system is called**

A : Sensor

B : Middleware

C : Actuator

D : Transducer

**Q.no 33. Why do the robot need sensor?**

A : To collect information from environment

B : To map environment attribute to a quantitative measurement

C : only option 1 is true

D : Both option 1 and 2 are true

**Q.no 34. Image based servoing associate with**

A : Robot pose

B : Robot action

C : Robot position

D : Robot path

**Q.no 35. What is odometry**

A : Information acquired

B : estimation

C : Calculation

D : Motion Sensors

**Q.no 36. 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

**Q.no 37. what is heuristic function**

A : Lowest path cost

B : Cheapest path from root to goal node

C : Average path cost

D : Estimated cost of cheapest path from root to goal node

**Q.no 38. Which is fundamental approach of mapping**

A : Loop Closing

B : Sensorial maps

C : Perceptual maps

D : Geometric Maps

**Q.no 39. Which is type of Robotics Perception**

A : Marker related

B : Map related

C : Path related

D : Position related

**Q.no 40. Servoing is generally used to enable**

A : Path

B : Position

C : Robot

D : Direction

**Q.no 41. Robot that perform the successive stages of a task according to predetermined, unchanging method is called as**

A : Fixed Sequence Robot

B : Variable sequence robot

C : Playback Robot

D : Numerical Control robot

**Q.no 42. Which of the following is an example of inertia sensor?**

A : Thermometer

B : Accelerometer

C : Touch screen

D : TV Remote

**Q.no 43. Which is mode of mining**

A : Close pit mining

B : Mining

C : Pit Mining

D : Underground Mining

**Q.no 44. Active or inactive can be category of**

A : Localization

B : Landmarks classes

C : pose evaluation

D : Robot

**Q.no 45. Which of the following statements concerning the implementation of robotic systems is correct?**

A : implementation of robots CAN not save existing jobs

B : implementation of robots CAN not create new jobs

C : robotics could prevent a business from closing

D : robotics could not prevent a business from closing

**Q.no 46. Visual servoing associate with**

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A : Production rules

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**Q.no 49. Which of the following laws is ASIMOV'S first and most important law of robotics?**

A : Robot actions must never result in damage to the robot

B : Robots must never take actions harmful to humans

C : Robot must follow the directions given by human

D : Robots must make business a greater profit

**Q.no 50. Which of the following sensor uses a laser beam to determine the distance to an object?**

A : Sonar

B : Radar

C : Infrared

D : Laser Rangefinder

**Q.no 51. The number of moveable joints in the base, the arm, and the end effectors of the robot determines**

A : degrees of freedom

B : payload capacity

C : operational limits

D : flexibility

**Q.no 52. What is the name for space inside which a robot unit operates?**

A : Environment

B : Spatial base

C : Work envelop

D : Exclusion zone

**Q.no 53. A Kalman filter is useful in**

A : Merging position

B : Merging pose estimate

C : Merging path

D : Merging revoking

**Q.no 54. Radial movement (in & out) to the manipulator arm is provided by**

A : Elbow extension

B : Wrist bend

C : Wrist swivel

D : Wrist yaw

**Q.no 55. Which of the following is the serial robot?**

A : Commercial robot

B : Industrial robot

C : In-house robot

D : Mobile Robot

**Q.no 56. In which of the following operations Continuous Path System is used**

A : Pick & Place

B : Loading & unloading

C : Continuous welding

D : Pick and Loading

**Q.no 57. Which of the following module is not related to horizontal decomposition?**

A : Perception



B : Planning

C : Execute

D : Building Map

**Q.no 58. The Vertical decomposition of the robotic control system is based on**

A : Sensing

B : Sensing and Planning

C : Sensing and Acting

D : Sensing, Planning and Acting

**Q.no 59. Practical sensor domensions which is referred as**

A : Homing

B : servoing

C : Robat action

D : Pose estimation

**Q.no 60. The Robot designed with Polar coordinate system has**

A : Three linear movements

B : Three rotational movement

C : Two liner & one rotational movement

D : Two rotational & one liner movement

---

**Answer for Question No 1. is d**

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**Answer for Question No 3. is c**

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**Answer for Question No 11. is a**

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**Answer for Question No 12. is a**

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**Answer for Question No 14. is a**

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**Answer for Question No 15. is a**

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**Answer for Question No 16. is a**

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**Answer for Question No 17. is b**

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**Answer for Question No 18. is b**

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**Answer for Question No 19. is c**

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**Answer for Question No 20. is d**

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**Answer for Question No 21. is a**

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**Answer for Question No 22. is d**

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**Answer for Question No 25. is a**

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**Answer for Question No 26. is c**

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**Answer for Question No 39. is a**

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**Answer for Question No 40. is c**

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**Answer for Question No 41. is a**

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**Answer for Question No 42. is b**

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**Answer for Question No 47. is a**

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11363\_Artificial Intelligence and Robotics

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**Q.no 1. What is EKF**

A : Existance Kalman filter

B : Extended Klaman Filter

C : Each Kalman filter

D : Evalution Kalman Filter

**Q.no 2. What is GPS**

A : Global Positioning system

B : Global Point System

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**Q.no 3. What is AGV**

A : Automated guided Vehical

B : Automated grid Vehical

C : Automated grid Van

D : Automatic guided Vehical

**Q.no 4. A\* algorithm is based on which of the following concept?**

A : Best-First-Search

B : Breadth-First-Search

C : Depth-First –Search

D : Hill climbing

**Q.no 5. Best-First search can be implemented using the following data structure**

A : Queue

B : Stack

C : Priority Queue

D : Circular Queue

**Q.no 6. Which of the following sensor work based on sound navigation ranging?**

A : Sonar

B : Radar

C : Intertial

D : Biosensor

**Q.no 7. Which of the following is not functionality of robotics?**

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B : Middleware

C : Actuator

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A : Driving system

B : Convoy system

C : Convoy assistant

D : Automatic guided Vehical

**Q.no 10. 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

**Q.no 11. Which of the following is an example of infrared sensor?**

A : Thermometer

B : Accelerometer

C : Gyroscope

D : TV Remote

**Q.no 12. Adaptive localization at multiple scales is a technique of**

A : Recursive filtering

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**Q.no 13. what is HDOP**



- A : Horizontal geometric dilution of position
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**Q.no 14. What is Global Hawk**

- A : Atonomous aircraft
- B : Aircraft
- C : Airopplan
- D : Robot

**Q.no 15. Which of the following is a visual sensor?**

- A : Laser Rangefinder
- B : Radar
- C : Smart Camera
- D : Sonar

**Q.no 16. Which of the following sensor make use of light emitting diode?**

- A : Sonar
- B : Radar
- C : Infrared
- D : Laser Rangefinder

**Q.no 17. Which of the following branch is not a parts of robotics?**

- A : Computer Engineering
- B : Mechanical Engineering
- C : Electrical Engineering
- D : Chemical Engineering

**Q.no 18. Robots Localization indicates the robots**

A : Performance

B : Capability

C : Direction

D : Measurements

**Q.no 19. Which sensor is used in today's mobile phone screen?**

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C : Infrared Sensor

D : Biosensor

**Q.no 20. Who work on space Robotics mission**

A : Soviet

B : IBM

C : Google

D : Yahoo

**Q.no 21. The sensor that requires physical touch of an object is called**

A : Contact Sensor

B : Inertial Sensors

C : Infrared Sensor

D : Laser Rangefinder

**Q.no 22. Which of the following is not advantage of robotics?**

A : Greater flexibility and re-programmability

B : Greater response time to inputs than human

C : Greater unemployment

D : Improved product quality

**Q.no 23. Weighted voting of correction vectors is a technique of**

A : Recursive filtering

B : Filtering

C : Laandmark

D : Pose estimation

**Q.no 24. Which of the following is not true?**

A : For robotics, you should have a knowledge of different sensors

B : For robotics, you must be able to write different planning algorithms

C : For robotics, you may have to use actuators

D : For robotics, you do not require help of computer engineers, mechanical engineers and electrical engineers

**Q.no 25. What is the evaluation function in greedy approach?**

A : Heuristic function

B : Path cost from start node to current node

C : Path cost from start node to current node + Heuristic cost

D : Average of Path cost from start node to current node and Heuristic cost

**Q.no 26. what is heuristic function**

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A : Open pit mining

B : Close pit mining

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B : Robot action

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A : To collect information from environment

B : To map environment attribute to a quantitative measurement

C : only option 1 is true

D : Both option 1 and 2 are true

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B : Inertial Sensor

C : Infrared Sensor

D : Biosensor

**Q.no 32. What is necessary for a lot of sensible mobile robotics function**

A : Map discovery

B : Geometric Maps

C : Perceptual maps

D : Sensorial maps

**Q.no 33. What is reckoning**

- A : Evaluating existing location
- B : Evaluating Previous location
- C : Information acquired
- D : Finding the location

**Q.no 34. The sensor that receive sound echoes without transmitting their own sound signals is called**

- A : Active Sonar
- B : Passive Sonar
- C : Radar
- D : Laser Rangefinder

**Q.no 35. Which of the following terms refers to the rotational motion of a robot arm**

- A : Swivel
- B : Axle
- C : Retrograde
- D : Roll

**Q.no 36. Which of the following is the component of machine that is responsible for controlling a mechanism system?**

- A : Sensor
- B : Middleware
- C : Actuator
- D : Transducer

**Q.no 37. Which is type of Robotics Perception**

- A : Marker related
- B : Map related
- C : Path related
- D : Position related

**Q.no 38. Convergnese of the estimates is a technique of**

A : Recursive filtering

B : Filtering

C : Laandmark

D : Pose estimation

**Q.no 39. Natural Enviroment are not particularly organized or skilled for**

A : Machines

B : Robots

C : Path finding

D : Odometry

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A : Robot pose

B : Robot action

C : Robot position

D : Robat path

**Q.no 42. The Signals which represent 2D & 3D odjects gathered from sensor data are referred as**

A : Relational maps

B : Sensorial maps

C : Perceptul maps

D : Geomatic Maps

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A : Localization

B : Landmarks classes

C : pose evaluation

D : Robot

**Q.no 44. The device that is used to convert energy from one form to another is called**

A : Emitter

B : Transducer

C : Transmitter

D : Receiver

**Q.no 45. To measure heat of an object which of the following sensor is used?**

A : Sonar

B : Radar

C : Infrared

D : Laser Rangefinder

**Q.no 46. The original LISP machines produced by both LMI and Symbolics were based on research performed at**

A : CMU

B : MIT

C : Stanford University

D : RAMD

**Q.no 47. In a rule-based system procedural domain knowledge is in the form of**

A : Production rules

B : Rule interpreters

C : Meta-rules

D : control rules

**Q.no 48. If a robot can alter its own trajectory in response to external conditions it is considered to be**

A : Intelligent

B : Mobile

C : Open loop

D : Non-servo

**Q.no 49. Which of the following laws is ASIMOV'S first and most important law of robotics?**

A : Robot actions must never result in damage to the robot

B : Robots must never take actions harmful to humans

C : Robot must follow the directions given by human

D : Robots must make business a greater profit

**Q.no 50. Which is mode of mining**

A : Close pit mining

B : Mining

C : Pit Mining

D : Underground Mining

**Q.no 51. Which of the following work is done by General purpose Robot?**

A : Part drive

B : Welding

C : Spray picking

D : Part panting

**Q.no 52. What is the name for space inside which a robot unit operates?**

A : Environment



B : Spatial base

C : Work envelop

D : Exclusion zone

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A : Heuristic function

B : Path cost from start node to current node

C : Path cost from start node to current node + Heuristic cost

D : Average of Path cost from start node to current node and Heuristic cost

**Q.no 55. The following drive is used for lighter class of robot.**

A : Pneumatic drive

B : Hydrometric drive

C : Electric drive

D : Mechanical drive

**Q.no 56. The Robot designed with Cylindrical coordinate system has**

A : A Three linear movements

B : Three rotational movement

C : Two liner & one rotational movement

D : Two rotational & one liner movement

**Q.no 57. Radial movement (in & out) to the manipulator arm is provided by**

A : Elbow extension

B : Wrist bend

C : Wrist swivel

D : Wrist yaw

**Q.no 58. 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 : Six

D : Eight

**Q.no 59. Triangulation problem is defined as**

A : Side-side-side

B : Side-angle-side

C : Both a&b

D : Side-by-side

**Q.no 60. A Kalman filter is useful in**

A : Merging position

B : Merging pose estimate

C : Merging path

D : Merging revoking

---

**Answer for Question No 1. is b**

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**Answer for Question No 2. is a**

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**Answer for Question No 3. is a**

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**Answer for Question No 4. is a**

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**Answer for Question No 5. is c**

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**Answer for Question No 6. is a**

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**Answer for Question No 7. is d**

---

**Answer for Question No 8. is a**

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**Answer for Question No 9. is b**

---

**Answer for Question No 10. is b**

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**Answer for Question No 11. is d**

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**Answer for Question No 12. is a**

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**Answer for Question No 14. is a**

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**Answer for Question No 15. is c**

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**Answer for Question No 16. is c**

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**Answer for Question No 17. is d**

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**Answer for Question No 18. is b**

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**Answer for Question No 19. is a**

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**Answer for Question No 20. is a**

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**Answer for Question No 21. is a**

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**Answer for Question No 22. is c**

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**Answer for Question No 23. is a**

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**Answer for Question No 24. is d**

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**Answer for Question No 25. is a**

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**Answer for Question No 26. is d**

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**Answer for Question No 27. is a**

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**Answer for Question No 28. is a**

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**Answer for Question No 29. is c**

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**Answer for Question No 30. is d**

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**Answer for Question No 37. is a**

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**Answer for Question No 38. is a**

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**Answer for Question No 39. is b**

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**Answer for Question No 40. is b**

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**Answer for Question No 41. is a**

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**Answer for Question No 42. is d**

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**Answer for Question No 43. is b**

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**Answer for Question No 44. is b**

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**Answer for Question No 45. is c**

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**Answer for Question No 46. is b**

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**Answer for Question No 47. is a**

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**Answer for Question No 48. is a**

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**Answer for Question No 49. is b**

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**Answer for Question No 50. is d**

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**Answer for Question No 51. is b**

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**Answer for Question No 52. is c**

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**Answer for Question No 53. is b**

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**Answer for Question No 54. is c**

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**Answer for Question No 55. is a**

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**Answer for Question No 56. is c**

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**Answer for Question No 57. is a**

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**Answer for Question No 58. is c**

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**Answer for Question No 59. is c**

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**Answer for Question No 60. is b**

---

Total number of questions : 60

11363\_Artificial Intelligence and Robotics

Time : 1hr

Max Marks : 50

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- 1) All questions are Multiple Choice Questions having single correct option.
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**Q.no 1. Which of the following sensor work based on radio detection and ranging?**

- A : Sonar
- B : Radar
- C : Intertial
- D : Biosensor

**Q.no 2. what is HDOP**

- A : Horizontal geometric dilution of position
- B : Horizontal geometric dilution of precision
- C : Vertical geometric dilution of precision
- D : Vertical geometric dilution of position

**Q.no 3. The sensor that requires physical touch of an object is called**

- A : Contact Sensor
- B : Inertial Sensors
- C : Infrared Sensor
- D : Laser Rangefinder

**Q.no 4. Best-First search can be implemented using the following data structure**

- A : Queue
- B : Stack
- C : Priority Queue
- D : Circular Queue

**Q.no 5. Which is type of Robotics Perception**

- A : Map related
- B : Path related
- C : Position related
- D : Edge related

**Q.no 6. What is the evaluation function in greedy approach?**

- A : Heuristic function
- B : Path cost from start node to current node
- C : Path cost from start node to current node + Heuristic cost
- D : Average of Path cost from start node to current node and Heuristic cost

**Q.no 7. Classification of data points is a technique of**

- A : Recursive filtering
- B : Filtering
- C : Laandmark
- D : Pose estimation

**Q.no 8. Which of the following sensor make use of light emitting diode?**



A : Sonar

B : Radar

C : Infrared

D : Laser Rangefinder

**Q.no 9. A device that is used to detect event or changes in the environment is called**

A : Sensor

B : Middleware

C : Actuator

D : Transducer

**Q.no 10. Which sensor is used in today's mobile phone screen?**

A : Contact Sensor

B : Inertial Sensor

C : Infrared Sensor

D : Biosensor

**Q.no 11. Adaptive localization at multiple scales is a technique of**

A : Recursive filtering

B : Filtering

C : Landmark

D : Pose estimation

**Q.no 12. The robot that repeats the same motions according to recorded information is called**

A : Fixed Sequence Robot

B : Variable sequence robot

C : Playback Robot

D : Numerical Control robot

**Q.no 13. Robots Localization indicates the robots**

A : Performance

B : Capability

C : Direction

D : Measurements

**Q.no 14. Which of the following branch process with sensory feedback in robotics?**

A : Computer Engineering

B : Mechanical Engineering

C : Electrical Engineering

D : Electronics Engineering

**Q.no 15. 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 : Plateau climbing valley

**Q.no 16. Which is level of performance**

A : Driving system

B : Convoy system

C : Convoy assistant

D : Automatic guided Vehical

**Q.no 17. What is Global Hawk**

A : Atonomous aircraft

B : Aircraft

C : Airopplan

D : Robot

**Q.no 18. Local localization follows the location of a robots from**

A : Initial Point

B : Final Point

C : Middle point

D : End point

**Q.no 19. Who work on space Robotics mission**

A : Soviet

B : IBM

C : Google

D : Yahoo

**Q.no 20. Which of the following is an example of infrared sensor?**

A : Thermometer

B : Accelerometer

C : Gyroscope

D : TV Remote

**Q.no 21. The sensor that sends out sound pulses called pings, then receives the returning sound echo is called**

A : Active Sonar

B : Passive Sonar

C : Radar

D : Laser Rangefinder

**Q.no 22. SONAR is example of**

A : Video sensing

B : GPS

C : Robot

D : Machine

**Q.no 23. Which of the following is not true?**

A : For robotics, you should have a knowledge of different sensors

B : For robotics, you must be able to write different planning algorithms

C : For robotics, you may have to use actuators

D : For robotics, you do not require help of computer engineers, mechanical engineers and electrical engineers

**Q.no 24. Best-First search is a type of informed search, which of the following principle used to choose the best next node for expansion**

A : Evaluation function returning lowest evaluation

B : Evaluation function returning highest evaluation

C : Evaluation function returning lowest & highest evaluation

D : no evaluation function

**Q.no 25. Which of the following branch is not a parts of robotics?**

A : Computer Engineering

B : Mechanical Engineering

C : Electrical Engineering

D : Chemical Engineering

**Q.no 26. Which of the following sensor is not used to measure the distance?**

A : Radar

B : Sonar

C : Laser Rangefinder

D : Intertial Sensor

**Q.no 27. Why do the robot need sensor?**

A : To collect information from environment

B : To map environment attribute to a quantitative measurement

C : only option 1 is true

D : Both option 1 and 2 are true

**Q.no 28. Which is mode of mining**

A : Open pit mining

B : Close pit mining

C : Mining

D : Pit Mining

**Q.no 29. Which of the following statements concerning the implementation of robotic systems is correct?**

A : implementation of robots CAN not save existing jobs

B : implementation of robots CAN not create new jobs

C : robotics could prevent a business from closing

D : robotics could not prevent a business from closing

**Q.no 30. Algorithm used for path planning is**

A : Dijkstra's Algorithm

B : DFS Algorithm

C : BFS Algorithm

D : Searching Algorithm

**Q.no 31. A computer software that provides the services to software applications beyond those available from the operating system is called**

A : Sensor

B : Middleware

C : Actuator

D : Transducer

**Q.no 32. Which of the following sensors uses a laser beam to determine the distance to an object?**

A : Sonar

B : Radar

C : Infrared

D : Laser Rangefinder

**Q.no 33. Which is mode of mining**

A : Close pit mining

B : Mining

C : Pit Mining

D : Underground Mining

**Q.no 34. Which is fundamental approach of mapping**

A : Loop Closing

B : Sensorial maps

C : Perceptual maps

D : Geometric Maps

**Q.no 35. Robot that perform the successive stages of a task according to predetermined, unchanging method is called as**

A : Fixed Sequence Robot

B : Variable sequence robot

C : Playback Robot

D : Numerical Control robot

**Q.no 36. To measure heat of an object which of the following sensor is used?**

A : Sonar

B : Radar

C : Infrared

D : Laser Rangefinder

**Q.no 37. What is necessity for a lot of sensible mobile robotics function**

A : Map discovery

B : Geomatic Maps

C : Perceptul maps

D : Sensorial maps

**Q.no 38. Convergenese of the estimates is a technique of**

A : Recursive filtering

B : Filtering

C : Laandmark

D : Pose estimation

**Q.no 39. Visual servoing associate with**

A : Robot pose

B : Robot action

C : Robot position

D : Robat path

**Q.no 40. Which of the following laws is ASIMOV'S first and most important law of robotics?**

A : Robot actions must never result in damage to the robot

B : Robots must never take actions harmful to humans

C : Robot must follow the directions given by human

D : Robots must make business a greater profit

**Q.no 41. In a rule-based system procedural domain knowledge is in the form of**

A : Production rules

B : Rule interpreters

C : Meta-rules

D : control rules

**Q.no 42. Sensor based servoing associate with**

A : Robot pose

B : Robot action

C : Robot position

D : Robot path

**Q.no 43. Which localization does not require any previous information**

A : Absolute

B : Local

C : Global

D : Passive

**Q.no 44. Who work on space Robotics mission**

A : NASA

B : IBM

C : Google

D : Yahoo

**Q.no 45. Which of the following sensor is used to monitor the motor activities?**

A : Contact Sensor

B : Inertial Sensor

C : Infrared Sensor

D : Biosensor

**Q.no 46. The device that is used to convert energy from one form to another is called**

A : Emitter

B : Transducer

C : Transmitter

D : Receiver

**Q.no 47. What are the main cons of hill-climbing search?**

A : Terminates at local optimum & Does not find optimum solution



B : Terminates at global optimum & Does not find optimum solution

C : Does not find optimum solution & Fail to find a solution

D : Fail to find a solution

**Q.no 48. Which of the following is the component of machine that is responsible for controlling a mechanism system?**

A : Sensor

B : Middleware

C : Actuator

D : Transducer

**Q.no 49. Which of the following is an example of contact sensor?**

A : Thermometer

B : Accelerometer

C : Gyroscope

D : TV Remote

**Q.no 50. Which of the following is an example of inertia sensor?**

A : Thermometer

B : Accelerometer

C : Touch screen

D : TV Remote

**Q.no 51. The Robot designed with Polar coordinate system has**

A : Three linear movements

B : Three rotational movement

C : Two liner & one rotational movement

D : Two rotational & one liner movement

**Q.no 52. Which of the following robotic control paradigm make use of planning?**

A : Horizontal and Vertical

B : Vertical and Hybrid

C : Horizontal and Hybrid

D : Horizontal, Vertical and Hybrid

**Q.no 53. What is the evaluation function in A\* approach?**

A : Heuristic function

B : Path cost from start node to current node

C : Path cost from start node to current node + Heuristic cost

D : Average of Path cost from start node to current node and Heuristic cost

**Q.no 54. Topological Maps referred as**

A : Relational maps

B : Geomatic Maps

C : Perceptual maps

D : Sensorial maps

**Q.no 55. Which of the following is not a programming language for computer controlled Robot?**

A : AMC

B : VAL

C : RAIL

D : HELP

**Q.no 56. Industrial Robots are generally designed to carry which of the following coordinate system(s).**

A : Cartesian coordinate systems

B : Polar systems.

C : Cylindrical systems

D : Spherical System

**Q.no 57. The Robot designed with Cartesian coordinate system has**

A : Three linear movements

B : Three rotational movement

C : Two liner & one rotational movement

D : Two rotational & one liner movement

**Q.no 58. If the dimension of search problem is very high then suitable algorithm for path planning is**

A : Dijkstra's Algorithm

B : A\* Algorithm

C : D\* Algorithm

D : Rapid-Exploring Random Tree (RRT)

**Q.no 59. Radial movement (in & out) to the manipulator arm is provided by**

A : Elbow extension

B : Wrist bend

C : Wrist swivel

D : Wrist yaw

**Q.no 60. Triagulation problem is defined as**

A : Side-side-side

B : Side-angle-side

C : Both a&b

D : Side-by-side

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**Answer for Question No 1. is b**

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**Answer for Question No 2. is b**

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**Answer for Question No 3. is a**

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**Answer for Question No 4. is c**

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**Answer for Question No 5. is d**

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**Answer for Question No 6. is a**

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**Answer for Question No 7. is a**

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**Answer for Question No 8. is c**

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**Answer for Question No 9. is a**

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**Answer for Question No 10. is a**

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**Answer for Question No 11. is a**

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**Answer for Question No 12. is c**

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**Answer for Question No 13. is b**

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**Answer for Question No 14. is a**

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**Answer for Question No 15. is b**

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**Answer for Question No 16. is b**

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**Answer for Question No 17. is a**

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**Answer for Question No 18. is a**

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**Answer for Question No 19. is a**

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**Answer for Question No 20. is d**

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**Answer for Question No 21. is a**

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**Answer for Question No 22. is b**

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**Answer for Question No 23. is d**

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**Answer for Question No 24. is a**

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**Answer for Question No 25. is d**

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**Answer for Question No 27. is d**

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**Answer for Question No 28. is a**

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**Answer for Question No 29. is c**

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**Answer for Question No 30. is a**

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**Answer for Question No 33. is d**

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**Answer for Question No 36. is c**

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**Answer for Question No 38. is a**

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**Answer for Question No 39. is a**

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**Answer for Question No 40. is b**

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**Answer for Question No 41. is a**

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**Answer for Question No 46. is b**

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**Answer for Question No 47. is a**

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**Answer for Question No 48. is c**

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**Answer for Question No 49. is a**

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**Answer for Question No 50. is b**

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**Answer for Question No 51. is d**

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**Answer for Question No 52. is c**

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**Answer for Question No 53. is c**

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**Answer for Question No 54. is a**

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**Answer for Question No 55. is a**

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**Answer for Question No 56. is a**

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**Answer for Question No 57. is a**

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**Answer for Question No 58. is d**

---

**Answer for Question No 59. is a**

---

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Total number of questions : 60

11363\_Artificial Intelligence and Robotics

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**Q.no 1. Which of the following is not true?**

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B : For robotics, you must be able to write different planning algorithms

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**Q.no 2. Which of the following sensor make use of light emitting diode?**

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B : Radar

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A : Up-Hill Search

B : Hill-Climbing

C : Hill algorithm

D : Platue climbing valley

**Q.no 4. Which of the following search strategy uses a problem specific knowledge**

A : uninformed Search

B : Breadth-First-Search

C : Heuristic Search

D : Best search

**Q.no 5. Which sensor is used in today's mobile phone screen?**

A : Contact Sensor

B : Inertial Sensor

C : Infrared Sensor

D : Biosensor

**Q.no 6. SONAR is example of**

A : Video sensing

B : GPS

C : Robot

D : Machine

**Q.no 7. Which of the following branch process with sensory feedback in robotics?**

A : Computer Engineering

B : Mechanical Engineering

C : Electrical Engineering

D : Electronics Engineering

**Q.no 8. Weighted voting of correction vectors is a technique of**

A : Recursive filtering

B : Filtering

C : Laandmark

D : Pose estimation

**Q.no 9. What is AGV**

A : Automated guided Vehical

B : Automated grid Vehical

C : Automated grid Van

D : Automatic guided Vehical

**Q.no 10. What is GPS**

A : Global Positioning system

B : Global Point System

C : Global System

D : Global path System

**Q.no 11. Which of the following is not advantage of robotics?**

A : Greater flexibility and re-programmability

B : Greater response time to inputs than human

C : Greater unemployment

D : Improved product quality

**Q.no 12. Which of the following sensor work based on radio detection and ranging?**

A : Sonar

B : Radar

C : Intertial

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**Q.no 13. Local localization follows the location of a robots from**

A : Initial Point

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**Q.no 15. Which is type of Robotics Perception**

A : Map related

B : Path related

C : Position related

D : Edge related

**Q.no 16. A\* algorithm is based on which of the following concept?**

A : Best-First-Search

B : Breadth-First-Search

C : Depth-First –Search

D : Hill climbing

**Q.no 17. Adaptive localization at multiple scales is a technique of**

A : Recursive filtering

B : Filtering

C : Laandmark

D : Pose estimation

**Q.no 18. Which of the following sensor is most suitable for clinical, agricultural and food industry?**

A : Contact Sensor

B : Inertial Sensor

C : Infrared Sensor

D : Biosensor

**Q.no 19. Best-First search can be implemented using the following data structure**

A : Queue

B : Stack

C : Priority Queue

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**Q.no 20. Who work on space Robotics mission**

A : Soviet

B : IBM

C : Google

D : Yahoo

**Q.no 21. Robots Localization indicates the robots**

A : Performance

B : Capability

C : Direction

D : Measurements

**Q.no 22. Natural or artificial can be category of**

A : Localization

B : Landmarks classes

C : Pose evaluation

D : Robot

**Q.no 23. what is HDOP**

A : Horizontal geometric dilution of position

B : Horizontal geometric dilution of precision

C : Vertical geometric dilution of precision

D : Vertical geometric dilution of position

**Q.no 24. Best-First search is a type of informed search, which of the following principle used to choose the best next node for expansion**

A : Evaluation function returning lowest evaluation

B : Evaluation function returning highest evaluation

C : Evaluation function returning lowest & highest evaluation

D : no evaluation function

**Q.no 25. What is Global Hawk**

A : Atonomous aircraft

B : Aircraft

C : Airopplan

D : Robot

**Q.no 26. If something is open or closed in the system then it is informed by followoing sensor.**

A : Contact Sensor

B : Inertial Sensor

C : Sonar Sensor

D : Biosensor

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B : Filtering

C : Laandmark

D : Pose estimation

**Q.no 28. Which of the following is the component of machine that is responsible for controlling a mechanism system?**

A : Sensor

B : Middleware

C : Actuator

D : Transducer

**Q.no 29. Which of the following terms refers to the rotational motion of a robot arm**

A : Swivel

B : Axle

C : Retrograde

D : Roll

**Q.no 30. Why do the robot need sensor?**

A : To collect information from environment

B : To map environment attribute to a quantitative measurement

C : only option 1 is true

D : Both option 1 and 2 are true

**Q.no 31. Triangulation is a technique associate with**

A : Pose

B : Landmarks classes

C : Robot

D : Odometry

**Q.no 32. Natural Enviroment are not particularly organized or skilled for**

A : Machines

B : Robots

C : Path finding

D : Odometry

**Q.no 33. what is heuristic function**

A : Lowest path cost

B : Cheapest path from root to goal node

C : Average path cost

D : Estimated cost of cheapest path from root to goal node

**Q.no 34. To measure heat of an object which of the following sensor is used?**

A : Sonar

B : Radar

C : Infrared

D : Laser Rangefinder

**Q.no 35. Which is fundamental approach of mapping**

A : Loop Closing

B : Sensorial maps

C : Perceptual maps

D : Geometric Maps

**Q.no 36. The Signals which represent 2D & 3D objects gathered from sensor data are referred as**

A : Relational maps

B : Sensorial maps

C : Perceptual maps

D : Geometric Maps

**Q.no 37. The original LISP machines produced by both LMI and Symbolics were based on research performed at**

A : CMU

B : MIT

C : Stanford University

D : RAMD

**Q.no 38. What are the main cons of hill-climbing search?**

A : Terminates at local optimum & Does not find optimum solution

B : Terminates at global optimum & Does not find optimum solution

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A : Emiter

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C : Transmitter

D : Receiver

**Q.no 41. Which of the following sensor uses a laser beam to determine the distance to an object?**

A : Sonar

B : Radar

C : Infrared

D : Laser Rangefinder

**Q.no 42. Which of the following is NOT one of the advantages associated with a robotics implementation program?**



- A : Low costs for hardware and software
- B : Robots work continuously around the clock
- C : Quality of manufactured goods can be improved
- D : Reduced company cost for worker fringe benefits

**Q.no 43. With regard to the physics of power systems used operate robots, which statement or statements are most correct?**

- A : hydraulics involves the compression of liquids
- B : hydraulics involves the compression of air
- C : pneumatic involves the compression of air
- D : chemical batteries produce AC power

**Q.no 44. Which of the following laws is ASIMOV'S first and most important law of robotics?**

- A : Robot actions must never result in damage to the robot
- B : Robots must never take actions harmful to humans
- C : Robot must follow the directions given by human
- D : Robots must make business a greater profit

**Q.no 45. What is odometry**

- A : Information acquired
- B : estimation
- C : Calculation
- D : Motion Sensors

**Q.no 46. Servoing is generally used to enable**

- A : Path
- B : Position
- C : Robot
- D : Diraction

**Q.no 47. Which localization does not require any previous information**

A : Absolute

B : Local

C : Global

D : Passive

**Q.no 48. Algorithm used for path planning is**

A : Dijkstra's Algorithm

B : DFS Algorithm

C : BFS Algorithm

D : Searching Algorithm

**Q.no 49. Which of the following is an example of contact sensor?**

A : Thermometer

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C : Gyroscope

D : TV Remote

**Q.no 50. Which of the following sensor is used to monitor the motor activities?**

A : Contact Sensor

B : Inertial Sensor

C : Infrared Sensor

D : Biosensor

**Q.no 51. The Vertical decomposition of the robotic control system is based on**

A : Sensing

B : Sensing and Planning

C : Sensing and Acting

D : Sensing, Planning and Acting

**Q.no 52. In which of the following operations Continuous Path System is used**

A : Pick & Place

B : Loading & unloading

C : Continuous welding

D : Pick and Loading

**Q.no 53. Internal state sensors are used for measuring which of below parameter of the end effector.**

A : Position

B : Position & Velocity

C : Velocity & acceleration

D : Position, Velocity & acceleration

**Q.no 54. Triangulation problem is defined as**

A : Side-side-side

B : Side-angle-side

C : Both a&b

D : Side-by-side

**Q.no 55. What is the evaluation function in A\* approach?**

A : Heuristic function

B : Path cost from start node to current node

C : Path cost from start node to current node + Heuristic cost

D : Average of Path cost from start node to current node and Heuristic cost

**Q.no 56. The Robot designed with Cylindrical coordinate system has**

A : A Three linear movements

B : Three rotational movement

C : Two liner & one rotational movement

D : Two rotational & one liner movement

**Q.no 57. A clearly different group of maps showing particular application to robots is called as**

A : Relational maps

B : Sensorial maps

C : Perceptul maps

D : Geomatric Maps

**Q.no 58. Clockwise of Anti clockwise rotation about the vertical axis to the perpendicular arm is provided through**

A : Shoulder swivel

B : Elbow extension

C : Arm sweep

D : Wrist bend

**Q.no 59. Which of the following robotic control paradigm make use of planning?**

A : Horizontal and Vertical

B : Vertical and Hybrid

C : Horizontal and Hybrid

D : Horizontal, Vertical and Hybrid

**Q.no 60. Topological Maps referred as**

A : Relational maps

B : Geomatric Maps

C : Perceptul maps

D : Sensorial maps

---

**Answer for Question No 1. is d**

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**Answer for Question No 2. is c**

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**Answer for Question No 3. is b**

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**Answer for Question No 4. is c**

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**Answer for Question No 5. is a**

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**Answer for Question No 6. is b**

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**Answer for Question No 7. is a**

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**Answer for Question No 8. is a**

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**Answer for Question No 9. is a**

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**Answer for Question No 10. is a**

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**Answer for Question No 11. is c**

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**Answer for Question No 12. is b**

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**Answer for Question No 13. is a**

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**Answer for Question No 14. is a**

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**Answer for Question No 15. is d**

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**Answer for Question No 16. is a**

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**Answer for Question No 17. is a**

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**Answer for Question No 18. is d**

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**Answer for Question No 19. is c**

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**Answer for Question No 20. is a**

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**Answer for Question No 21. is b**

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**Answer for Question No 23. is b**

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**Answer for Question No 24. is a**

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**Answer for Question No 25. is a**

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**Answer for Question No 26. is a**

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**Answer for Question No 27. is a**

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**Answer for Question No 28. is c**

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**Answer for Question No 29. is d**

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**Answer for Question No 30. is d**

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**Answer for Question No 31. is a**

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**Answer for Question No 32. is b**

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**Answer for Question No 33. is d**

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**Answer for Question No 34. is c**

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**Answer for Question No 35. is a**

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**Answer for Question No 36. is d**

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**Answer for Question No 37. is b**

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**Answer for Question No 38. is a**

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**Answer for Question No 39. is a**

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**Answer for Question No 40. is b**

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**Answer for Question No 41. is d**

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**Answer for Question No 42. is a**

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**Answer for Question No 43. is c**

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**Answer for Question No 44. is b**

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**Answer for Question No 45. is a**

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**Answer for Question No 46. is c**

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**Answer for Question No 47. is c**

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**Answer for Question No 48. is a**

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**Answer for Question No 49. is a**

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**Answer for Question No 50. is b**

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**Answer for Question No 51. is b**

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**Answer for Question No 52. is c**

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**Answer for Question No 53. is d**

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**Answer for Question No 54. is c**

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**Answer for Question No 55. is c**

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**Answer for Question No 56. is c**

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**Answer for Question No 57. is c**

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**Answer for Question No 58. is c**

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**Answer for Question No 59. is c**

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**Answer for Question No 60. is a**

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Total number of questions : 60

11363\_Artificial Intelligence and Robotics

Time : 1hr

Max Marks : 50

N.B

- 1) All questions are Multiple Choice Questions having single correct option.
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- 

**Q.no 1. Which of the following is not advantage of robotics?**

- A : Greater flexibility and re-programmability
- B : Greater response time to inputs than human
- C : Greater unemployment
- D : Improved product quality

**Q.no 2. Which of the following is not true?**

- A : For robotics, you should have a knowledge of different sensors
- B : For robotics, you must be able to write different planning algorithms
- C : For robotics, you may have to use actuators
- D : For robotics, you do not require help of computer engineers, mechanical engineers and electrical engineers

**Q.no 3. Weighted voting of correction vectors is a technique of**

A : Recursive filtering

B : Filtering

C : Laandmark

D : Pose estimation

**Q.no 4. Which of the following sensor is most suitable for clinical, agricultural and food industry?**

A : Contact Sensor

B : Inertial Sensor

C : Infrared Sensor

D : Biosensor

**Q.no 5. SONAR is example of**

A : Video sensing

B : GPS

C : Robot

D : Machine

**Q.no 6. Classification of data points is a technique of**

A : Recursive filtering

B : Filtering

C : Laandmark

D : Pose estimation

**Q.no 7. Natural or artificial can be category of**

A : Localization

B : Landmarks classes

C : Pose evalution

D : Robot

**Q.no 8. Local localization follows the location of a robots from**

- A : Initial Point
- B : Final Point
- C : Middle point
- D : End point

**Q.no 9. Best-First search can be implemented using the following data structure**

- A : Queue
- B : Stack
- C : Priority Queue
- D : Circular Queue

**Q.no 10. Robots Localization indicates the robots**

- A : Performance
- B : Capability
- C : Direction
- D : Measurements

**Q.no 11. Best-First search is a type of informed search, which of the following principle used to choose the best next node for expansion**

- A : Evaluation function returning lowest evaluation
- B : Evaluation function returning highest evaluation
- C : Evaluation function returning lowest & highest evaluation
- D : no evaluation function

**Q.no 12. A\* algorithm is based on which of the following concept?**

- A : Best-First-Search
- B : Breadth-First-Search
- C : Depth-First –Search
- D : Hill climbing

**Q.no 13. Who work on space Robotics mission**

A : Soviet

B : IBM

C : Google

D : Yahoo

**Q.no 14. What is the evaluation function in greedy approach?**

A : Heuristic function

B : Path cost from start node to current node

C : Path cost from start node to current node + Heuristic cost

D : Average of Path cost from start node to current node and Heuristic cost

**Q.no 15. Which of the following search strategy uses a problem specific knowledge**

A : uninformed Search

B : Breadth-First-Search

C : Heuristic Search

D : Best search

**Q.no 16. Which of the following is a visual sensor?**

A : Laser Rangefinder

B : Radar

C : Smart Camera

D : Sonar

**Q.no 17. 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

**Q.no 18. What is GPS**

A : Global Positioning system

B : Global Point System

C : Global System

D : Global path System

**Q.no 19. Which of the following branch is not a parts of robotics?**

A : Computer Engineering

B : Mechanical Engineering

C : Electrical Engineering

D : Chemical Engineering

**Q.no 20. Which of the following sensor work based on radio detection and ranging?**

A : Sonar

B : Radar

C : Intertial

D : Biosensor

**Q.no 21. Which of the following sensor make use of light emitting diode?**

A : Sonar

B : Radar

C : Infrared

D : Laser Rangefinder

**Q.no 22. What is AGV**

A : Automated guided Vehical

B : Automated grid Vehical

C : Automated grid Van

D : Automatic guided Vehical

**Q.no 23. What is EKF**

A : Existance Kalman filter

B : Extended Klaman Filter

C : Each Kalman filter

D : Evalution Kalman Filter

**Q.no 24. Which of the following branch process with sensory feedback in robotics?**

A : Computer Engineering

B : Mechanical Engineering

C : Electrical Engineering

D : Electronics Engineering

**Q.no 25. The sensor that requires physical touch of an object is called**

A : Contact Sensor

B : Inertial Sensors

C : Infrared Sensor

D : Laser Rangefinder

**Q.no 26. Which of the following is NOT one of the advantages associated with a robotics implementation program?**

A : Low costs for hardware and software

B : Robots work continuously around the clock

C : Quality of manufactured goods can be improved

D : Reduced company cost for worker fringe benefits

**Q.no 27. Which of the following is an example of contact sensor?**

A : Thermometer

B : Accelerometer

C : Gyroscope

D : TV Remote

**Q.no 28. Which of the following sensor uses a laser beam to determine the distance to an object?**

A : Sonar

B : Radar

C : Infrared

D : Laser Rangefinder

**Q.no 29. 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

**Q.no 30. If a robot can alter its own trajectory in response to external conditions it is considered to be**

A : Intelligent

B : Mobile

C : Open loop

D : Non-servo

**Q.no 31. What are the main cons of hill-climbing search?**

A : Terminates at local optimum & Does not find optimum solution

B : Terminates at global optimum & Does not find optimum solution

C : Does not find optimum solution & Fail to find a solution

D : Fail to find a solution

**Q.no 32. The device that is used to convert energy from one form to another is called**

A : Emitter

B : Transducer

C : Transmitter

D : Receiver

**Q.no 33. What is necessary for a lot of sensible mobile robotics function**

A : Map discovery

B : Geometric Maps

C : Perceptual maps

D : Sensorial maps

**Q.no 34. Servoing is generally used to enable**

A : Path

B : Position

C : Robot

D : Direction

**Q.no 35. In a rule-based system procedural domain knowledge is in the form of**

A : Production rules

B : Rule interpreters

C : Meta-rules

D : control rules

**Q.no 36. Visual servoing associate with**

A : Robot pose

B : Robot action

C : Robot position

D : Robot path

**Q.no 37. Triangulation is a technique associate with**



A : Pose

B : Landmarks classes

C : Robot

D : Odometry

**Q.no 38. The Signals which represent 2D & 3D odjects gathered from sensor data are referred as**

A : Relational maps

B : Sensorial maps

C : Perceptul maps

D : Geomatic Maps

**Q.no 39. With regard to the physics of power systems used operate robots, which statement or statements are most correct?**

A : hydraulics involves the compression of liquids

B : hydraulics involves the compression of air

C : pneumatic involves the compression of air

D : chemical batteries produce AC power

**Q.no 40. Which localization does not require any previous information**

A : Absolute

B : Local

C : Global

D : Passive

**Q.no 41. Which is mode of mining**

A : Close pit mining

B : Mining

C : Pit Mining

D : Underground Mining

**Q.no 42. The original LISP machines produced by both LMI and Symbolics were based on research performed at**

A : CMU

B : MIT

C : Stanford University

D : RAMD

**Q.no 43. To measure heat of an object which of the following sensor is used?**

A : Sonar

B : Radar

C : Infrared

D : Laser Rangefinder

**Q.no 44. Which is fundamental approach of mapping**

A : Mapping without localization

B : Sensorial maps

C : Perceptual maps

D : Geometric Maps

**Q.no 45. 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

**Q.no 46. Which of the following is an example of inertia sensor?**

A : Thermometer

B : Accelerometer

C : Touch screen

D : TV Remote

**Q.no 47. What is reckoning**

A : Evaluating existing location

B : Evaluating Previous location

C : Information acquired

D : Finding the location

**Q.no 48. Which is type of Robotics Perception**

A : Marker related

B : Map related

C : Path related

D : Position related

**Q.no 49. Active or inactive can be category of**

A : Localization

B : Landmarks classes

C : pose evaluation

D : Robot

**Q.no 50. Which is mode of mining**

A : Open pit mining

B : Close pit mining

C : Mining

D : Pit Mining

**Q.no 51. Path planning algorithm is used for**

A : Environment Representation

B : Locate mobile robot

C : Finding shortest path and optimal path

D : Surround environment

**Q.no 52. Clockwise of Anti clockwise rotation about the vertical axis to the perpendicular arm is provided through**

A : Shoulder swivel

B : Elbow extension

C : Arm sweep

D : Wrist bend

**Q.no 53. Robot is derived from Czech word**

A : Rabota

B : Robota

C : Rebota

D : Ribota

**Q.no 54. Drives are also known as**

A : Actuators

B : Controller

C : Sensors

D : Manipulator

**Q.no 55. Which of the following is the serial robot?**

A : Commercial robot

B : Industrial robot

C : In-house robot

D : Mobile Robot

**Q.no 56. Decision support programs are designed to help managers make**

A : Budget projections

B : Visual presentation

C : Business decisions

D : Vacation schedules

**Q.no 57. What is the evaluation function in A\* approach?**

A : Heuristic function

B : Path cost from start node to current node

C : Path cost from start node to current node + Heuristic cost

D : Average of Path cost from start node to current node and Heuristic cost

**Q.no 58. Triangulation problem is defined as**

A : Side-side-side

B : Side-angle-side

C : Both a&b

D : Side-by-side

**Q.no 59. Which of the following work is done by General purpose Robot?**

A : Part drive

B : Welding

C : Spray picking

D : Part panting

**Q.no 60. Practical sensor domensions which is referred as**

A : Homing

B : servoing

C : Robat action

D : Pose estimation

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**Answer for Question No 1. is c**

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**Answer for Question No 2. is d**

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**Answer for Question No 3. is a**

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**Answer for Question No 4. is d**

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**Answer for Question No 5. is b**

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**Answer for Question No 6. is a**

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**Answer for Question No 7. is b**

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**Answer for Question No 8. is a**

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**Answer for Question No 9. is c**

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**Answer for Question No 10. is b**

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**Answer for Question No 11. is a**

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**Answer for Question No 12. is a**

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**Answer for Question No 13. is a**

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**Answer for Question No 14. is a**

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**Answer for Question No 15. is c**

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**Answer for Question No 16. is c**

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**Answer for Question No 17. is b**

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**Answer for Question No 18. is a**

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**Answer for Question No 19. is d**

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**Answer for Question No 20. is b**

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**Answer for Question No 21. is c**

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**Answer for Question No 22. is a**

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**Answer for Question No 23. is b**

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**Answer for Question No 24. is a**

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**Answer for Question No 25. is a**

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**Answer for Question No 26. is a**

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**Answer for Question No 27. is a**

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**Answer for Question No 28. is d**

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**Answer for Question No 29. is b**

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**Answer for Question No 30. is a**

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**Answer for Question No 37. is a**

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**Answer for Question No 38. is d**

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**Answer for Question No 39. is c**

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**Answer for Question No 40. is c**

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**Answer for Question No 41. is d**

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**Answer for Question No 43. is c**

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**Answer for Question No 44. is a**

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**Answer for Question No 45. is a**

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**Answer for Question No 46. is b**

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**Answer for Question No 47. is a**

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**Answer for Question No 48. is a**

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**Answer for Question No 49. is b**

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**Answer for Question No 50. is a**

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**Answer for Question No 51. is c**

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**Answer for Question No 52. is c**

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**Answer for Question No 53. is b**

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**Answer for Question No 54. is a**

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**Answer for Question No 55. is b**

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**Answer for Question No 56. is c**

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**Answer for Question No 57. is c**

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**Answer for Question No 58. is c**

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**Answer for Question No 59. is b**

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**Answer for Question No 60. is a**

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Total number of questions : 60

11363\_Artificial Intelligence and Robotics

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**Q.no 1. Weighted voting of correction vectors is a technique of**

- A : Recursive filtering
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**Q.no 2. Which of the following sensor work based on sound navigation ranging?**

- A : Sonar
- B : Radar
- C : Intertial
- D : Biosensor

**Q.no 3. Which is level of performance**

A : Driving system

B : Convoy system

C : Convoy assistant

D : Automatic guided Vehical

**Q.no 4. what is GDOP**

A : Geometric dilution of position

B : Geometric dilution of precision

C : Geometric dilution of path

D : Geometric dilution of pointer

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B : Accelerometer

C : Gyroscope

D : TV Remote

**Q.no 9. A device that is used to detect event or changes in the environment is called**

A : Sensor

B : Middleware

C : Actuator

D : Transducer

**Q.no 10. The sensor that sends out sound pulses called pings, then receives the returning sound echo is called**

A : Active Sonar

B : Passive Sonar

C : Radar

D : Laser Rangefinder

**Q.no 11. The sensor that requires physical touch of an object is called**

A : Contact Sensor

B : Inertial Sensors

C : Infrared Sensor

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B : Horizontal geometric dilution of precision

C : Vertical geometric dilution of precision

D : Vertical geometric dilution of position

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A : Existance Kalman filter

B : Extended Klamam Filter

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B : Hill-Climbing

C : Hill algorithm

D : Plateau climbing valley

**Q.no 19. Which of the following branch is not a part of robotics?**

A : Computer Engineering

B : Mechanical Engineering

C : Electrical Engineering

D : Chemical Engineering

**Q.no 20. The robot that repeats the same motions according to recorded information is called**

A : Fixed Sequence Robot

B : Variable sequence robot

C : Playback Robot

D : Numerical Control robot

**Q.no 21. What is the evaluation function in greedy approach?**

A : Heuristic function

B : Path cost from start node to current node

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**Q.no 22. Which of the following is not an advantage of robotics?**

A : Greater flexibility and re-programmability

B : Greater response time to inputs than human

C : Greater unemployment

D : Improved product quality

**Q.no 23. Which of the following is not functionality of robotics?**

A : Re-programmability

B : Multi-functionality

C : Efficient performance

D : Responsibility

**Q.no 24. Local localization follows the location of a robots from**

A : Initial Point

B : Final Point

C : Middle point

D : End point

**Q.no 25. Who work on space Robotics mission**

A : Soviet

B : IBM

C : Google

D : Yahoo

**Q.no 26. In a rule-based system procedural domain knowledge is in the form of**

A : Production rules

B : Rule interpreters

C : Meta-rules

D : control rules

**Q.no 27. Robot that perform the successive stages of a task according to predetermined, unchanging method is called as**

A : Fixed Sequence Robot

B : Variable sequence robot

C : Playback Robot

D : Numerical Control robot

**Q.no 28. Triangulation is a technique associate with**

A : Pose

B : Landmarks classes

C : Robot

D : Odometry

**Q.no 29. Which is fundamental approache of mapping**

A : Loop Closing

B : Sensorial maps

C : Perceptul maps

D : Geomatic Maps

**Q.no 30. Why do the robot need sensor?**

A : To collect information from environment

B : To map environment atribute to a quantitative measurement

C : only option 1 is true

D : Both option 1 and 2 are true

**Q.no 31. With regard to the physics of power systems used operate robots, which statement or statements are most correct?**

A : hydraulics involves the compression of liquids

B : hydraulics involves the compression of air

C : pneumatic involves the compression of air

D : chemical batteries produce AC power

**Q.no 32. Which of the following laws is ASIMOV'S first and most important law of robotics?**

A : Robot actions must never result in damage to the robot



B : Robots must never take actions harmful to humans

C : Robot must follow the directions given by human

D : Robots must make business a greater profit

**Q.no 33. Which of the following sensor uses a laser beam to determine the distance to an object?**

A : Sonar

B : Radar

C : Infrared

D : Laser Rangefinder

**Q.no 34. The sensor that receive sound echoes without transmitting their own sound signals is called**

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B : Passive Sonar

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**Q.no 35. 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

**Q.no 36. Which is mode of mining**

A : Close pit mining

B : Mining

C : Pit Mining

D : Underground Mining

**Q.no 37. What is odometry**

A : Information acquired

B : estimation

C : Calculation

D : Motion Sensors

**Q.no 38. What is the necessity for a lot of sensible mobile robotics function?**

A : Map discovery

B : Geometric Maps

C : Perceptual maps

D : Sensorial maps

**Q.no 39. Which of the following is true?**

A : Robot minimize the labor cost

B : Robot minimize the productivity

C : Robot minimize the life of production machine

D : Robot minimize the quality of work

**Q.no 40. Which of the following sensor is used to monitor the motor activities?**

A : Contact Sensor

B : Inertial Sensor

C : Infrared Sensor

D : Biosensor

**Q.no 41. Which of the following is NOT one of the advantages associated with a robotics implementation program?**

A : Low costs for hardware and software

B : Robots work continuously around the clock

C : Quality of manufactured goods can be improved

D : Reduced company cost for worker fringe benefits

**Q.no 42. Which localization does not require any previous information?**

A : Absolute

B : Local

C : Global

D : Passive

**Q.no 43. Who work on space Robotics mission**

A : NASA

B : IBM

C : Google

D : Yahoo

**Q.no 44. Which of the following terms refers to the rotational motion of a robot arm**

A : Swivel

B : Axle

C : Retrograde

D : Roll

**Q.no 45. Servoing is generally used to enable**

A : Path

B : Position

C : Robot

D : Diraction

**Q.no 46. If a robot can alter its own trajectory in response to external conditions it is considered to be**

A : Intelligent

B : Mobile

C : Open loop

D : Non-servo

**Q.no 47. Algorihtm used for path planning is**

A : Dijkstra's Algorithm

B : DFS Algorithm

C : BFS Algorithm

D : Searching Algorithm

**Q.no 48. Imge based servoing associate with**

A : Robot pose

B : Robot action

C : Robot position

D : Robat path

**Q.no 49. What are the main cons of hill-climbing search?**

A : Terminates at local optimum & Does not find optimum solution

B : Terminates at global optimum & Does not find optimum solution

C : Does not find optimum solution & Fail to find a solution

D : Fail to find a solution

**Q.no 50. Which of the following is the component of machine that is responsible for controlling a mechanism system?**

A : Sensor

B : Middleware

C : Actuator

D : Transducer

**Q.no 51. The Robot designed with Polar coordinate system has**

A : Three linear movements

B : Three rotational movement

C : Two liner & one rotational movement

D : Two rotational & one liner movement

**Q.no 52. Path planning algorithm is used for**

- A : Environment Representation
- B : Locate mobile robot
- C : Finding shortest path and optimal path
- D : Surround environment

**Q.no 53. The main objective (s) of Industrial robot is to**

- A : To maximize the labor requirement
- B : To increase productivity
- C : To decrease the life of production machines
- D : To decrease productivity

**Q.no 54. In which of the following operations Continuous Path System is used**

- A : Pick & Place
- B : Loading & unloading
- C : Continuous welding
- D : Pick and Loading

**Q.no 55. Radial movement (in & out) to the manipulator arm is provided by**

- A : Elbow extension
- B : Wrist bend
- C : Wrist swivel
- D : Wrist yaw

**Q.no 56. Which of the following places would be LEAST likely to include operational robots?**

- A : Warehouse
- B : Factory
- C : Hospitals
- D : Private homes

**Q.no 57. When will Hill-Climbing algorithm terminate?**

- A : Stopping criterion met
- B : Global Min/Max is achieved
- C : No neighbour has higher value
- D : no criteria to terminate

**Q.no 58. Which of the following work is done by General purpose Robot?**

- A : Part drive
- B : Welding
- C : Spray picking
- D : Part panting

**Q.no 59. The Signals which represent raw data or domain conversions are referred as**

- A : Relational maps
- B : Sensorial maps
- C : Perceptul maps
- D : Geomatic Maps

**Q.no 60. A Kalman filter is useful in**

- A : Merging position
- B : Merging pose estimate
- C : Merging path
- D : Merging revoking

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**Answer for Question No 1. is a**

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**Answer for Question No 2. is a**

---

**Answer for Question No 3. is b**

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**Answer for Question No 4. is b**

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**Answer for Question No 5. is a**

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**Answer for Question No 6. is c**

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**Answer for Question No 7. is b**

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**Answer for Question No 8. is d**

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**Answer for Question No 9. is a**

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**Answer for Question No 10. is a**

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**Answer for Question No 11. is a**

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**Answer for Question No 12. is b**

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**Answer for Question No 13. is b**

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**Answer for Question No 14. is a**

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**Answer for Question No 15. is c**

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**Answer for Question No 16. is c**

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**Answer for Question No 17. is d**

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**Answer for Question No 18. is b**

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**Answer for Question No 19. is d**

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**Answer for Question No 20. is c**

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**Answer for Question No 21. is a**

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**Answer for Question No 22. is c**

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**Answer for Question No 23. is d**

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**Answer for Question No 24. is a**

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**Answer for Question No 25. is a**

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**Answer for Question No 26. is a**

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**Answer for Question No 27. is a**

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**Answer for Question No 28. is a**

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**Answer for Question No 29. is a**

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**Answer for Question No 30. is d**

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**Answer for Question No 31. is c**

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**Answer for Question No 32. is b**

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**Answer for Question No 33. is d**

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**Answer for Question No 34. is b**

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**Answer for Question No 35. is b**

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**Answer for Question No 36. is d**

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**Answer for Question No 37. is a**

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**Answer for Question No 38. is a**

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**Answer for Question No 39. is a**

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**Answer for Question No 40. is b**

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**Answer for Question No 41. is a**

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**Answer for Question No 42. is c**

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**Answer for Question No 43. is a**

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**Answer for Question No 44. is d**

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**Answer for Question No 45. is c**

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**Answer for Question No 46. is a**

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**Answer for Question No 47. is a**

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**Answer for Question No 48. is a**

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**Answer for Question No 49. is a**

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**Answer for Question No 50. is c**

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**Answer for Question No 51. is d**

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**Answer for Question No 52. is c**

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**Answer for Question No 53. is b**

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**Answer for Question No 54. is c**

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**Answer for Question No 55. is a**

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**Answer for Question No 56. is d**

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**Answer for Question No 57. is c**

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**Answer for Question No 58. is b**

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**Answer for Question No 59. is b**

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**Answer for Question No 60. is b**

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<b>UNIT ONE</b>	<b>SUB : 410242 AIR</b>					
<b>Sr. No.</b>	<b>Questions</b>	<b>a</b>	<b>b</b>	<b>c</b>	<b>d</b>	<b>Answer</b>
<b>e.g 1</b>	<b>Write down question</b>	<b>Option a</b>	<b>Option b</b>	<b>Option c</b>	<b>Option d</b>	<b>a/b/c/d</b>
1	Depth First Search is equivalent to which of the traversal in the Binary Trees?	Pre-order Traversal	Post-order Traversal	Level-order Traversal	In-order Traversal	<b>a</b>
2	Time Complexity of DFS is? (V – number of vertices, E – number of edges)	O(E)	O(V)	O(V+E)	O(V*E)	<b>c</b>
3	The Depth First Search traversal of a graph will result into?	Linked List	Tree	Graph with back edges	Array	<b>b</b>
4	Which algorithm is used in graph traversal and path finding?	C*	A*	E*	D*	<b>b</b>
5	Branch and bound is a _____	data structure	type of tree	sorting algorithm	problem solving technique	<b>d</b>
6	Which data structure is used for implementing a LIFO branch and bound strategy?	stack	queue	array	linked list	<b>a</b>
7	Which data structure is used for implementing a FIFO branch and bound strategy?	stack	queue	array	linked list	<b>b</b>
8	Which of the following can traverse the state space tree only in DFS manner?	branch and bound	dynamic programming	greedy algorithm	backtracking	<b>d</b>

9	Which of the following is false in the case of a spanning tree of a graph G?	It is tree that spans G	It is a subgraph of the G	It can be either cyclic or acyclic	It includes every vertex of the G	<b>c</b>
10	Consider a undirected graph G with vertices { A, B, C, D, E}. In graph G, every edge has distinct weight. Edge CD is edge with minimum weight and edge AB is edge with maximum weight. Then, which of the following is false?	Every minimum spanning tree of G must contain CD	If AB is in a minimum spanning tree, then its removal must disconnect G	No minimum spanning tree contains AB	G has a unique minimum spanning tree	<b>c</b>
11	Which search strategy is also called as blind search?	Uninformed search	Informed search	Simple reflex search	All of the mentioned	<b>a</b>
12	Which search is implemented with an empty first-in-first-out queue?	Depth-first search	Breadth-first search	Bidirectional search	None of the mentioned	<b>b</b>
13	How many successors are generated in backtracking search?	1	2	3	4	<b>a</b>
14	Which algorithm is used to solve any kind of problem?	Breadth-first algorithm	Tree algorithm	Bidirectional search algorithm	None of the mentioned	<b>b</b>
15	Which search algorithm imposes a fixed depth limit on nodes?	Depth-limited search	Depth-first search	Iterative deepening search	Bidirectional search	<b>a</b>
16	Which search implements stack operation for searching the states?	Depth-limited search	Depth-first search	Iterative deepening search	Bidirectional search	<b>b</b>
17	Strategies that know whether one non-goal state is “more promising” than another are called _____	Informed & Unformed Search	Unformed Search	Heuristic & Unformed Search	Informed & Heuristic Search	<b>d</b>

18	uniform-cost search expands the node n with the _____	Lowest path cost	Heuristic cost	Highest path cost	Average path cost	<b>a</b>
19	What is the other name of informed search strategy?	Simple search	Heuristic search	Online search	None of the mentioned	<b>b</b>
20	Which search uses the problem specific knowledge beyond the definition of the problem?	Informed search	Depth-first search	Breadth-first search	Uninformed search	<b>a</b>
21	A heuristic is a way of trying _____	To discover something or an idea embedded in a program	To search and measure how far a node in a search tree seems to be from a goal	To compare two nodes in a search tree to see if one is better than another	All of the mentioned	<b>d</b>
22	A* algorithm is based on _____	Breadth-First-Search	Depth-First-Search	Best-First-Search	Hill climbing	<b>c</b>
23	Best-First search is a type of informed search, which uses _____ to choose the best next node for expansion	Evaluation function returning lowest evaluation	Evaluation function returning highest evaluation	Evaluation function returning lowest & highest evaluation	None of them is applicable	<b>a</b>
24	Heuristic function h(n) is _____	Lowest path cost	Cheapest path from root to goal node	Estimated cost of cheapest path from root to goal node	Average path cost	<b>c</b>
25	Greedy search strategy chooses the node for expansion in _____	Shallowest	Deepest	The one closest to the goal node	Minimum heuristic cost	<b>c</b>

26	What is the evaluation function in greedy approach?	Heuristic function	Path cost from start node to current node	Path cost from start node to current node + Heuristic cost	Average of Path cost from start node to current node and Heuristic	<b>a</b>
27	What is the evaluation function in A* approach?	Heuristic function	Path cost from start node to current node	Path cost from start node to current node + Heuristic cost	Average of Path cost from start node to current node and Heuristic	<b>c</b>
28	In many problems the path to goal is irrelevant, this class of problems can be solved using _____	Informed Search Techniques	Uninformed Search Techniques	Local Search Techniques	Informed & Uninformed Search Techniques	<b>c</b>
29	Though local search algorithms are not systematic, key advantages would include _____	Less memory	More time	Finds a solution in large infinite space	Less memory & Finds a solution in large infinite space	<b>d</b>
30	_____ Is an algorithm, a loop that continually moves in the direction of increasing value – that is uphill.	Up-Hill Search	Hill-Climbing	Hill algorithm	Reverse-Down-Hill search	<b>b</b>
31	When will Hill-Climbing algorithm terminate?	Stopping criterion met	Global Min/Max is achieved	No neighbor has higher value	All of the mentioned	<b>c</b>
32	Hill climbing sometimes called _____ because it grabs a good neighbor state without thinking ahead about where to go next	Needy local search	Heuristic local search	Greedy local search	Optimal local search	<b>c</b>

33	Searching using query on Internet is, use of _____ type of agent	Offline agent	Online agent	Both Offline & Online agent	Goal Based & Online agent	<b>d</b>
34	Best-First search can be implemented using the following data structure	Queue	Stack	Priority Queue	Circular Queue	<b>c</b>
35	Which is used to improve the performance of heuristic search?	Quality of nodes	Quality of heuristic function	Simple form of nodes	None of the mentioned	<b>b</b>
36	Which search is complete and optimal when $h(n)$ is consistent?	Best-first search	Depth-first search	Both Best-first & Depth-first search	A* search	<b>d</b>
37	Which method is used to search better by learning?	Best-first search	Depth-first search	Metalevel state space	None of the mentioned	<b>c</b>
38	Which search uses only the linear space for searching?	Best-first search	Recursive best-first search	Depth-first search	None of the mentioned	<b>b</b>
39	What is the heuristic function of greedy best-first search?	$f(n) \neq h(n)$	$f(n) < h(n)$	$f(n) = h(n)$	$f(n) > h(n)$	<b>c</b>
40	Which function will select the lowest expansion node at first for evaluation?	Greedy best-first search	Best-first search	Depth-first search	None of the mentioned	<b>b</b>

<b>UNIT TWO</b>	<b>SUB : 410242 AIR</b>					
<b>Sr. No.</b>	<b>Questions</b>	<b>a</b>	<b>b</b>	<b>c</b>	<b>d</b>	<b>Answer</b>
<b>e.g 1</b>	<b>Write down question</b>	<b>Option a</b>	<b>Option b</b>	<b>Option c</b>	<b>Option d</b>	<b>a/b/c/d</b>
1	This set of Basic Artificial Intelligence Questions and Answers focuses on “Constraints Satisfaction Problems”.	a) Constraints Satisfaction Problems	b) Uninformed Search Problems	c) Local Search Problems	d) All of the mentioned	<b>a</b>
2	Which of the Following problems can be modeled as CSP?	a) 8-Puzzle problem	b) 8-Queen problem	c) Map coloring problem	d) All of the mentioned	<b>d</b>
3	What among the following constitutes to the incremental formulation of CSP?	a) Path cost	b) Goal cost	c) Successor function	d) All of the mentioned	<b>d</b>
4	The term _____ is used for a depth-first search that chooses values for one variable at a time and returns when a variable has no legal values left to assign.	a) Forward search	b) Backtrack search	c) Hill algorithm	d) Reverse-Down-Hill search	<b>b</b>
5	To overcome the need to backtrack in constraint satisfaction problem can be eliminated by _____	a) Forward Searching	b) Constraint Propagation	c) Backtrack after a forward search	d) Omitting the constraints and focusing only on goals	<b>a</b>
6	The BACKTRACKING-SEARCH algorithm in Figure 5.3 has a very simple policy for what to do when a branch of the search fails: back up to the preceding variable and try a different value for it. This is called chronological-backtracking. It is also possible to go all the way to set of variable that caused failure	a) True	b) False			<b>a</b>



7	Consider a problem of preparing a schedule for a class of student. What type of problem is this?	a) Search Problem	b) Backtrack Problem	c) CSP	d) Planning Problem	<b>c</b>
8	Constraint satisfaction problems on finite domains are typically solved using a form of _____	a) Search Algorithms	b) Heuristic Search	c) Greedy Search	d) All of the mentioned	<b>d</b>
9	Solving a constraint satisfaction problem on a finite domain is an/a _____ problem with respect to the domain size.	a) P complete	b) NP complete	c) NP hard	d) Domain dependent	<b>b</b>
10	_____ is/are useful when the original formulation of a problem is altered in some way, typically because the set of constraints to consider evolves because of the environment.	a) Static CSPs	b) Dynamic CSPs	c) Flexible CSPs	d) None of the mentioned	<b>b</b>
11	Flexible CSPs relax on _____	a) Constraints	b) Current State	c) Initial State	d) Goal State	<b>a</b>
12	Language/Languages used for programming Constraint Programming includes _____	a) Prolog	b) C#	c) C	d) Fortrun	<b>a</b>
13	Backtracking is based on _____	a) Last in first out	b) First in first out	c) Recursion	d) Both Last in first out & Recursion	<b>d</b>
14	Constraint Propagation technique actually modifies the CSP problem.	a) True	b) False			<b>a</b>
15	When do we call the states are safely explored?	a) A goal state is unreachable from any state	b) A goal state is denied access	c) A goal state is reachable from every state	d) None of the mentioned	<b>c</b>
16	Which of the following algorithm is generally used CSP search algorithm	a) Breadth-first search algorithm	b) Depth-first search algorithm	c) Hill-climbing search	d) None of the mentioned	<b>b</b>

17	Which of the following algorithm is generally used CSP search algorithm?	1.Breadth-first search algorithm	2. Depth-first search algorithm	3. Hill-climbing search algorithm	4. None of the mentioned	<b>b</b>
18	When do we call the states are safely explored?	1. A goal state is unreachable from any state	2. A goal state is denied access	3. A goal state is reachable from every state	4. None of the mentioned	<b>c</b>
19	Constraint Propagation technique actually modifies the CSP problem.	a) True	b) False			<b>a</b>
20	CSPs are –	an alternative formulation for general problem solving method	ways of formulating problems using variables and constraints	problems that come in the way of satisfying constraints	problems that arise after constraint satisfaction	<b>a</b>
21	A constraint is	something that prevents an algorithm from solving a problem.	a restriction on what values the variables in the problem can take.	a limitation of the problem solving approach.	none of the above.	<b>b</b>
22	A Binary CSP is	a CSP with only two variables.	a CSP where each variable can take only two values.	a CSP with only two constraints.	a CSP where the size of the scope of every constraint is two.	<b>d</b>
23	A CSP with only soft constraints, also called preferences	has only solutions with all constraints satisfied.	may have not any solution at all.	can have more than one solution with different associated	none of the above	<b>c</b>

24	Searching using query on Internet is, use of _____ type of agent	1. Offline agent	2. Online agent	3. Both Offline & Online agent	4. Goal Based & Online agent	<b>d</b>
25	Mark two main features of Genetic Algorithm	1. Fitness function & Crossover techniques	2. Crossover techniques & Random mutation	3. Individuals among the population & Random mutation	4. Random mutation & Fitness function	<b>a</b>
26	Optimality of BFS is	1. When there is less number of nodes	2. When all step costs are equal	3. When all step costs are unequal	4. None of the mentioned	<b>b</b>
27	A production rule consists of	1. A set of Rule	2. A sequence of steps	3. Set of Rule & sequence of steps	4. Arbitrary representation to problem	<b>c</b>
28	The major component/components for measuring the performance of problem solving	1. Completeness	2. Optimality	3. Time and Space complexity	4. All of the mentioned	<b>d</b>
29	Web Crawler is a/an	1. Intelligent goal-based agent	2. Problem-solving agent	3. Simple reflex agent	4. Model based agent	<b>a</b>
30	What is state space?	1. The whole problem	2. Your Definition to a problem	3. Problem you design	4. Representing your problem with variable and parameter	<b>d</b>

31	he main task of a problem-solving agent is	1. Solve the given problem and reach to goal	2. To find out which sequence of action will get it to the goal state	3. All of the mentioned	4. None of the mentioned	<b>c</b>
32	The process by which the brain orders actions needed to complete a specific task is referred as _____	a) Planning problem	b) Partial order planning	c) Total order planning	d) Both Planning problem & Partial order planning	<b>d</b>
33	The famous spare tire problem or Scheduling classes for bunch of students or Air cargo transport are the best example of _____	a) Planning problem	b) Partial Order planning problem	c) Total order planning	d) None of the mentioned	<b>a</b>
34	To eliminate the inaccuracy problem in planning problem or partial order planning problem we can use _____ data structure/s.	a) Stacks	b) Queue	c) BST (Binary Search Tree)	d) Planning Graphs	<b>d</b>
35	Planning graphs consists of _____	a) a sequence of levels	b) a sequence of levels which corresponds to time steps in the plan	c) a sequence of actions which corresponds to the state of the system	d) none of the mentioned	<b>b</b>
36	Planning graphs works only for prepositional planning problems.	a) True	b) False			<b>a</b>

37	_____ algorithms is used to extract the plan directly from the planning graph, rather than using graph to provide heuristic.	a) BFS/DFS	b) A*	c) Graph-Plan	d) Greedy	<b>c</b>
38	What is the other name of each plan resulted in partial order planning?	a) Polarization	b) Linearization	c) Solarization	d) None of the mentioned	<b>b</b>
39	. What are the two major aspects which combines AI Planning problem?	a) Search & Logic	b) Logic & Knowledge Based Systems	c) FOL & Logic	d) Knowledge Based Systems	<b>a</b>
40	Which of the following are action languages	a) STRIP	b) ADL	c) All of the mentioned	d) None of the mentioned	<b>c</b>

<b>UNIT THREE</b>	<b>SUB : 410242 AIR</b>					
<b>Sr. No.</b>	<b>Questions</b>	<b>a</b>	<b>b</b>	<b>c</b>	<b>d</b>	<b>Ans</b>
1	Knowledge and reasoning also play a crucial role in dealing with _____ environment.	Completely Observable	Partially Observable	Neither Completely nor Partially Observable	Only Completely and Partially Observable	<b>b</b>
2	Treatment chosen by doctor for a patient for a disease is based on _____	Only current symptoms	Current symptoms plus some knowledge from the textbooks	Current symptoms plus some knowledge from the textbooks plus experience	All of the mentioned	<b>c</b>
3	A knowledge-based agent can combine general knowledge with current percepts to infer hidden aspects of the current state prior to selecting actions.	TRUE	FALSE			<b>a</b>
4	A) Knowledge base (KB) is consists of set of statements. B) Inference is deriving a new sentence from the KB. Choose the correct option.	A is true, B is true	A is false, B is false	A is true, B is false	A is false, B is true	<b>a</b>

5	Wumpus World is a classic problem, best example of _____	Single player Game	Two player Game	Reasoning with Knowledge	Knowledge based Game	<b>c</b>
6	' $\alpha \models \beta$ ' (to mean that the sentence $\alpha$ entails the sentence $\beta$ ) if and only if, in every model in which $\alpha$ is _____ $\beta$ is also _____	True, true	True, false	False, true	False, false	<b>a</b>
7	Which is not a property of representation of knowledge?	Representational Verification	Representational Adequacy	Inferential Adequacy	Inferential Efficiency	<b>a</b>
8	Which is not Familiar Connectives in First Order Logic?	and	if	or	not	<b>d</b>
9	Inference algorithm is complete only if _____	It can derive any sentence	It can derive any sentence that is an entailed version	It is truth preserving	It can derive any sentence that is an entailed version & It is truth preserving	<b>d</b>
10	An inference algorithm that derives only entailed sentences is called sound or truth-preserving.	TRUE	FALSE			<b>a</b>
11	Which algorithm will work backward from the goal to solve a problem?	Forward chaining	Backward chaining	Hill-climb algorithm	None of the mentioned	<b>b</b>
12	Which is mainly used for automated reasoning?	Backward chaining	Forward chaining	Logic programming	Parallel programming	<b>c</b>

13	What will backward chaining algorithm will return?	Additional statements	Substitutes matching the query	Logical statement	All of the mentioned	<b>b</b>
14	How can be the goal is thought of in backward chaining algorithm?	Queue	List	Vector	Stack	<b>d</b>
15	What is used in backward chaining algorithm?	Conjuncts	Substitution	Composition of substitution	None of the mentioned	<b>c</b>
16	Which algorithm are in more similar to backward chaining algorithm?	Depth-first search algorithm	Breadth-first search algorithm	Hill-climbing search algorithm	All of the mentioned	<b>a</b>
17	Which problem can frequently occur in backward chaining algorithm?	Repeated states	Incompleteness	Complexity	Both Repeated states & Incompleteness	<b>d</b>
18	How the logic programming can be constructed?	Variables	Expressing knowledge in a formal language	Graph	All of the mentioned	<b>b</b>
19	What form of negation does the prolog allows?	Negation as failure	Proposition	Substitution	Negation as success	<b>a</b>
20	Which is omitted in prolog unification algorithm?	Variable check	Occur check	Proposition check	Both Occur & Proposition check	<b>b</b>
21	What is the frame?	A way of representing knowledge	Data Structure	Data Type	None of the mentioned	<b>a</b>



22	Frames in artificial intelligence is derived from semantic nets.	TRUE	FALSE			<b>a</b>
23	Which of the following elements constitutes the frame structure?	Facts or Data	Procedures and default values	Frame names	Frame reference in hierarchy	<b>a</b>
24	Like semantic networks, frames can be queried using spreading activation.	TRUE	FALSE			<b>a</b>
25	What is Hyponymy relation?	A is part of B	B has A as a part of itself	A is subordinate of B	A is superordinate of B	<b>c</b>
26	The basic inference mechanism in semantic network in which knowledge is represented as Frames is to follow the links between the nodes.	TRUE	FALSE			<b>a</b>
27	There exists two way to infer using semantic networks in which knowledge is represented as Frames.	Intersection Search	Inheritance Search	TRUE	FALSE	<b>a</b>
28	What among the following constitutes the representation of the knowledge in different forms?	Relational method where each fact is set out systematically in columns	Inheritable knowledge where relational knowledge is made up of objects	Inferential knowledge	All of the mentioned	<b>d</b>
29	What are Semantic Networks?	A way of representing knowledge	Data Structure	Data Type	None of the mentioned	<b>a</b>
30	Graph used to represent semantic network is _____	Undirected graph	Directed graph	Directed Acyclic graph (DAG)	Directed complete graph	<b>b</b>

31	Which of the following are the Semantic Relations used in Semantic Networks?	Meronymy	Holonymy	Hyponymy	All of the mentioned	<b>d</b>
32	What is Meronymy relation?	A is part of B	B has A as a part of itself	A is a kind of B	A is superordinate of B	<b>a</b>
33	What is Hypernym relation?	A is part of B	B has A as a part of itself	A is a kind of B	A is superordinate of B	<b>d</b>
34	What is Holonymy relation?	A is part of B	B has A as a part of itself	A is a kind of B	A is superordinate of B	<b>b</b>
35	The basic inference mechanism in semantic network is to follow the links between the nodes.	TRUE	FALSE			<b>a</b>
36	The rule of Universal Instantiation (UI for short) says that we can infer any sentence obtained by substituting a ground term (a term without variables) for the variable.	TRUE	FALSE			<b>a</b>
37	The corresponding Existential Instantiation rule: for the existential quantifier is slightly more complicated. For any sentence a, variable v, and constant symbol k that does not appear elsewhere in the knowledge base.	TRUE	FALSE			<b>a</b>
38	Lifted inference rules require finding substitutions that make different logical expressions look identical.	Existential Instantiation	Universal Instantiation	Unification	Modus Ponens	<b>c</b>

39	Which of the following is not the style of inference?	Forward Chaining	Backward Chaining	Resolution Refutation	Modus Ponens	<b>d</b>
40	For resolution to apply, all sentences must be in conjunctive normal form, a conjunction of disjunctions of literals.	TRUE	FALSE			<b>a</b>

<b>UNIT FOUR</b>	<b>SUB : 410242 AIR</b>					
<b>Sr. No.</b>	<b>Questions</b>	<b>a</b>	<b>b</b>	<b>c</b>	<b>d</b>	<b>Answer</b>
1	Information retrieval systems have much in common with	Filing systems	Transaction systems	Database systems	Management systems	<b>c</b>
2	Natural Language Processing is form of artificial intelligence that helps machine "read" text by simulating _____ ability to understand language	Text	human	lexical	program	<b>b</b>
3	NLG stand for____	Named Language Generation	Named Linked Generation	Natural Language Genration	None of above	<b>c</b>
4	Lexical Analysis is one of the steps for Natural Language Processing	TRUE	FALSE			<b>a</b>
5	Code generation is one of the steps for Natural Language Processing	TRUE	FALSE			<b>b</b>
6	What is plasticity in neural networks?	input pattern keeps on changing	input pattern has become static	output pattern keeps on changing	output is static	<b>a</b>
7	Semantic Analysis is one of the steps for Natural Language Processing	TRUE	FALSE			<b>a</b>
8	Natural Language Genration process includes	Text Realization	Syntatic Analysis	Integration	None of above	<b>a</b>
9	Inductive learning is _____ learning technique	unSupervised	Supervised	reinforcement	None of above	<b>b</b>

10	What is the field of Natural Language Processing (NLP)?	Computer Science	Artificial Intelligence	Linguistics	All of the mentioned	<b>d</b>
11	Disclosure integration is one of the steps for Natural Language Processing	TRUE	FALSE			<b>a</b>
12	NLP is concerned with the interactions between computers and human (natural) languages.	TRUE	FALSE			<b>a</b>
13	What is the main challenge/s of NLP?	Handling Ambiguity of Sentences	Handling Tokenization	Handling POS-Tagging	All of the mentioned	<b>a</b>
14	Modern NLP algorithms are based on machine learning, especially statistical machine learning.	TRUE	FALSE			<b>a</b>
15	Choose form the following areas where NLP can be useful.	Automatic Text Summarization	Automatic Question-Answering Systems	Information Retrieval	All of the mentioned	<b>d</b>
16	Which of the following includes major tasks of NLP?	Automatic Summarization	Discourse Analysis	Machine Translation	All of the mentioned	<b>d</b>
17	What is Coreference Resolution?	Anaphora Resolution	Given a sentence or larger chunk of text, determine which words ("mentions") refer to the same objects ("entities")	All of the mentioned	None of the mentioned	<b>b</b>

18	What is Machine Translation?	Converts one human language to another	Converts human language to machine language	Converts any human language to English	Converts Machine language to human language	<b>a</b>
19	The more general task of coreference resolution also includes identifying so-called “bridging relationships” involving referring expressions	TRUE	FALSE			<b>a</b>
20	What is Morphological Segmentation?	Does Discourse Analysis	Separate words into individual morphemes and identify the class of the morphemes	Is an extension of propositional logic	None of the mentioned	<b>b</b>
21	Natural Language generation is the main task of Natural language processing.	TRUE	FALSE			<b>a</b>
22	Given a stream of text, Named Entity Recognition determines which pronoun maps to which noun.	TRUE	FALSE			<b>b</b>
23	OCR (Optical Character Recognition) uses NLP.	TRUE	FALSE			<b>a</b>
24	Parts-of-Speech tagging determines _____	part-of-speech for each word dynamically as per meaning of the sentence	part-of-speech for each word dynamically as per sentence structure	all part-of-speech for a specific word given as input	all of the mentioned	<b>d</b>

25	Parsing determines Parse Trees (Grammatical Analysis) for a given sentence.	TRUE	FALSE			<b>a</b>
26	. IR (information Retrieval) and IE (Information Extraction) are the two same thing.	TRUE	FALSE			<b>b</b>
27	Many words have more than one meaning; we have to select the meaning which makes the most sense in context. This can be resolved by _____	Fuzzy Logic	Word Sense Disambiguation	Shallow Semantic Analysis	All of the mentioned	<b>b</b>
28	Given a sound clip of a person or people speaking, determine the textual representation of the speech.	Text-to-speech	Speech-to-text	All of the mentioned	None of the mentioned	<b>b</b>
29	Speech Segmentation is a subtask of Speech Recognition.	TRUE	FALSE			<b>a</b>
30	In linguistic morphology _____ is the process for reducing inflected words to their root form.	Rooting	Stemming	Text-Proofing	Both Rooting & Stemming	<b>b</b>
31	Probability of error in recall of stored patterns can be reduced if?	patterns are stored appropriatel	inputs are captured appropriately	weights are chosen appropriately	none of the mentioned	<b>c</b>
32	What is pattern environment?	probability of desired patterns	probability of given patterns	behaviour of system	none of the mentioned	<b>d</b>
33	What should be the aim of training procedure in boltzman machine of feedback networks?	to capture inputs	to feedback the captured outputs	to capture the behaviour of system	none of the mentioned	<b>d</b>

34	What consist of boltzman machine?	fully connected network with both hidden and visible units	asynchronous operation	stochastic update	all of the mentioned	<b>d</b>
35	What's the main point of difference between human & machine intelligence?	human perceive everything as a pattern while machine perceive it merely as data	human have emotions	human have more IQ & intellect	human have sense organs	<b>a</b>
36	Does pattern classification belongs to category of non-supervised learning?	yes	no			<b>b</b>
37	What is unsupervised learning?	features of group explicitly stated	number of groups may be known	neither feature & nor number of groups is known	none of the mentioned	<b>c</b>
38	Does pattern classification & grouping involve same kind of learning?	yes	no			<b>b</b>
39	Does for feature mapping there's need of supervised learning?	yes	no			<b>b</b>
40	Example of a unsupervised feature map?	text recognition	voice recognition	image recognition	none of the mentioned	<b>b</b>



<b>UNIT FIVE</b>	<b>SUB : 410242 AIR</b>					
<b>Sr. No.</b>	<b>Questions</b>	<b>a</b>	<b>b</b>	<b>c</b>	<b>d</b>	<b>Ans</b>
1	_____ is the simplest method of collaborative robots and is used in applications when human interaction with robot is less.	a) Self monitored stop	b) Speed and separation monitoring	c) Power and force limiting	d) Hand guiding	<b>a</b>
2	IAD stands for _____	a) Intelligent Assist Device	b) Industrial Assist Device	c) International Assist Device	d) Informative Assist Device	<b>a</b>
3	Motive power was provided by the human worker.	Ture	FALSE			<b>a</b>
4	The collaborative robot arms are designed to mimic the range of motion of a _____	a) Network	b) Machine arm	c) Device	d) Human arm	<b>d</b>
5	A cobots as an apparatus and method for interaction between _____ and _____	a) person and computer	b) Device and computer	c) Device and human	d) Human and	<b>a</b>
6	A Robot is a	Programmable	Multi functional manipulator	Both (A) and (B)	None of the above	<b>c</b>
7	ANN stands for _____	Artificial neural network	Arithmetic neural network	Artificial neural node	None of the mentioned	<b>a</b>
8	Clockwise of Anti clockwise rotation about the vertical axis to the perpendicular arm is provided through	Shoulder swivel	Elbow extension	Arm sweep	Wrist bend	<b>c</b>
9	Drives are also known as	Actuators	Controller	Sensors	Manipulator	<b>a</b>

10	For a robot unit to be considered a functional industrial robot, typically, how many degrees of freedom would the robot have?	4	5	6	7	<b>c</b>
11	If a robot has k legs, then the number of possible events is :	$N = (2k-2)$	$N = (2k-1)!$	$N = (2^k-1)!$	$D. N = (2k-2)!$	<b>b</b>
12	In ANN, all PE's are connected with feedback.	TRUE	FALSE			<b>b</b>
13	In ANN, neurons are represented by _____	Processing element	Memory	Wires	None of the mentioned	<b>a</b>
14	In co – robot co represents?	a) Coordinative	b) Collaborative	c) Computer	d) Control	<b>b</b>
15	In which of the following operations Continuous Path System is used	Pick and Place	Loading and Unloading	Continuous welding	All of the above	<b>c</b>
16	Industrial Robots are generally designed to carry which of the following coordinate system(s).	Cartesian coordinate systems	Polar coordinate systems	Cylindrical coordinate system	All of the above	<b>d</b>
17	Internal state sensors are used for measuring _____ of the end effector.	Position	Position & Velocity	Velocity & Acceleration	Position, Velocity & Acceleration	<b>d</b>
18	L293D is a/an _____	Motor driver IC	Micro controller	Bluetooth module	IR receiver/transmitter	<b>a</b>
19	MLP is feed-forward network.	TRUE	FALSE			<b>a</b>
20	Name the wheel which is used to rotates around the wheel axle and around the contact.	Castor wheel	Standard wheel	Swedish 45degree	spherical wheel	<b>b</b>

21	One of the leading American robotics centers is the Robotics Institute located at?	CMU	MIT	RAND	SRI	<b>A</b>
22	Principles of cybernetics was developed by _____	Josef capek	Norbert wiener	Isaac asimov	Karel capek	<b>b</b>
23	Radial movement (in & out) to the manipulator arm is provided by	Elbow extension	Wrist bend	Wrist swivel	Wrist yaw	<b>a</b>
24	Robot is derived from Czech word	Rabota	Robota	Rebota	Ribota	<b>b</b>
25	Robotics is a branch of AI, which is composed of _____.	Electrical Engineering	Mechanical Engineering	Computer Science	All of the above	<b>a</b>
26	The following drive is used for lighter class of Robot.	Pneumatic drive	Hydraulic drive	Electric drive	All of the above	<b>a</b>
27	The following is true for a Robot and NC Machine	Similar power drive technology is used in both	Different feedback systems are used in both	Programming is same for both	All of the above	<b>a</b>
28	The main objective(s) of Industrial robot is to	To minimise the labour requirement	To increase productivity	To enhance the life of production machines	All of the above	<b>d</b>
29	The Robot designed with Cartesian coordinate systems has	Three linear movements	Three rotational movements	Two linear and one rotational movement	Two rotational and one linear movement	<b>a</b>
30	The Robot designed with cylindrical coordinate systems has	Three linear movements	Three rotational movements	Two linear and one rotational movement	Two rotational and one linear movement	<b>c</b>

31	The Robot designed with Polar coordinate systems has	Three linear movements	Three rotational movements	Two linear and one rotational movement	Two rotational and one linear movement	<b>d</b>
32	What is the name for information sent from robot sensors to robot controllers?	temperature	pressure	feedback	signal	<b>c</b>
33	Which of the following is correct for proximity sensors?	Inductive type	Capacitive type	Ultrasonic wave type	All of the mentioned	<b>d</b>
34	Which of the following is not a programming language for computer controlled robot?	AMU	VAL	RAIL	HELP	<b>a</b>
35	Which of the following person used the name robot first time in print?	Josef capek	Karel capek	Isaac asimov	None of the mentioned	<b>c</b>
36	Which of the following represents muscles of a robot?	Actuators	Power supply	Micro controllers	Robotic arm	<b>a</b>
37	Which of the following sensors determines the relationship of the robot and its environment and the objects handled by it	Internal State sensors	External State sensors	Both (A) and (B)	None of the above	<b>c</b>
38	Which of the following statements concerning the implementation of robotic systems is correct?	implementation of robots CAN save existing jobs	implementation of robots CAN create new jobs	robotics could prevent a business from closing	All of the above	<b>d</b>
39	Which of the following work is done by General purpose robot?	Part picking	Welding	Spray painting	All of the above	<b>d</b>
40	ZMP stands for _____	Zero movement power	Zero magnetic point	Zero moment point	Zero metric point	<b>c</b>

<b>UNIT SIX</b>	<b>SUB : 410242 AIR</b>					
<b>Sr. No.</b>	<b>Questions</b>	<b>a</b>	<b>b</b>	<b>c</b>	<b>d</b>	<b>Ans</b>
1	Which of the following terms refers to the use of compressed gasses to drive (power) the robot device?	pneumatic	hydraulic	piezoelectric	photosensitive	<b>a</b>
2	With regard to the physics of power systems used operate robots, which statement or statements are most correct?	hydraulics involves the compression of liquids	hydraulics involves the compression of air	pneumatics involve the compression of air	chemical batteries produce AC power	<b>c</b>
3	Which of the following statements concerning the implementation of robotic systems is correct?	implementation of robots CAN save existing jobs	implementation of robots CAN create new jobs	robotics could prevent a business from closing	all of the mentioned	<b>d</b>
4	Which of the following IS NOT one of the advantages associated with a robotics implementation program?	Low costs for hardware and software	Robots work continuously around the clock	Quality of manufactured goods can be improved	Reduced company cost for worker fringe benefits	<b>a</b>
5	In a rule-based system, procedural domain knowledge is in the form of _____	rule interpreters	production rules	meta-rules	control rules	<b>b</b>
6	What is the goal of artificial intelligence?	To solve real-world problems	To solve artificial problems	To explain various sorts of intelligence	To extract scientific causes	<b>c</b>
7	Computers normally solve problem by breaking them down into a series of yes-or-no decisions represented by 1s and 0s. What is the name of the logic that allows computers to assign numerical values that fall somewhere between 0 and 1?	Human logic	Fuzzy logic	Boolean logic	Operational logic	<b>b</b>

8	Which of the following contains output segments of AI programming?	Printed language and synthesized	Manipulation of physical object	Locomotion	All of the mentioned	<b>d</b>
9	The component of an ICAI (Intelligent Computer Assisted Instruction) presenting information to the student is the?	Student model	Problem solving expertise	Tutoring module	All of the mentioned	<b>c</b>
10	The collaborative robot arms are designed to mimic the range of motion of a _____	Network	Machine arm	Device	Human arm	<b>d</b>
11	A _____ translates signals from the controller into the motor voltage and current signals.	Servo motor	Servo amplifier	AC motor	DC motor	<b>b</b>
12	Motors used for electronic actuator drives :	AC servo motors	DC servo motors	Stepper motors	All of the mentioned	<b>d</b>
13	The basic components of hydraulic fluid power system are :	Reservoir	Pump and lines	Actuating devices and control valves	All of the mentioned	<b>d</b>
14	An automatic apparatus or device that performs functions ordinarily ascribed to humans or operate with what appears to be almost human intelligence is called _____	Robot	Human	Animals	Reptiles	<b>a</b>
15	The basic components of robot are:	The mechanical linkage	Sensors and controllers	User interface and power conversion unit	All of the mentioned	<b>d</b>
16	Non servo robots are also called as:	Pick and place	Fixed stop robot	Both of the mentioned	None of the mentioned	<b>c</b>
17	An android takes the form of:	An insect.	A human body.	A simple robot arm.	Binocular vision.	<b>b</b>

18	The extent to which a machine vision system can differentiate between two objects is called the:	Magnification	Sensitivity	Selectivity	Resolution	<b>d</b>
19	A robot that has its own computer, and can work independently of other robots or computers, is called an:	Android	Insect robot	Automated guided vehicle	Autonomous robot	<b>d</b>
20	An asset of epipolar navigation is the fact that it:	Does not require binaural hearing.	Does not require a computer	Can be done from a single observation frame	Requires no reference points at all	<b>c</b>
21	Spherical coordinates can uniquely define the position of a point in up to:	One dimension	Two dimensions	Three dimensions	Four dimensions	<b>c</b>
22	If a robot can alter its own trajectory in response to external conditions, it is considered to be _____	intelligent	mobile	open loop	non-servo	<b>a</b>
23	What is Machine Translation?	Converts human language to machine language	Converts one human language to another	Converts any human language to English	Converts Machine language to human language	<b>b</b>
24	What is Space Robotics?	Development of machines for less space requirement	Development of machines in space	Development of machines for the space environment	All of the mentioned	<b>c</b>
25	Advantage/s of Space Robots	Perform tasks less expensively and sooner	□less risk	Robots don't need to return to Earth	All of the mentioned	<b>d</b>

26	The control of autonomous robots involves a number of subtask/s	Understanding and modeling of the mechanism	Reliable control of the actuators	Coping with noise and uncertainty	All of the mentioned	<b>d</b>
27	Requirements for Robots in Intelligent Environments	Intuitive Human-Robot Interfaces	Adaptivity	Both of the (a) and (b) mentioned	None of the mentioned	<b>c</b>
28	How robots know where they are	Self-Localisation	Navigation	Both of the (a) and (b) mentioned	None of the mentioned	<b>a</b>
29	Technique used for position measurement by distance travelled	Calorimetry	Photometry	Odometry	All of the mentioned	<b>c</b>
30	Which are parts of SLAM ?	Landmark extraction	State estimation	None of the mentioned	Both of the (a) and (b) mentioned	<b>d</b>
31	The key point about suitable Landmarks	Similar landmarks should be present	Individual landmarks should be distinguishable from each	Duplication of landmarks in close vicinity	All of the mentioned	<b>b</b>
32	What is the best strategy for landmark identification ?	Template matching	Spell check	Nearest Neighbour Approach	None of the mentioned	<b>c</b>
33	What is a UAV ?	Unidentified Arial View	Computer Vision	Light Source	remotely piloted aircraft	<b>d</b>
34	Drone is a -----	UAV	UFO	None of the mentioned	Both of the (a) and (b) mentioned	<b>a</b>



35	Example of Personal service robot	Thermostats and heating ducts	House cleaning	Automatic doors	Security services	<b>b</b>
36	Which is a lacuna in Traditional programming techniques for industrial robots	Only limited on-line sensing	Only limited sensing	Interaction with humans	Incorporation of uncertainty	<b>a</b>
37	Which is Uncertainty in Robot Systems	Sensor uncertainty	Non-observability	Action uncertainty	All of the mentioned	<b>d</b>
38	Which of the following contains output segments of AI programming?	Printed language and synthesized	Manipulation of physical object	Locomotion	All of the mentioned	<b>d</b>
39	Which kind of planning consists of successive representations of different levels of a plan?	Hierarchical planning	Non-hierarchical planning	Project planning	All of the mentioned	<b>a</b>
40	In which of the following situations might a blind search be acceptable?	Real life situation	Complex game	Small search space	None of the mentioned	<b>c</b>

# 410242 AIR

Total points 20/20

MCQ Test3 for Defaulters

Email address \*

yash7454@outlook.com

✓ 1. Artificial Intelligent is \*

1/1

- ☒ System to make machine intelligent ✓
- ☐ Computer to make machine intelligent
- ☐ Study of algorithms to make machine intelligent
- ☐ Study to create animation

✓ 2. Father of AI \*

1/1

- ☒ John McCarthy ✓
- ☐ Alan Turing
- ☐ Norbert Wiener
- ☐ Newell and Simon



✓ 3. What is a state space \*

1/1

- ☒ The set of all states reachable from the initial state. ✓
- ☐ All goal states
- ☐ All initial states
- ☐ Reversible states

✓ 4. What is goal Test? \*

1/1

- ☒ It determines whether a given state is goal state. ✓
- ☐ It determines numeric cost of goal state.
- ☐ It determine path from the initial to goal state.
- ☐ All of the above

✓ 5. What is path cost? \*

1/1

- ☒ It is a function that assigns a numeric cost to each path. ✓
- ☒ Cost of path can be described as the sum of the cost of the individual actions along the path. ✓

✓ 6. In, Hill Climbing Algorithm, \*

1/1



- ☐ We need to consider all nodes generated from initial node
- ☒ We need to consider all nodes generated from current node ✓
- ☐ We need to consider all nodes generated from goal node

✓ 7. Types of Hill Climbing Algorithm are \*

1/1

- ☒ Simple hill Climbing ✓
- ☒ Steepest-Ascent hill-climbing ✓
- ☒ Stochastic hill Climbing ✓
- ☐ Startfast hill climbing

✓ 8. Termination criteria for Hill Climbing algorithm is \*

1/1

- ☒ no successor of the node has a better heuristic value. ✓
- ☐ no successor of the node has a less heuristic value.

✓ 9. DFID means \*

1/1

- ☒ Depth First Iterative deepening ✓
- ☐ Depth First Information Depended
- ☐ Depth First Information Difference

✓ 10. DB-DFS stands for \*

1/1

- ☐ Depth Bounce Depth First Search



- ☐ Depth Bind Depth First Search
- ☒ Depth Bounded Depth First Search



✓ 11. In Goal Stack Planning, Robot arm can perform actions like \*

1/1

☒ Unstack, Stack



☒ Pickup, Putdown



☐ Move and Generate

✓ 12. unstack (x,y) means \*

1/1

☒ Pick up X from its current position on block Y.



☐ Place block X on block Y.

☐ Pick up X from the table and hold it.

✓ 13. For representation of STRIPS language we require \*

1/1

☐ Goal State and Initial State

☐ Actions

☒ All of the above



✓ 14. STRIPS Language Representation, we need to use \*

1/1

☒ First order predicate



- ☐ Second order predicate
- ☐ None of the above

✓ 5. FSSP starts with \*

1/1

- ☐ goal state and try to find initial state
- ☒ initial state and try to find goal state
- ☐ None of the above



✓ 6. Stack (x,y) means \*

1/1

- ☐ Pick up X from its current position on block Y.
- ☒ Place block X on block Y.
- ☐ Pick up X from the table and hold it.



✓ 7. In order to solve a problem represented by AND node, \*

1/1

- ☒ you need to solve the problems represented by all of his children
- ☐ you need to solve the problems represented by any one of his children
- ☐ you need to solve the problems represented by any two of his children



✓ 8. In order to solve a problem represented by OR node, \*

1/1

- ☐ you need to solve the problems represented by all of his children



☒ you need to solve the problems represented by any one of his children ✓

☐ you need to solve the problems represented by any two of his children

✓ 9. In Rule based system, rules represented in the form of \*

1/1

☒ Pattern -> Action ✓

☐ Action -> Pattern

✓ 10. OPS5 stands for \*

1/1

☒ Official Production System ✓

☐ Official Produce System

☐ Office Production System

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Total points 11/20 ?

MCQ Test1 for Defaulters

Email address \*

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✗ 1. Types of Localization \*

0/1

☒ Global and Local Localization

✗

☐ Strong and Week Localization

Correct answer

☒ Strong and Week Localization

✗ 2. Landmark Classes are \*

0/1

☐ active or passive

☒ natural or artificial

✗

☐ Sound navigate and range

Correct answer

☒ active or passive





✓ 3. Trilateration refers to \*

1/1

- ☒ the use of distance constraints ✓
- ☐ the use of angle (orientation) constraints.
- ☐ the use of free space

✗ 4. What is Delivery Robots? \*

.../1

Robots that are used to deliver a parcel to a location are called delivery robots. ✗

Correct answer

A delivery robot is an automated robot that brings your delivery directly to your door.

✓ 5. Triangulation refers to

1/1

- ☒ the use of angle (orientation) constraints. ✓
- ☐ the use of variable constraints.



✗ 6. Mapping Techniques are

0/1

☒ Sensorial

✓

☒ Topological

✓

☐ Geometric

Correct answer

☒ Sensorial

☒ Topological

☒ Geometric

✓ 7. Metric maps

1/1

☒ which are based on an absolute reference frame and numerical estimates of where objects are in space

✓

☐ which are based on an absolute variable frame

✗ 8. Topological maps also known as

0/1

☐ relational maps

☒ topological maps

✗

☐ sensors maps

Correct answer

✗ 9. What is Space Robotics?

.../1

Space robotics is a field in robotics which deals with researching and producing robots which are capable of space exploration, recon, satellite repair, etc.



✗ 10. What is Domestic Robots?

.../1

Domestic Robots are robots which are used as household assistants.



✓ 11. Robotics deals with \*

1/1



the construction, use of robots and computer systems



the design, use of robots and computer systems



the operation, use of robots and computer systems



✓ 12. Components of robotics are \*

1/1



power source



collection of sensors



communication hardware



✓ 13. Path Planning algorithm \*

1/1



Bug2 Algorithm



Point to algorithm



Bug\_P algorithm

✓ 14. Bug2 Algorithm is \*

1/1



from the class of bug algorithms.



from the class of bug-free algorithms.



from the class of bug-miss algorithms.

✗ 15. Range Sensors returns infinity if ..... exists in that direction. \* 0/1



no obstacle



obstacle



free space

Correct answer



obstacle

✓ 16. Contact sensors mostly \*

1/1



- ☒ used for obstacle avoidance robots. ✓
- ☐ used to refer to accelerometers and gyroscopes, which measure the second derivatives of position

✓ 17. Sonar sensor stands for \* 1/1

- ☒ Sound navigation and ranging ✓
- ☐ Sound navigate and ranging
- ☐ Sound navigate and range

✗ 18. Laser rangefinders are based on methodologies like 0/1

- ☐ Triangulation
- ☒ Time of flight (TOF) ✓
- ☒ Phase-based ✓

Correct answer

- ☒ Triangulation
- ☒ Time of flight (TOF)
- ☒ Phase-based

✓ 19. Radar stands for 1/1

- ☒ Radio detecting and ranging ✓
- ☐ Radio detecting and ringing
- ☐ Ratio detecting and ranging



✓ 20. Sensory-based behavior divided into two basic classes

1/1

- ☒ tropism and taxis
- ☐ tropism and axis
- ☐ tropism and terms



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Total points 16/20

MCQ Test2 for Defaulters

Email address \*

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✓ 1. Knowledge based agent used \*

1/1

- ☒ Tell and Ask interface
- ☐ Tell and remove interface
- ☐ Remove and solve interface

✓

✗ 2. Inputs for Inference engine are \*

0/1

- ☒ Knowledge base
- ☐ Input from environment
- ☒ Query

✓

✓

Correct answer

- ☒ Knowledge base
- ☒ Input from environment
- ☒ Query



✓ 3. Compound Proposition means \*

1/1

- ☒ A statement formed from one or more atomic propositions using logical connectives. ✓
- ☐ A statement that does not specifically contain sub statements.

✗ 4. We can use quantifiers in ..... \*

0/1

- ☐ Propositional logic
- ☐ Predicate logic
- ☒ First order logic ✓

Correct answer

- ☒ Predicate logic
- ☒ First order logic

✓ 5. Types of quantifiers are \*

1/1

- ☐ Universal
- ☐ Existential
- ☒ All of the above ✓





✓ 6. Unification algorithm used to find \*

1/1

- ☐ Quantifiers
- ☒ Unifier
- ☐ Rule



✗ 7. In unification algorithm, if two predicate expressions having same .....then only we can find unifier. \*

0/1

- ☐ Initial Predicate symbol
- ☐ No of arguments
- ☒ All of above



Correct answer

- ☒ Initial Predicate symbol

✓ 8. Unifier means \*

1/1

- ☒ Substitution so that two predicate expression will be identical.
- ☐ Addition so that two predicate expression will be identical.
- ☐ All of the above



✓ 9. FOL Stands for \*

1/1

- ☐ First office order
- ☒ First order logic
- ☐ Firstly order logic



✓ 10. In ontology, we need to consider \*

1/1

- ☐ Object and Categories
- ☒ Unifier
- ☐ Rule



✓ 11. First step of NLP is \*

1/1

- ☒ Lexical Analysis
- ☐ Symantec Analysis
- ☐ Syntactic Analysis



✓ 12. NLP stands for \*

1/1

- ☐ Natural Language Process



☒ Natural Language Processing



☐ Neutral Language processing

✓ 13. Pragmatic analysis means \*

1/1

☒ It involves deriving those aspects of language which require real world knowledge.



☐ It draws the exact meaning or the dictionary meaning from the text.

☐ It involves identifying and analyzing the structure of words.

✓ 14. The .....is the basic information processing unit of a NN. \*

1/1

☒ neuron



☐ Bias

☐ Network

✓ 15. Back propagation used to \*

1/1

☒ modify weights to minimize errors



☐ modify weights to maximize errors

☐ modify algorithm to minimize errors



✗ 16. Calculation of error in backpropagation \*

0/1

- ☐ ErrorB= Actual Output – Desired Output
- ☒ ErrorB= Desired Output – Actual Output

✗

Correct answer

- ☒ ErrorB= Actual Output – Desired Output

✓ 17. Disadvantage of backpropagation is \*

1/1

- ☒ Backpropagation can be quite sensitive to noisy data.
- ☐ It has no parameters to tune apart from the numbers of input.
- ☐ It is a standard method that generally works well.

✓

✓ 18. Types of Machine learning are \*

1/1

- ☒ Reinforcement Learning
- ☒ Supervised Learning
- ☒ Unsupervised Learning

✓

✓

✓

✓ 19. In supervised Learning,.....will be used \*

1/1



- ☒ Labeled data
- ☐ Unlabeled data
- ☐ missing data



✓ 20. In unsupervised Learning,.....will be used \*

1/1

- ☐ Labeled data
- ☒ Unlabeled data
- ☐ missing data



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**1. An Artificial Intelligence system developed by Terry A. Winograd to permit an interactive dialogue about a domain he called blocks-world.**

- ☐ SIMD
- ☐ STUDENT
- ☒ SHRDLU
- ☐ BACON

**View Answer**  
**SHRDLU**

**2. What is Artificial intelligence?**

- ☐ Programming with your own intelligence
- ☐ Putting your intelligence into Computer
- ☒ Making a Machine intelligent
- ☐ Playing a Game

**View Answer**  
**Artificial intelligence is Making a Machine intelligent**

**3. DARPA, the agency that has funded a great deal of American Artificial Intelligence research, is part of the Department of:**

- ☐ Education
- ☒ Defense
- ☐ Energy
- ☐ Justice

**View Answer**  
**DARPA, the agency that has funded a great deal of American Artificial Intelligence research, is part of the Department of Defense.**

**4. Who is the “father” of artificial intelligence?**

- ☐ John McCarthy
- ☒ Fisher Ada
- ☐ Allen Newell
- ☐ Alan Turning

View Answer  
the “father” of artificial intelligence is Fisher Ada .

**5. KEE is a product of:**

- ☒ IntelliCorp
- ☐ Teknowledge
- ☐ Texas Instruments
- ☐ Tech knowledge

View Answer  
KEE is a product of IntelliCorp .

**6. Default reasoning is another type of -**

- ☐ Analogical reasoning
- ☐ Bitonic reasoning
- ☒ Non-monotonic reasoning
- ☐ Monotonic reasoning

View Answer  
Default reasoning is another type of Non-monotonic reasoning.

**7. Weak AI is**

## SUB : 410242 AIR

- ☐ a set of computer programs that produce output that would be considered to reflect intelligence if it were generated by humans.
- ☒ the study of mental faculties through the use of mental models implemented on a computer.
- ☐ the embodiment of human intellectual capabilities within a computer.
- ☐ All of the above

[View Answer](#)

Weak AI is the study of mental faculties through the use of mental models implemented on a computer.

8. If a robot can alter its own trajectory in response to external conditions, it is considered to be:

- ☐ mobile
- ☐ open loop
- ☒ intelligent
- ☐ non-servo

[View Answer](#)

If a robot can alter its own trajectory in response to external conditions, it is considered to be intelligent .

9. One of the leading American robotics centers is the Robotics Institute located at

- ☐ RAND
- ☐ MIT
- ☒ CMU
- ☐ SRI

[View Answer](#)

One of the leading American robotics centers is the Robotics Institute located at CMU

10. What is the name of the computer program that contains the distilled knowledge of an expert?



- ☐ Management information System
- ☒ Expert system
- ☐ Data base management system
- ☐ Artificial intelligence

View Answer

Expert system contains the distilled knowledge of an expert.

11. In LISP, the function evaluates both <variable> and <object> is -

- ☐ setq
- ☐ add
- ☒ set
- ☐ eva

View Answer

In LISP, the function evaluates both <variable> and <object> is set.

12. What is Artificial intelligence?

- ☒ Making a Machine intelligent
- ☐ Putting your intelligence into Computer
- ☐ Programming with your own intelligence
- ☐ putting more memory into Computer

View Answer

Artificial intelligence is Making a Machine intelligent.

13. Which is not the commonly used programming language for AI?

- ☐ PROLOG
- ☐ LISP

- ☒ Perl
- ☐ Java script

[View Answer](#)

Perl is not the commonly used programming language for AI.

14. Which is not a property of representation of knowledge?

- ☐ Inferential Adequacy
- ☐ Representational Adequacy
- ☒ Representational Verification
- ☐ Inferential Efficiency

[View Answer](#)

Representational Verification is not a property of representation of knowledge.

15. A Hybrid Bayesian network contains

- ☒ Both discrete and continuous variables
- ☐ Only Discontinuous variable
- ☐ Both Discrete and Discontinuous variable
- ☐ Continuous variable only.

[View Answer](#)

Both discrete and continuous variables

16. Computational learning theory analyzes the sample complexity and computational complexity of -

- ☐ Forced based learning
- ☐ Weak learning
- ☒ Inductive learning
- ☐ Knowledge based learning.

[View Answer](#)

Computational learning theory analyzes the sample complexity and computational complexity of Inductive learning.

17. Which is true?

- ☐ All formal languages are like natural language
- ☒ Not all formal languages are context-free

[View Answer](#)

Not all formal languages are context-free

18. What stage of the manufacturing process has been described as "the mapping of function onto form"?

- ☐ Distribution
- ☐ project management
- ☒ Design
- ☐ field service

[View Answer](#)

Design

19. Programming a robot by physically moving it through the trajectory you want it to follow is called:

- ☒ continuous-path control
- ☐ robot vision control
- ☐ contact sensing control
- ☐ pick-and-place control

[View Answer](#)

Programming a robot by physically moving it through the trajectory you want it to follow is called continuous-path control.

20. In LISP, the addition  $3 + 2$  is entered as -

- ☐ 3 add 2
- ☐  $3 + 2$
- ☐  $3 + 2 =$
- ☒ (+ 3 2)

View Answer

In LISP, the addition  $3 + 2$  is entered as (+ 3 2) .

21. Knowledge engineering is a field of Artificial intelligence.

- ☒ True
- ☐ False

View Answer

True

22. The first ai programming language was called

- ☐ Python
- ☒ IPL
- ☐ LISP
- ☐ Machine Language

View Answer

The first ai programming language was called IPL

## SUB : 410242 AIR

1. Robotics is a branch of AI, which is composed of \_\_\_\_\_.

**A. Electrical Engineering**

B. Mechanical Engineering

C. Computer Science

D. All of the above

View Answer

Ans : **A**

Explanation: Robotics is a branch of AI, which is composed of Electrical Engineering, Mechanical Engineering, and Computer Science for designing, construction, and application of robots.

2. If a robot has  $k$  legs, then the number of possible events is :

A.  $N = (2k-2)$

**B.  $N = (2k-1)!$**

C.  $N = (2^k-1)!$

D.  $N = (2k-2)!$

View Answer

Ans : **B**

Explanation: If a robot has  $k$  legs, then the number of possible events  $N = (2k-1)!$ .

3. Name the wheel which is used to rotate around the wheel axle and around the contact.

A. Castor wheel

**B. Standard wheel**

C. Swedish 45degree

D. spherical wheel

View Answer

Ans : **B**

Explanation: Standard wheel : Rotates around the wheel axle and around the contact

4. What is the name for information sent from robot sensors to robot controllers?

A. temperature

B. pressure

**C. feedback**

D. signal

[View Answer](#)

Ans : **C**

Explanation: feedback is the name for information sent from robot sensors to robot controllers.

5. For a robot unit to be considered a functional industrial robot, typically, how many degrees of freedom would the robot have?

A. 4

B. 5

**C. 6**

D. 7

[View Answer](#)

Ans : **C**

Explanation: six degrees of freedom would the robot have.

6. Which of the following statements concerning the implementation of robotic systems is correct?

A. implementation of robots CAN save existing jobs

B. implementation of robots CAN create new jobs

C. robotics could prevent a business from closing

**D. All of the above**

[View Answer](#)

Ans : **D**

Explanation: All Options are correct.

7. One of the leading American robotics centers is the Robotics Institute located at?

**A. CMU**

B. MIT

C. RAND

D. SRI

[View Answer](#)

Ans : **A**

Explanation: One of the leading American robotics centers is the Robotics Institute located at CMU.

8. What is full form of OCR in tasks of Computer Vision?

A. Optimum Character Reader

**B. Optical Character Reader**

C. Optimum Castor Reader

D. Optical Castor Reader

View Answer

Ans : B

Explanation: Optical Character Reader is the full form of OCR.

9. Which of the following is not application domains of Computer Vision?

A. Agriculture

B. Biometrics

**C. Page control**

D. Transport

View Answer

Ans : C

Explanation: Page control is not application domains of Computer Vision.

10. computer vision plays vital role in the domains of \_\_\_\_\_.

A. safety

B. security

C. health

**D. All of the above**

View Answer

Ans : D

Explanation: The computer vision plays vital role in the domains of safety, security, health, access, and entertainment.

11. Which of the following is not a type of Robot Locomotion?

A. Legged

B. Wheeled

**C. Tracked deslip**

D. Tracked skid

View Answer

Ans : **C**

Explanation: Tracked deslip is not a type of Robot Locomotion.

12. If a robot has 3 legs, then the number of possible events is :

A. 24

B. 720

**C. 120**

D. 240

View Answer

Ans : **C**

Explanation: The number of possible events  $N = 120$

13. Which of the following is not an essential components for construction of robots?

A. Power Supply

B. Actuators

C. Sensors

**D. Energy**

View Answer

Ans : **D**

Explanation: Engery is not an essential components for construction of robots.

14. Which of the following terms IS NOT one of the five basic parts of a robot?

**A. peripheral tools**

B. end effectors

C. controller

D. drive

View Answer

Ans : **A**

Explanation: peripheral tools is not one of the five basic parts of a robot.



15. Decision support programs are designed to help managers make

- A. budget projections
- B. visual presentations
- C. business decisions**
- D. vacation schedules

View Answer

Ans : C

Explanation: Decision support programs are designed to help managers make business decisions.

16. In LISP, the function returns t if <object> is a CONS cell and nil otherwise

- A. (cons <object>)
- B. (consp <object>)**
- C. (eq <object>)
- D. (cous = <object>)

View Answer

Ans : B

Explanation: In LISP, the function returns t if <object> is a CONS cell and nil otherwise (consp <object>)

17. Which of the following terms refers to the use of compressed gasses to drive (power) the robot device?

- A. pneumatic**
- B. piezoelectric
- C. hydraulic
- D. photosensitive

View Answer

Ans : A

Explanation: pneumatic use of compressed gasses to drive (power) the robot device.

18. What is true about Robots?

- A. They operate in real physical world
- B. Inputs to robots is analog signal in the form of speech waveform or images

C. They need special hardware with sensors and effectors.

**D. All of the above**

View Answer

Ans : D

Explanation: All Options are correct.

19. Which of the following is not application of Robotics?

A. Industries

B. Military

C. Medicine

**D. Hills**

View Answer

Ans : D

Explanation: Hills is not Applications of Robotics.

20. Name the component of robot which is used to contract almost 40% when air is sucked in them.

A. Actuators

B. Muscle Wires

**C. Pneumatic Air Muscles**

D. Sensors

View Answer

Ans : C

Explanation: Pneumatic Air Muscles : They contract almost 40% when air is sucked in them.

1) Artificial Intelligence is about\_\_\_\_\_.

- a. Playing a game on Computer
- b. Making a machine Intelligent**
- c. Programming on Machine with your Own Intelligence
- d. Putting your intelligence in Machine

**Answer: b.** Making a machine Intelligent.

**Explanation:** Artificial Intelligence is a branch of Computer science, which aims to create intelligent machines so that machine can think intelligently in the same manner as a human does.

---

2) Who is known as the -Father of AI"?

- a. Fisher Ada
- b. Alan Turing
- c. John McCarthy**
- d. Allen Newell

**Answer: c.** John McCarthy

**Explanation:** John McCarthy was a pioneer in the AI field and known as the father of Artificial intelligence. He was not only the known as the father of AI but also invented the term Artificial Intelligence.

---

3) Select the most appropriate situation for that a blind search can be used.

- a. Real-life situation
- b. Small Search Space**
- c. Complex game
- d. All of the above

**Answer: b.** Small Search Space

**Explanation:** Blind Search is also known as uninformed search, and it does not contain any domain information such as closeness, location of the goal, etc. Hence the most appropriate situation that can be used for the blind search is Small-search Space.

---

4) The application/applications of Artificial Intelligence is/are

- a. Expert Systems
- b. Gaming
- c. Vision Systems
- d. All of the above**

**Answer: d.** All of the above

**Explanation:** All the given options are the applications of AI.

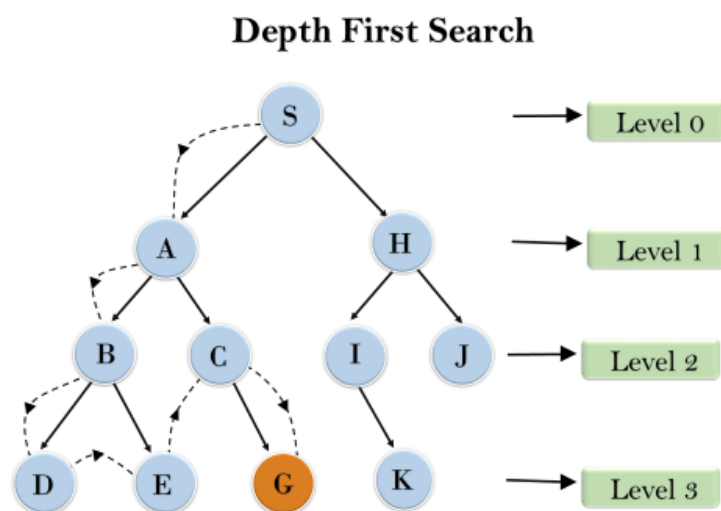
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5) Among the given options, which search algorithm requires less memory?

- a. Optimal Search
- b. Depth First Search**
- c. Breadth-First Search
- d. Linear Search

**Answer: b.** Depth First Search

**Explanation:** The Depth Search Algorithm or DFS requires very little memory as it only stores the stack of nodes from the root node to the current node.



6) If a robot is able to change its own trajectory as per the external conditions, then the robot is considered as the\_\_

- a. Mobile
- b. Non-Servo
- c. Open Loop
- d. Intelligent**

**Answer: d.** Intelligent

**Explanation:** If a robot is able to change its own trajectory as per the external conditions, then the robot is considered intelligent. Such type of agents come under the category of AI agents or Rational Agents.

---

7) Which of the given language is not commonly used for AI?

- a. LISP
- b. PROLOG
- c. Python
- d. Perl**

**Answer: d.** Perl

**Explanation:** Among the given languages, Perl is not commonly used for AI. LISP and PROLOG are the two languages that have been broadly used for AI innovation, and the most preferred language is Python for AI and Machine learning.

---

8) A technique that was developed to determine whether a machine could or could not demonstrate the artificial intelligence known as the\_\_\_\_

- a. Boolean Algebra
- b. Turing Test**
- c. Logarithm
- d. Algorithm

**Answer: b.** Turing Test

**Explanation:** In the year **1950**, mathematician and computing pioneer **Alan Turing** introduced a test to determine whether a machine can think like a human or not, which means it can demonstrate intelligence, known as the **Turing Test**. It was based on the "**Imitation game**" with some modifications. This technique is still a measure of various successful AI projects, with some updates.

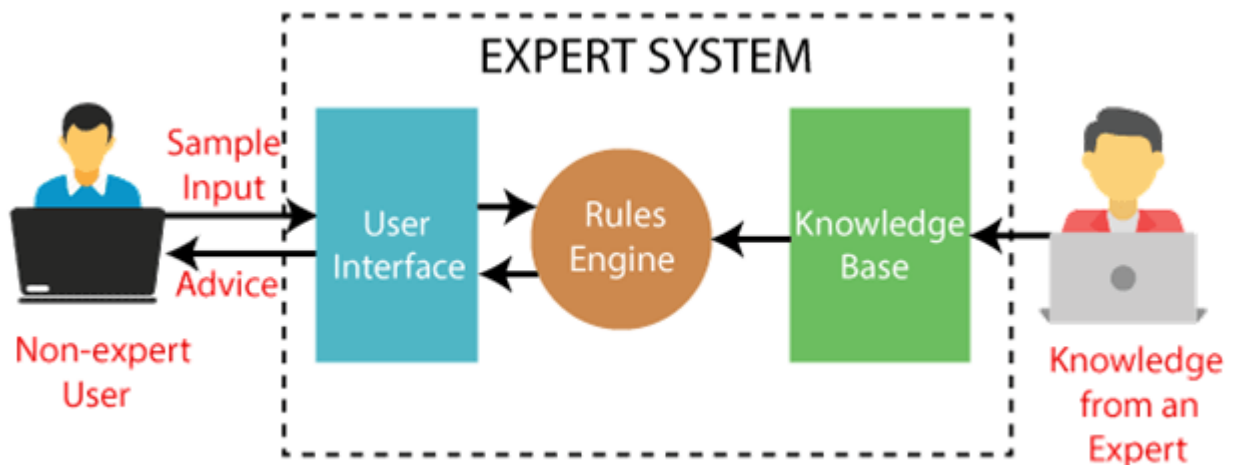
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9) The component of an Expert system is\_\_\_\_\_.

- a. Knowledge Base
- b. Inference Engine
- c. User Interface
- d. All of the above**

**Answer: d.** All of the above

**Explanation:** Expert system is a part of AI and a computer program that is used to solve complex problems, and to give the decision-making ability like human. It does this with the help of **a Knowledge base, Inference engine, and User interface**, and all these are the components of an Expert System.



10) Which algorithm is used in the Game tree to make decisions of Win/Lose?

- a. Heuristic Search Algorithm
- b. DFS/BFS algorithm
- c. Greedy Search Algorithm
- d. Min/Max algorithm**

**Answer: d.** Min/Max Algorithm

**Explanation:** A game tree is a directed graph whose nodes represent the positions in Game and edges represent the moves. To make any decision, the game tree uses the Min/Max algorithm. The **Min/Max algorithm** is the preferred one over other search algorithms, as it provides the best move to the player, assuming that the opponent is also playing Optimally.

11) The available ways to solve a problem of state-space-search.

- a. 1
- b. 2**
- c. 3
- d. 4

**Answer: b. 2**

**Explanation:** There are only two ways to solve the problems of state-space search.

---

12) Among the given options, which is not the required property of Knowledge representation?

- a. Inferential Efficiency
- b. Inferential Adequacy
- c. Representational Verification**
- d. Representational Adequacy

**Answer: C. Representational Verification**

**Explanation:** Knowledge representation is the part of Artificial Intelligence that deals with AI agent thinking and how their thinking affects the intelligent behavior of agents. A good knowledge representation requires the following properties:

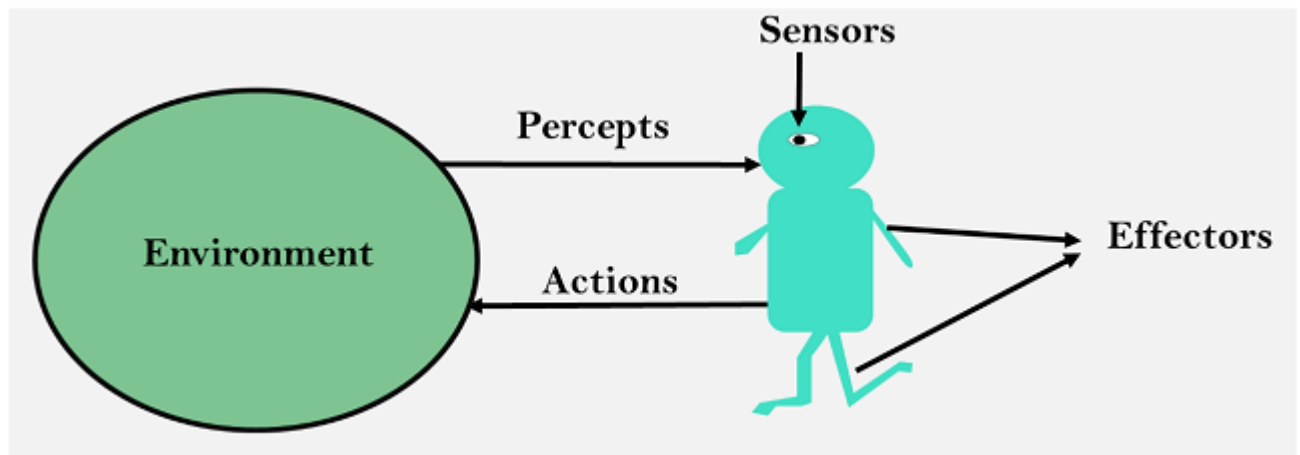
- **Representational Accuracy**
  - **Inferential Adequacy**
  - **Inferential Efficiency**
  - **Acquisitional efficiency**
- 

13) An AI agent perceives and acts upon the environment using\_\_\_\_\_.

- a. Sensors
- b. Perceiver
- c. Actuators
- d. Both a and c**

**Answer: d. Both a and c.**

**Explanation:** An AI agent perceives and acts upon the environment using Sensors and Actuators. With Sensors, it senses the surrounding, and with Actuators, it acts on it.



14) Which rule is applied for the Simple reflex agent?

- a. Simple-action rule
- b. Simple &Condition-action rule
- c. Condition-action rule**
- d. None of the above

**Answer: c.** Condition-action rule

**Explanation:** The simple reflex agent takes decisions only on the current condition and acts accordingly; it ignores the rest of history; hence it follows the Condition-action rule.

15) Which agent deals with the happy and unhappy state?

- a. Utility-based agent**
- b. Model-based agent
- c. Goal-based Agent
- d. Learning Agent

**Answer: a.** Utility-based agent

**Explanation:** Utility-based agent uses an extra component of utility that provides a measure of success at a given state. It decides that how efficient that state to achieve the goal, which specifies the happiness of the agent.



16) Rational agent always does the right things.

**a. True**

b. False

**Answer: a. True**

**Explanation:** Rational agent has clear preference, goal, and acts in a way to maximize its performance. It is said that it always does the right things, which means it gives the best performance for each action.

---

17) Which term describes the common-sense of the judgmental part of problem-solving?

a. Values-based

b. Critical

c. Analytical

**d. Heuristic**

**Answer: d. Heuristic**

**Explanation:** In problem-solving, the Heuristic describes the common sense or Judgemental part.

---

18) Which AI technique enables the computers to understand the associations and relationships between objects and events?

a. Heuristic Processing

b. Cognitive Science

c. Relative Symbolism

**d. Pattern Matching**

**Answer: d. Pattern Matching**

**Explanation:** Pattern matching is a way to check a given sequence of tokens in order to determine the presence of a given character or data in the given sequence. It allows computers to understand the relationship between objects and events.

---

19) The exploration problem is where\_\_\_\_\_.

- a. Agent contains the knowledge of State and actions.
- b. Agent does not contain the knowledge of State and actions.**
- c. Only actions are known to the agent.
- d. None of the above

**Answer: b.** Agent does not contain knowledge State and actions

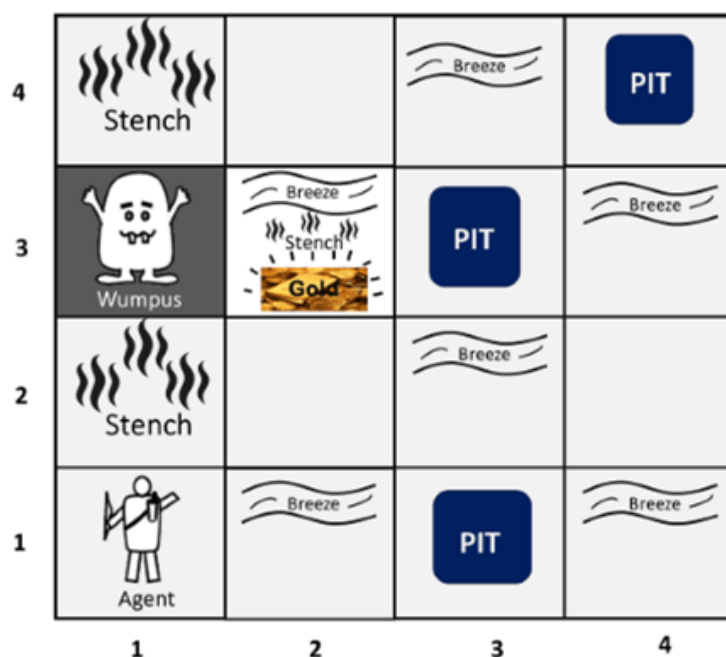
**Explanation:** In Exploration problems, the agent does not contain the knowledge of state space and actions in advance. These are difficult problems and used in the real world.

20) In the Wumpus World Problem, the reason for the uncertainty is that the agent's sensor gives only\_\_\_

- a. Full & Global information
- b. Partial & Global Information
- c. Full & local information
- d. Partial & local Information**

**Answer: d.** Partial & local Information

**Explanation:** The Wumpus world is an example environment that is made of grids of squares surrounded by walls. Each square can have agents or objects. The world is used to demonstrate the worth of a knowledge-based agent and knowledge representation. In the environment, uncertainty arises as the agent can only perceive the close environment. The Wumpus world is represented in below image:



21) The search algorithm which is similar to the minimax search, but removes the branches that don't affect the final output is known as\_\_.

- a. Depth-first search
- b. Breadth-first search
- c. Alpha-beta pruning**
- d. None of the above

**Answer: c.** Alpha-beta pruning

**Explanation:** Alpha-beta pruning algorithm is the modified version of the Minimax algorithm and returns the same moves as the original algorithm, but it removes all those nodes/branches that do not affect the final decision.

---

22) The maximum depth to which the alpha-beta pruning can be applied.

- a. Eight states
- b. Six states
- c. Ten states
- d. Any depth**

**Answer: d.** Any depth

**Explanation:** The Alpha-beta pruning can be applied to any depth of the tree and it can eliminate the entire subtree, if it is not affecting the final decision.

---

23) Among the given options, which is also known as inference rule?

- a. Reference
- b. Reform
- c. Resolution**
- d. None of the above

**Answer: c.** Resolution

**Explanation:** Resolution is also known as inference rule as it shows the complete inference rule when applied to any search algorithm.

24) Which of the following option is used to build complex sentences in knowledge representation?

- a. Symbols
- b. Connectives**
- c. Quantifier
- d. None of the above

**Answer: b. Connectives**

**Explanation:** Complex sentences are built by combining the atomic sentences using connectives.

25) Automatic Reasoning tool is used in\_\_\_\_\_.

- a. Personal Computers
- b. Microcomputers
- c. LISP Machines**
- d. All of the above

**Answer: c. LISP Machine**

**Explanation:** ART or Automatic Reasoning tool is used in LISP machines to understand the different aspects of reasoning.

---

26) If according to the hypothesis, the result should be positive, but in fact it is negative, then it is known as\_\_\_\_\_.

- a. False Negative Hypothesis
- b. False Positive Hypothesis**
- c. Specialized Hypothesis
- d. Consistent Hypothesis

**Answer: b. False Positive Hypothesis**

**Explanation:** The False Positive Hypothesis means that according to results, you have that condition, but in reality, you don't have it. Such as for a medical test, if someone is found Positive for a disease, but actually he doesn't have that disease, then it comes under the False Positive hypothesis.

27) A hybrid Bayesian Network consist\_\_\_\_\_.

- a. Discrete variables only
- b. Discontinuous Variable
- c. Both Discrete and Continuous variables**
- d. Continuous Variable only

**Answer: c.** Both Discrete and Continuous Variables

**Explanation:** The Hybrid Bayesian network contains both discrete and continuous variables as the numerical inputs. To define the hybrid network, both kinds of distributions are used at wide probability distribution.

---

28) The process of capturing the inference process as Single Inference Rule is known as:

- a. Clauses
- b. Ponens
- c. Generalized Modus Ponens**
- d. Variables

**Answer: c.** Generalized Modus Ponens

**Explanation:** For all inference process in FOL, the single inference rule can be used, which is called Generalized Modus Ponens. It is said to be the lifted version of Modus ponens.

Generalized Modus Ponens can be said as, "**P implies Q and P is asserted to be true, therefore Q must be True.**"

---

29) Which process makes two different Logical expressions look identical?

- a. Unification**
- b. Lifting
- c. Inference Process
- d. None of the above

**Answer: a.** Unification

**Explanation:** Unification is the process of making two different logical expressions identical by finding a substitution.

---

30) Which algorithm takes two sentences as input and returns a Unifier?

- a. Inference
- b. Hill-Climbing
- c. Unify algorithm**
- d. Depth-first search

**Answer:** c. Unify Algorithm

**Explanation:** The unify algorithm takes two atomic sentences and return a unifier. It is used for the unification process.

---

31) The PEAS in the task environment is about\_\_\_\_\_.

- a. Peer, Environment, Actuators, Sense
- b. Performance, Environment, Actuators, Sensors**
- c. Perceiving, Environment, Actuators, Sensors
- d. None of the above

**Answer:** b. Performance, Environment, Actuators, Sensors

**Explanation:** PEAS is a representation model on which an AI agent works. It is made up of four words:

- P: Performance
  - E: Environment
  - A: Actuators
  - S: Sensors
- 

32) In state-space, the set of actions for a given problem is expressed by the\_\_\_\_\_.

- a. Intermediate States
- b. Successor function that takes current action and returns next state**

- c. Initial States
- d. None of the above

**Answer: b.** Successor function that takes current action and returns next state

**Explanation:** The successor function provides a description of all possible actions and their next states, which means their outcomes.

---

33) In which search problem, to find the shortest path, each city must be visited once only?

- a. Map coloring Problem
- b. Depth-first search traversal on a given map represented as a graph
- c. Finding the shortest path between a source and a destination
- d. Travelling Salesman problem**

**Answer: d.** Travelling Salesman problem

**Explanation:** The TSP or Travelling Salesman problem is about finding the shortest possible route to visit each city only once and returning to the origin city when the list of all cities and distances between each pair of cities is given.

---

34) In the TSP problem of  $n$  cities, the time taken for traversing all cities, without having prior knowledge of the length of the minimum tour will be\_\_\_\_\_.

- a.  $O(n)$
- b.  $O(n^2)$
- c.  $O(n!)$**
- d.  $O(n/2)$

**Answer: c.**  $O(n!)$

**Explanation:** In the TSP problem of  $n$  cities, the time taken for traversing all cities without having prior knowledge of the length of the minimum tour will be  $O(n!)$ .

---

35) Web Crawler is an example of\_\_\_\_\_.

- a. Intelligent Agent**

- b. Problem-solving agent
- c. Simple reflex agent
- d. Model-based agent

**Answer: a.** Intelligent Agent

**Explanation:** The web crawler is an example of Intelligent agents, which is responsible for collecting resources from the Web, such as HTML documents, images, text files, etc.

---

36) The main function of problem-solving agent is to\_\_\_\_\_.

- a. Solve the given problem and reach the goal
- b. Find out which sequence of action will get it to the goal state.
- c. Both a & b**
- d. None of the above

**Answer: c.** Both a & b

**Explanation:** Problem-solving agents are the goal-based agents that use different search strategies and algorithms to solve a given problem.

---

37) In artificial Intelligence, knowledge can be represented as\_\_\_\_\_.

- i. Predicate Logic
- ii. Propositional Logic
- iii. Compound Logic
- iv. Machine Logic

**a. Both I and II**

- b. Only II
- c. Both II and III
- d. Only IV

**Answer: a.** Both I and II

**Explanation:** There are several techniques of Knowledge representation in AI, and among them, one is Logical Representation. The logical representation can be done



in two ways **Predicate Logic and Propositional Logic**, hence knowledge can be represented as both predicate and Propositional logic.

---

38) For propositional Logic, which statement is false?

**a. The sentences of Propositional logic can have answers other than True or False.**

- b. Each sentence is a declarative sentence.
- c. Propositional logic is a knowledge representation technique in AI.
- d. None of the above

**Answer: a.** The sentences of Propositional logic can have answers other than True or False

**Explanation:** Propositional Knowledge or PL is the simplest form of logic that is used to represent the knowledge, where all the sentences are propositions. In this, each sentence is a declarative sentence that can only be either true or False.

Such as, **It is Sunday today.** This sentence can be either true or false only.

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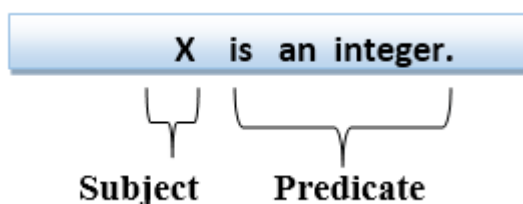
39) First order logic Statements contains\_\_\_\_\_.

- a. Predicate and Preposition
- b. Subject and an Object
- c. Predicate and Subject**
- d. None of the above

**Answer: c.** Predicate and Subject

**Explanation:** The **first-order logic** is also known as the First-order predicate logic, which is another way of knowledge representation. The FOL statements contain two parts that are **subject and Predicate**.

For e.g., **X is an Integer; In this, X is Subject and Is an Integer is Predicate.**



40) A knowledge-based agent can be defined with \_\_\_\_\_ levels.

- a. 2 Levels
- b. 3 Levels**
- c. 4 Levels
- d. None of the above

**Answer: b. 3 Levels**

**Explanation:** The knowledge-based agents have the capability of making decisions and reasoning to act efficiently. It can be viewed at three different levels, which are:

- o **Knowledge Level**
  - o **Logical Level**
  - o **Implementation Level**
- 

41) Ways to achieve AI in real-life are\_\_\_\_\_.

- a. Machine Learning
- b. Deep Learning
- c. Both a & b**
- d. None of the above

**Answer: c. Both a & b**

**Explanation:** Machine Learning and Deep Learning are the two ways to achieve AI in real life.

---

42) The main tasks of an AI agent are\_\_\_\_\_.

- a. Input and Output
- b. Moment and Humanly Actions
- c. Perceiving, thinking, and acting on the environment**
- d. None of the above

**Answer: c. Perceiving, thinking, and acting on the environment**

**Explanation:** The AI agent is the rational agent that runs in the cycle of Perceive, think, and act.

43) The probabilistic reasoning depends upon\_\_\_\_\_.

- a. Estimation
- b. Observations
- c. Likelihood
- d. All of the above**

**Answer: d.** All of the above

**Explanation:** The probabilistic reasoning is used to represent uncertain knowledge, where we are not sure about the predicates. It depends Upon Estimation, Observation, and likelihood of objects.

---

44) The inference engine works on \_\_\_\_\_.

- a. Forward Chaining
- b. Backward Chaining
- c. Both a and b**
- d. None of the above

**Answer: c.** Both a and b

**Explanation:** The inference engine is the component of the intelligent system in artificial intelligence, which applies logical rules to the knowledge base to infer new information from known facts. The first inference engine was part of the expert system. Inference engine commonly proceeds in two modes, which are:

- **Forward chaining**
  - **Backward chaining**
- 

45) Which of the given statement is true for Conditional Probability?

- a. Conditional Probability gives 100% accurate results.
- b. Conditional Probability can be applied to a single event.
- c. Conditional Probability has no effect or relevance on independent events.**
- d. None of the above.

**Answer: c.** Conditional Probability has no effect or relevance on independent events.

**Explanation:** The conditional probability is said as the probability of occurring an event when another event has already occurred. And Independent events are those that are not affected by the occurrence of other events; hence conditional probability has no effect or relevance on independent events.

---

46) After applying conditional Probability to a given problem, we get\_\_\_\_\_

- a. 100% accurate result
- b. Estimated Values**
- c. Wrong Values
- d. None of the above

**Answer: b.** Estimated Values

**Explanation:** Like all probability theories and methods, Conditional Probability also provides the estimated result value, which means the probability of an event to occur, not a 100% accurate result.

---

47) The best AI agent is one which\_\_\_\_\_

- a. Needs user inputs for solving any problem
- b. Can solve a problem on its own without any human intervention**
- c. Need a similar exemplary problem in its knowledge base
- d. All of the above

**Answer: b.** Can solve a problem on its own without any human intervention

**Explanation:** The best AI agent is one that can solve the problem on its own without any human intervention.

---

48) The Bayesian Network gives\_\_\_\_\_

- a. A complete description of the problem
- b. Partial Description of the domain

**c. A complete description of the domain**

d. None of the above

**Answer: c.** A complete description of the domain

**Explanation:** A **Bayesian network** is a probabilistic graphical model that represents a set of variables and their conditional dependencies using a directed acyclic graph. It gives a complete description of the domain.

---

49) In LISP, the addition of 5+8 is entered as\_\_\_\_\_.

a. 5+8

b. 5 add 8

c. 5+8=

**d. (+5 8)**

**Answer: d.** (+5 8)

**Explanation:** The sum of two variables a & b can be entered as (+a b). Hence the sum of 5 and 8 can be entered as (+5 8).

---

50) An Algorithm is said as Complete algorithm if\_\_\_\_\_

**a. It ends with a solution (if any exists).**

b. It begins with a solution.

c. It does not end with a solution.

d. It contains a loop

**Answer: a.** It ends with a solution (if any exists).

**Explanation:** An algorithm is only said the complete algorithm if it ends with a solution (if it exists).

---

51) Which statement is valid for the Heuristic function?

a. The heuristic function is used to solve mathematical problems.

b. The heuristic function takes parameters of type string and returns an integer value.

- c. The heuristic function does not have any return type.
- d. **The heuristic function calculates the cost of an optimal path between the pair of states.**

**Answer: d.** The heuristic function calculates the cost of an optimal path between the pair of states

**Explanation:** The heuristic function is used in **Informed search in AI** to find the most promising path in the search. It estimates the closeness of the current state and calculates the cost of an optimal path between the pair of states. It is represented **by  $h(n)$** .

---

52) Which of the given element improve the performance of AI agent so that it can make better decisions?

- a. Changing Element
- b. Performance Element
- c. Learning Element**
- d. None of the above

**Answer: c.** Learning Element

**Explanation:** The learning element improves the performance of an AI agent while solving a given problem, so that it can make better decisions.

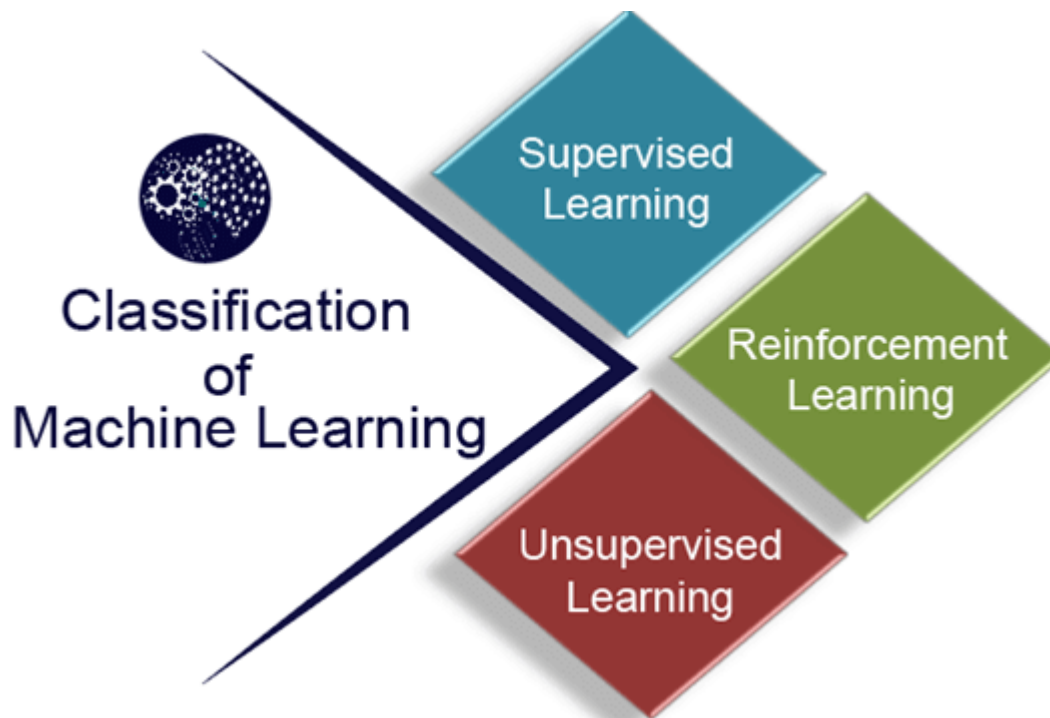
---

53) How many types of Machine Learning are there?

- a. 1
- b. 2
- c. 3**
- d. 4

**Answer: c.** 3

**Explanation:** There are three types of Machine Learning techniques, which are Supervised Learning, Unsupervised Learning, and Reinforcement Learning.



54) The decision tree algorithm reaches its destination using\_\_\_\_\_.

- a. Single Test
- b. Two Test
- c. Sequence of test**
- d. No test

**Answer: c.** Sequence of test

**Explanation:** A decision tree is the supervised machine learning technique that can be used for both Classification and Regression problems. It reaches its destination using a Sequence of Tests.

55) In LISP programming, the square root is entered as\_\_\_\_\_.

- a. Sqrt(x)
- b. (sqrt x)**
- c.  $x/2$
- d. none of the above

**Answer: b.** (sqrt x)

**Explanation:** In LISP programming, the square root of any variable x is entered as (sqrt x).

## AIR PCCOE Unit 1-3

What is true about Artificial Intelligence?

- A. The ability to solve problems” .
- B. The ability to act rationally.
- C. The ability to act like humans

**D. All of the above**

ANSWER: D

Which of the following are Informed search algorithms?

- A. Best First Search
- B. A\* Search
- C. Iterative Deeping Search

**D. Both a & b**

ANSWER: D

If there is a solution, breadth first search is \_\_\_\_\_ to find it

A. Difficult

**B. Guaranteed**

C. Not able to find

D. None of the above

ANSWER: B

Which search strategy is combining the benefits of both BFS and DFS?

A. Depth Limited Search

B. A\*

**C. Iterative Deepening Depth first search**

D. Best first search

ANSWER: C

Admissibility of the heuristic function is given as:



A.  $h(n) \geq h^*(n)$

B.  $h(n) < h^*(n)$

C.  $h(n) = h^*(n)$

D.  $h(n) \leq h^*(n)$

ANSWER: D

The efficiency of A\* algorithm depends on \_\_\_\_\_

A. depth

B. the quality of heuristic

C. unknown nodes

D. d. None of the above

ANSWER: B

What is the termination criteria in Hill climbing?

A. when no successor of the node has better heuristic value.

B. when successor of the node has better heuristic value.

C. when no ancestor of the node has better heuristic value.

D. when ancestor of the node has better heuristic value.

ANSWER: A

What is true about variable neighborhood function?

A. Neighbourhood functions that are sparse lead to quicker movement during search

B. algorithm has to inspect very fewer neighbours

C. VDN starts searching with sparse Neighbourhood functions, when it reaches an optimum, it switches to denser function.

D. All of the above

ANSWER: D

\_\_\_\_\_ requires Linear Space but uses backtracking

A. Breadth First Search

B. Recursive Best First Search (RBFS)

C. A\*

D. IDA\*

ANSWER: B

Which property asks that the algorithm is locally admissible?

A. Admissibility

B. Monotonicity

C. Informedness

D. None of the above

ANSWER: B

A\* Search Algorithm \_\_\_\_\_

A. does not expand the node which have the lowest value of  $f(n)$ ,

B. finds the shortest path through the search space using the heuristic function i.e  $f(n)=g(n) + h(n)$

C. terminates when the goal node is not found.

D. All of the above

ANSWER: B

Which is not problem in Hill climbing?

A. Plateau

B. Ridges

C. Local Maximum

D. landscape

ANSWER: D

Tabu search is designed \_\_\_\_\_

A. as it does not follow aspiration criteria

B. to escape the trap of local optimality.

C. to unrecord forbidden moves, which are referred to as tabu moves .

D. All of the above

ANSWER: B

Production/Rule looks like \_\_\_\_\_

A. Pattern-->Data

B. Action-->Data

C. Pattern-->Action

D. None of the above

ANSWER: C

How can we convert AO graph with mixed nodes into graph with pure AND and OR nodes?

A. By traversing multiple node

B. By deleting one of the node

C. By addition of extra node

D. None of the above

ANSWER: C

Arc consistency in AO graph is concerned with \_\_\_\_\_

A. Nodes

B. finding consistent values for pairs of variables.

C. unary constraint

D. All of the above

ANSWER: B

A planning problem P in BSSP is defined as a \_\_\_\_\_

A. triple (S, G, O)

B. triple (S1, S2, O)

C. triple (G1, G, O)

D. None of the above

ANSWER: A

Plan representation in Plan Space Planning is done with\_\_ -----links

A. binding links

B. ordering links and casual link

C. Contigent link

D. head step

ANSWER: B

What is true about Iterative Deepening DFS?

A. It does not perform DFS in a BFS fashion.

B. It is the preferred informed search method

C. It's a Depth First Search, but it does it one level at a time, gradually increasing the limit, until a goal is found.

D. Is a depth-first search with a fixed depth limit l

ANSWER: C

What is the main advantage of backward state-space search?

A. Cost

B. Actions

C. Relevant actions

D. All of the mentioned

ANSWER: C

Backward State Space Planning (BSSP)\_\_\_\_\_

A. simply explores the set of all future states in possible order

B. Start searching backwards from the goal

C. leads to huge search space

D. has no sense of direction

ANSWER: B

In Backward State Space Planning , $\text{regress}(A,G)$  that returns \_\_\_\_\_

A. the regressed goal over action A when applied to goal G.

B. the goal state over action A when applied to goal G.

C. the initial state over action A when applied to goal G.

D. Both A & B

ANSWER: A

What is true about Backward State Space Planning?

A. goal states are often incompletely specified.

B. expresses only what is desired in the final state, rather than a complete description of the final state.

C. It uses regression

D. All of the above

ANSWER: D

effects<sup>+</sup> (a) in Forward State Space Planning denotes \_\_\_\_\_

A. denotes the set of negative effects of action a

B. denotes the set of neutral effects of action a

C. denotes the set of positive effects of action a

D. None of the above

ANSWER: C

In Forward State Space Planning , Progress ( A, S) function returns \_\_\_\_\_

A. the successor state S when action A is applied to state S.

B. the predecessor state S when action A is applied to state S.

C. Both A & B

D. None of the above

ANSWER: A

What are the drawbacks of Forward State Space Planning?

A. FSSP has very huge search space

B. It includes the actions that have nothing to do with achieving the goal

C. Regression is used in Forward State Space Planning

D. Both A & B

ANSWER: D

What arcs represents in AO Graph?

A. subproblem to be solved individually

B. solution

C. Path

D. Sequence of actions

ANSWER: A

Which are the first AI applications of AO graph?

A. SAINT

B. XCON

C. DENDRAL

D. Both A and C

ANSWER: D

What is Hyper-Edge in AO Graph?

A. Many edges together can be Hyber edge

B. Those are AND Edges only

C. Both 1 and 2

D. None of the above

ANSWER: C

What cost is assumed for arc while solving AO\* progress example?

A. 0

B. 1

C. 2

D. 3

ANSWER: B

What is the heuristic cost of SOLVED nodes in AO\* example?

A. 0

B. 1

C. 2

D. 3

ANSWER: A

What is used to label primitive problems in AO problem?

A. Unvisited

B. UNSOLVED

C. SOLVED

D. visited

ANSWER: C

What is the issue of Forward State Space Planning?

A. low branching factor.

B. large branching factor.

C. work in forward fashion

D. work in backward fashion

ANSWER: B

Goal Stack Planning breaks up a \_\_\_\_\_

A. initial state

B. stack in different part

C. set of goal predicates into individual subgoals

D. All of the above

ANSWER: C

What is true about Linear Planning?

A. It refers to the fact that the subgoals are attempted and solved in a linear order.

B. attempts to solve subgoals individually one after another.

C. attempts to solve subgoal individually in non linear fashion

D. Both A & B

ANSWER: D

Agent interacts with the world via \_\_\_\_\_ and \_\_\_\_\_

A. decision , effect

B. Perception, decision

C. Perception, Action

D. Perception, effect

ANSWER: C

The start node for search in plan space planning is \_\_\_\_\_

A. BFS

B. DFS

C. Both DFS and BFS

D. A\*

ANSWER: C

In which chaining, the Left-Hand side is used to match the rules and Right-Hand side is used to check the effect of using the rule.

A. Forward Chaining

B. Backward Chaining

C. Reverse Chaining

D. Both B & C

ANSWER: A

The components of Expert system are?

A. A Set of Rules, The Inference Engine (IE), Forward Chaining

B. A Set of Rules, Backward Chaining, A Working Memory (WM)

C. A Set of Rules, The Inference Engine (IE), A Working Memory (WM)

D. A Set of Rules, Forward Chaining, Backward Chaining

ANSWER: C



The working memory of the problem solver is like its \_\_\_\_\_

- A. Long term memory
- B. Short term memory
- C. Permanent Memory
- D. None of these

ANSWER:B

\_\_\_\_\_ search regresses over goals and validate a plan before returning it.

A.Forward state space

B.Backward state space

C.Goal stack

D.None of these

ANSWER:B

\_\_\_\_\_ Procedure selects a flaw in a given plan and looks for a resolver.

A.Goal stack planning

B.The plan space planning

C.Recursive goal stack planning

D.Partial order Planning

ANSWER:B

The relationships between behavioral acts are not defined in the partial order plan until absolutely necessary.

A.True

B.False

ANSWER:B

A\* generates will not generate optimal solution if  $h(n)$  is a consistent heuristics and the search space is graph

A.True

B.False

ANSWER:B

Which of the following combination of labels is not allowed for W joint in scene labelling is not allowed

A.(+,-,+)

B.(-,+, -)

C.(←,+,←)

D.(←,←,←)

ANSWER:D

If it is possible to extend each pair of consistent variable instantiation to a third variable, a CSP is said to be \_\_\_\_\_

A.Arc Consistent

B.I- Consistent

C.Path consistent.

D.2- consistent

ANSWER:C

The \_\_\_\_\_ algorithm explores the domain in a depth first manner.

A.Backtracking

B.Forward checking

C.Arc consistency

D.Strategic Retreat

ANSWER:A

\_\_\_\_\_ are mathematical problems defined as a set of objects whose state must satisfy a number of constraints or limitations.

A.Constraints Satisfaction Problems

B.Uninformed Search Problems

C.Local Search Problems

D.All of the mentioned

ANSWER:A

Which of the Following problems can be modeled as CSP?

- A.8-Puzzle problemB.
- B.8-Queen problem
- C.Map coloring problem

D.All of the mentioned

ANSWER:D

The term \_\_\_\_\_ is used for a depth-first search that chooses values for one variable at a time and returns when a variable has no legal values left to assign.

- a) Forward search
- b) Backtrack search
- c) Hill algorithm
- d) Reverse-Down-Hill search

ANSWER:B

Consider a problem of preparing a schedule for a class of student. What type of problem is this?

- a) Search Problem
- b) Backtrack Problem
- c) CSP
- d) Planning Problem

ANSWER:C

Constraint satisfaction problems on finite domains are typically solved using a form of \_\_\_\_\_

- a) Search Algorithms
- b) Heuristic Search Algorithms
- c) Greedy Search Algorithms
- d) All of the mentioned

ANSWER:D

Backtracking is based on \_\_\_\_\_

- A.Last in first out
- B.First in first out

C. Recursion

D. Both Last in first out & Recursion

ANSWER: D

The inference engine goes through which cycle?

A. Match-Resolve-Execute

B. Execute-Resolve-Match

C. Resolve Match Match

D. Resolve Match Execute

ANSWER: A

The output of MATCH routine in Inference Engine is \_\_\_\_\_

A. Pattern set

B. Conflict set (CS)

C. Rule set

D. Action set

ANSWER: B

Operator PUTDOWN has which of the following sequence of actions?

A. holding(x), Ontable(x), holding(x)

B. holding(x), armempty, holding(x)

C. holding(x), Ontable(x)

D. holding(x), Ontable(x) ^ armempty, holding(x)

ANSWER: D

Frame problem in STRIPS Domain can be solved by \_\_\_\_\_

A. Operator

B. Frame Axioms

C. Precondition

D. Action

ANSWER: B

PDDL stands for \_\_\_\_\_

- A. Path data description Language
- B. Planning Domain Description Language**
- C. Planning data Description Language
- D. Path data deleted Language

ANSWER: B

In PDDL, the Language is based on \_\_\_\_\_

- A. Propositional logic notation
- B. Second Order Logic Notation
- C. First Order Logic Notation**
- D. All of these

ANSWER: C

STRIPS operators are made up of which three components:

- A. P: Precondition List , A: Add List , D:Delete List**
- B. P: Postcondition List , A: Add List , D:Delete List
- C. P: Precondition List , S: Sub List , D:Delete List
- D. P: Postcondition List , S: Sub List , D:Delete List

ANSWER: A

Which search algorithm imposes a fixed depth limit on nodes?

- A. Depth-limited search**
- B. Depth-first search
- C. Iterative deepening search
- D. Bidirectional search

ANSWER: A

In a rule-based system, procedural domain knowledge is in the form of: \_\_\_\_\_

- A. production rules**

- B. rule interpreters
- C. meta-rules
- D. control rules

ANSWER: A

\_\_\_\_\_ is a state that is better than all its neighboring states but is not better than some other states further away

- A. Plateau
- B. Local Maximum**
- C. Global Maximum
- D. All of the above

ANSWER: B

\_\_\_\_\_ algorithm keeps track of k states rather than just one.

- A. Hill-Climbing search
- B. Local Beam search**
- C. Stochastic hill-climbing search
- D. Random restart hill-climbing search

ANSWER: B

Which is the most straightforward approach for planning algorithm?

- A. Best-first search
- B. State-space search**
- C. Depth-first search
- D. Hill-climbing search

ANSWER: B

\_\_\_\_\_ is/are the well known Expert System/s for medical diagnosis systems

- A. MYSIN**
- B. CADUCEUS
- C. DENDRAL

D. SMH.PAL

ANSWER: A

Which of the following statement(s) is true for Sparse-Memory Graph Search (SMGS)?

A. The boundary is defined as those nodes in CLOSED that have at least one successor still in OPEN

B. The nodes in CLOSED that are not on the boundary are in the kernel

C. The number of relay nodes on each path is exactly one.

**D. Both A & B**

ANSWER: D

When do we call the states are safely explored?

A.A goal state is unreachable from any state

B.A goal state is denied access

**C.A goal state is reachable from every state**

C.None of the mentioned

ANSWER:C

Which of the following algorithm is generally used CSP search algorithm?

A.Breadth-first search algorithm

**B.Depth-first search algorithm**

C.Hill-climbing search algorithm

D.None of the mentioned

ANSWER:B

Which of the following conditions must hold for a solution to a CSP?

A.All relations in all constraints must hold

**B.At least one relation in all constraints must hold.**

C.More than one relation in all constraints must hold.

D.All relations in at least one constraint must hold.

ANSWER:B

Which of the following are true for the algorithms Beam Stack Search (BSS) and Divide-and-Conquer Beam Stack Search (DCBSS).

- A. BSS finds the optimal path while DCBSS does not.
- B. DCBSS finds the optimal path while BSS does not.
- C. Both BSS and DCBSS find the optimal path
- D. Neither BSS and DCBSS find the optimal path

ANSWER: C

The performance of an agent can be improved by \_\_\_\_\_

- A. Learning
- B. Observing
- C. Perceiving
- D. Sensing

ANSWER: A

\_\_\_\_\_ Is an algorithm, 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. Reverse-Down-Hill search

ANSWER: B

Not only do formal logics allow representation of knowledge, but they also allow representation of knowledge. Mechanisms for reasoning using a collection of well-defined manipulation rules. Of Representations.

- A. True
- B. False

ANSWER: A

If a logic produces only true statements and does not produce any false statement it shows which of the following property

- A. Completeness



B. Soundness

C. Consistency

D. None of these

ANSWER:B

Is the following rule of inference valid one

A. No

B. Yes

ANSWER:B

\_\_\_\_\_ Graph is used to represent semantic network

A. Undirected

B. Directed

C. Undirected

D. Any one of the above

ANSWER:B

What is the nature of the sentence:  $\forall x \forall y (TeacherOf(x,y) \supset StudentOf(y,x))$

A. Symmetry

B. Exhaustiveness

C. Inverse

D. None of the above

ANSWER:C

The formula or sentences that can be made true by certain valuation function are called

A. Valid formula

B. Satisfiable formula

C. Unsatisfiable formula

D. Invalid Formula

ANSWER:B

A \_\_\_\_\_ is used to demonstrate, on a purely syntactic basis, that one formula is a logical consequence of another formula.

A.Deductive Systems

B.Inductive Systems

C.Reasoning with Knowledge Based Systems

D.Search Based Systems

ANSWER:A

A common convention is:

- is evaluated first
- and are evaluated next
- Quantifiers are evaluated next
- is evaluated last.

A.True

B.False

ANSWER:A

A Term is either an individual constant (a 0-ary function), or a variable, or an n-ary function applied to n terms:  $F(t_1 t_2 \dots t_n)$ .

A.True

B.False

ANSWER:A

First Order Logic is also known as \_\_\_\_\_

A.First Order Predicate Calculus

B.Quantification Theory

C.Lower Order Calculus

D.All of the mentioned

ANSWER:D

Which is created by using single propositional symbol?

A.Complex sentences

**B.Atomic sentences**

C.Composition sentences

D.None of the mentioned

ANSWER:B

Which is used to construct the complex sentences?

A.Symbols

B.Connectives

**C.Logical connectives**

D.All of the mentioned

ANSWER:C

How many proposition symbols are there in artificial intelligence?

A.1

**B.2**

C.3

D.4

ANSWER:B

Which is used to compute the truth of any sentence?

**A.Semantics of propositional logic**

B.Alpha-beta pruning

C.First-order logic

D.Both Semantics of propositional logic & Alpha-beta pruning

ANSWER:A

Which are needed to compute the logical inference algorithm?

A.Logical equivalence

B.Validity

C.Satisfiability

D.All of the mentioned

ANSWER:D

From which rule does the modus ponens are derived?

A.Inference rule

B.Module rule

C.Both Inference & Module rule

C.None of the mentioned

ANSWER:A

Which is also called single inference rule?

A.Reference

B.Resolution

C.Reform

D.None of the mentioned

ANSWER:B

Which form is called as a conjunction of disjunction of literals?

A.Conjunctive normal form

B.Disjunctive normal form

C.Normal form

D.All of the mentioned

ANSWER:A

What can be viewed as a single lateral of disjunction?

A.Multiple clause

B.Combine clause

C.Unit clause

D.None of the mentioned

ANSWER:C

A) Knowledge base (KB) is consists of set of statements.

B) Inference is deriving a new sentence from the KB.

Choose the correct option.

A. A is true, B is true

B. A is false, B is false

C. A is true, B is false

D. A is false, B is true

ANSWER:A

What among the following constitutes the representation of the knowledge in different forms?

A. Relational method where each fact is set out systematically in columns

B. Inheritable knowledge where relational knowledge is made up of objects

C. Inferential knowledge

D. All of the mentioned

ANSWER:D

What are Semantic Networks?

A. A way of representing knowledge

B. Data Structure

C. Data Type

D. None of the mentioned

ANSWER:A

Graph used to represent semantic network is \_\_\_\_\_

A. Undirected graph

**B. Directed graph**

C. Directed Acyclic graph (DAG)

D. Directed complete graph

ANSWER:B

The basic inference mechanism in semantic network is to follow the links between the nodes.

**A. True**

B. False

ANSWER:A

Which of the following elements constitutes the frame structure?

**A. Facts or Data**

B. Procedures and default values

C. Frame names

D. Frame reference in hierarchy

ANSWER:A

There exists two way to infer using semantic networks in which knowledge is represented as Frames.

**A. Intersection Search**

B. Inheritance Search

ANSWER:A

Which problem can frequently occur in backward chaining algorithm?

A. Repeated states

B. Incompleteness

C. Complexity

**D. Both Repeated states & Incompleteness**

ANSWER:D

How to eliminate the redundant rule matching attempts in the forward chaining?

A. Decremental forward chaining

B. Incremental forward chaining

C. Data complexity

D. None of the mentioned

ANSWER:B

Which of the following is an extension of the semantic network?

A. Expert Systems

B. Rule Based Expert Systems

C. Decision Tree Based networks

D. Partitioned Networks

ANSWER:D

Is the below statement true for the domain of positive integers

$$\forall p \exists q (p + q = 7)$$

A. Yes

B. No

ANSWER:A

Which of the following is a sound rule of inference?

A.  $Q \wedge (P \rightarrow Q) \rightarrow P$

B.  $P \rightarrow (P \vee Q)$

C.  $Q \vee (P \rightarrow Q) \rightarrow P$

D. All of above

ANSWER:B

Is the following Sentence valid?

$$\forall x \exists y P(x,y) \equiv \exists y \forall x P(x,y)$$

A. Yes

B. No

ANSWER:B

Is  $\forall z S(x,y)$  a well-formed formula?

A. Yes

B. No

ANSWER:A

The statement comprising the limitations of FOL is/are \_\_\_\_\_

A.Expressiveness

B.Formalizing Natural Languages

C.Many-sorted Logic

D.All of the mentioned

ANSWER:D

The adjective "first-order" distinguishes first-order logic from \_\_\_\_\_ in which there are predicates having predicates or functions as arguments, or in which one or both of predicate quantifiers or function quantifiers are permitted.

A.presentational Verification

B.Representational Adequacy

C.Higher Order Logic

D.Inferential Efficiency

ANSWE:C

"In AI systems, Knowledge can be represented in two ways. What are these two ways?"

i.Machine Logic

ii.Predicate Logic

iii.Propositional Logic

iv. Compound Logic"

A. i. and ii.

B. i. and iii.

C. ii. and iii.

D. iii. and iv.

ANSWER:C



1. An AI agent perceives and acts upon the environment using\_\_\_\_.
  - a. Sensors
  - b. Perceiver
  - c. Actuators
  - d. Both a and c

Ans- d

2. Which search method takes less memory?
  - a. Depth-First Search
  - b. Breadth-First search
  - c. Optimal search
  - d. Linear Search

Ans- a

3. Which is used to improve the agents performance?
  - a. Perceiving
  - b. Learning
  - c. Observing
  - d. None of the mentioned

Ans-b

4. How many types of agents are there in artificial intelligence?
  - a. One
  - b. Two
  - c. Three
  - d. Four

Ans-c

5. An agent is composed of \_\_\_\_\_
  - a. Architecture
  - b. Agent Function

- c. Perception Sequence
- d. Architecture and Program

Ans-d

6. What is state space?

- a. The whole problem
- b. Your Definition to a problem
- c. Problem you design
- d. Representing your problem with variable and parameter

Ans-d

7. A problem in a search space is defined by one of these state

- a. Initial state
- b. Last state
- c. Intermediate state
- d. Successor state

Ans-a

8. The process of removing detail from a given state representation is called \_\_\_\_\_

- a. Extraction
- b. Abstraction
- c. Information Retrieval
- d. Mining of data

Ans-b

9. A production rule consists of \_\_\_\_\_

- a. A set of Rule
- b. A sequence of steps
- c. Set of Rule & sequence of steps
- d. Arbitrary representation to problem

Ans-c

10. Which search method takes less memory?

- a. Depth-First Search

- b. Breadth-First search
- c. Linear Search
- d. Optimal search

Ans-a

11. Which search strategy is also called as blind search?

- a. Uninformed search
- b. Informed search
- c. Simple reflex search
- d. Depth-limited search

Ans-a

12. Which search is implemented with an empty first-in-first-out queue?

- a. Depth-first search
- b. Breadth-first search
- c. Unidirectional search
- d. Bidirectional search

Ans-b

13. Which search algorithm imposes a fixed depth limit on nodes?

- a. Depth-limited search
- b. Depth-first search
- c. Iterative deepening search
- d. Bidirectional search

Ans-a

14. When will Hill-Climbing algorithm terminate?

- a. Stopping criterion met
- b. Global Min/Max is achieved
- c. Local Min/Max is achieved
- d. No neighbour has higher value

Ans-d

15. \_\_\_\_\_ algorithm keeps track of k states rather than just one.
- a. Hill-Climbing search
  - b. Local Beam search
  - c. Stochastic hill-climbing search
  - d. Random restart hill-climbing search

Ans-b

16. A\* algorithm is based on \_\_\_\_\_
- a. Breadth-First-Search
  - b. Depth-First –Search
  - c. Best-First-Search
  - d. Hill climbing

Ans-c

17. To overcome the need to backtrack in constraint satisfaction problem can be eliminated by \_\_\_\_\_
- a. Forward Searching
  - b. Constraint Propagation
  - c. Backtrack after a forward search
  - d. Omitting the constraints and focusing only on goals

Ans- a

18. What is the evaluation function in greedy approach?
- a. Heuristic function
  - b. Path cost from start node to current node
  - c. Path cost from start node to current node + Heuristic cost
  - d. Average of Path cost from start node to current node and Heuristic cost

Ans-1

19. What is the general term of Blind searching?

- a. Informed Search
- b. Uninformed Search
- c. Informed & Unformed Search
- d. Informed & Unformed Search

Ans-b

20. Optimality of BFS is \_\_\_\_\_

- a. When there is less number of nodes
- b. When there is more number of nodes
- c. When all step costs are equal
- d. When all step costs are unequal

Ans-c

21. A heuristic is a way of trying

- (a) To discover something or an idea embedded in a program
- (b) To search and measure how far a node in a search tree seems to be from a goal
- (c) To compare two nodes in a search tree to see if one is better than the other
- (d) Only (a), (b) and (c).

Ans- d

22. Which statement is valid for the Heuristic function?

- a. The heuristic function is used to solve mathematical problems.
- b. The heuristic function takes parameters of type string and returns an integer value.
- c. The heuristic function does not have any return type.
- d. The heuristic function calculates the cost of an optimal path between the pair of states.

Ans-d

1. An AI agent perceives and acts upon the environment using\_\_\_\_\_.

- a. Sensors
- b. Perceiver
- c. Actuators
- d. Both a and c

Ans- d

2. How do you represent "All dogs have tails".

- (a)  $\forall x: \text{dog}(x) \rightarrow \text{hastail}(x)$
- (b)  $\forall x: \text{dog}(x) \rightarrow \text{hastail}(y)$
- (c)  $\forall x: \text{dog}(y) \rightarrow \text{hastail}(x)$
- (d)  $\forall x: \text{dog}(x) \rightarrow \text{hasàtail}(x)$

Ans- a

3. Which is not a property of representation of knowledge?

- (a) Representational Verification
- (b) Representational Adequacy
- (c) Inferential Adequacy
- (d) Inferential Efficiency

Ans-a

4. Which is not a Goal-based agent?

- (a) Inference
- (b) Search
- (c) Planning
- (d) Conclusion

Ans-d

5. Uncertainty arises in the wumpus world because the agent's sensors give only

- (a) Full & Global information
- (b) Partial & Global Information
- (c) Partial & local Information
- (d) Full & local information

Ans- c

6. What is true about rule based system?

- A. The definitions of rule-based system depend almost entirely on expert systems.
- B. A rule based system uses rules as the knowledge representation for knowledge coded into the system.
- C. A rule-based system is a way of encoding a human expert's knowledge in a fair-ly narrow area into an automated system.
- D. All of the above

Ans-D

7. Backward chaining rule is?

- A. Goal driven
- B. Data driven
- C. Both A and B
- D. None of the above

Ans- A

8. In a backward chaining system, we begin with some hypotheses, we are trying to prove the hypothesis, and try to find the rules that would allow us to determine that hypothesis, perhaps setting new sub-goals to prove as you go.

- (A). True
- (B). False
- (C). Partially correct
- (D). Incorrect

Ans-A

9. State space is...

- a) Representing your problem with variable and parameter



- b) Problem you design
- c) Your Definition to a problem
- d) The whole problem

ans- A

10. What will be returned by backward chaining AI Algorithm?

- (A). Additional statements
- (B). Logical statement
- (C). Substitutes matching the query
- (D). All of the mentioned

Answer: C

11. Which of the following is exact backward chaining algorithm

- (A). Hill-climbing search AI Algorithm
- (B). Breadth-first search AI Algorithm
- (C). Depth-first search AI Algorithm
- (D). All of the mentioned

Answer: C

12. which of the following can occur in backward chaining

- (A). Repeated states
- (B). Incompleteness
- (C). Both A and B
- (D). Complexity

Answer: C

13. What is the condition of variables in first-order literals?

- (A). Universally quantified
- (B). Existentially quantified
- (C). Both A & B

(D). None of these

Answer: A

14. Which condition will stop the growth of the forwarding chaining approach?

(A). Atomic sentences

(B). No further inference

(C). Complex sentences

(D). All of these

Answer: B

15. Skolemization is the process of

a. bringing all the quantifiers in the beginning of a formula in FDL

b. removing all the universal quantifiers

c. removing all the existential quantifiers

d. all of the above

Ans- c

16. A cryptarithmic problem of the type

SEND

+ MORE

-----

MONEY

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Can be solved efficiently using

a. depth first technique

b. breadth first technique

c. constraint satisfaction technique

d. bidirectional technique

ans- c

17. The objective of \_\_\_\_\_ procedure is to discover at least one \_\_\_\_\_ that causes two literals to match.

- a. unification, validation
- b. unification, substitution
- c. substitution, unification
- d. minimax, maximum

ans- b

18. Match the following:

a. Script	i. Directed graph with labelled nodes for graphical representation of knowledge
b. Conceptual	ii. Knowledge about objects and events is stored in record-like structures consisting of slots and slot values.
c. Frames	iii. Primitive concepts and rules to represent natural language statements
d. Associative Network	iv. Frame like structures used to represent stereotypical patterns for commonly occurring events in terms of actors, roles, props and scenes

code:

a = ? , b = ? , c = ? , d = ?

- a. iv ii i iii
- b. iv iii ii i
- c. ii iii iv i

d. i iii iv ii

ans- c

19. Match the following components of an expert system:

a. I/O interface	i. Accepts user's queries and responds to question through I/O interface
b. Explanation module	ii. Contains facts and rules about the domain
c. Inference engine	iii. Gives the user, the ability to follow inferencing steps at any time during consultation
d. Knowledge base	iv. Permits the user to communicate with the system in a natural way

code:

a = ? , b = ? , c = ? , d = ?

a. i iii iv ii

b. iv iii i ii

c. i iii ii iv

d. iv i iii ii

ans- d

20. STRIPS address the problem of \_\_\_\_\_

a. representation

b. implementation

c. navigation

d. a and b

ans- d

21. STRIPS is not related to \_\_\_\_\_

- a. SHAKEY
- b. SRI
- c. NLP
- d. None of these

ans- c

22. Each alphabet have a value between 0 to 9 in a cryptoarithmetic problem

CROSS+ROADS

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DANGER

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Which of the following statement is true ?

- (i) No two alphabets can have the same numeric value.
- (ii) Any two alphabets may have the same numeric value.
- (iii)  $D = 0$
- (iv)  $D = 1$

- a. (i) and (iii)
- b. (i) and (iv)
- c. (ii) and (iii)
- d. (ii) and (iv)

Ans- b

23. The map colouring problem can be solved using which of the following technique?

- a. Means-end analysis
- b. Constraint satisfaction
- c. AO\* search
- d. Breadth first search

ans- b

24. \_\_\_\_\_ are mathematical problems defined as a set of objects whose state must satisfy a number of constraints or limitations.

- a) Constraints Satisfaction Problems
- b) Uninformed Search Problems
- c) Local Search Problems
- d) All of the mentioned

Ans- a

25. To get rid of backtracking in constraint satisfaction problem \_\_\_\_\_ is used

- a) Forward Searching
- b) Constraint Propagation
- c) Backtrack after a forward search
- d) Omitting the constraints and focusing only on goals

Ans- a

	marks	question	A	B	C	D	ans
0	1	Unit of network is-	Neuron	Neural dendrites	ANN	Fibers of nerves	Neuron is the most basic and fundamental unit of network
1	1	Depth First search algorithm is equivalent to-	Pre-Order Traversal	In-Order Traversal	Post-Order Traversal	All of the above	DFS is equivalent to Pre-Order Traversal.
2	1	Chemical reaction in Neuron is called-	Synapses	Chemical process	Axon	None	Because of biological fact.
3	1	The dendrites shape look like-	Tree	Rectangular	Square	Circle	Dendrites are like projections function is only to receive impulse.
4	1	The cell is said to be fired?	if potential of body reaches a steady threshold value	if potential of body do not show any threshold value	if potential of body reaches a high threshold value	All of the above	Cell is said to be fired when potential of body reaches a certain steady threshold value.
5	1	Problem in search space is defined by	Initial state	Final State	Current State	None	Initial state defines the problem in search space.
6	1	which strategy is used for problem specific knowledge-	All	BFS	Heuristic Search	Informed Search	BFS, Heuristic Search and Informed search is used for problem specific knowledge.
7	2	What is Artificial Intelligence?	Making a machine intelligent	Making a machine durable	Making a machine operatable	Making a machine.	This is an explanation.
8	2	Application of breadth first search-	All	Finding shortest path between two nodes	In Peer to Peer Networks	In Social Media Platforms	This is an explanation.
9	2	What algorithm of data structure used in standard implementation of breadth first search-	Queue	Stack	Both a and b	None	Queue is used to implement BFS.
10	2	Write the work of Axon-	Transmission	Replicate	Control	Both transmission and replicate	Axon is the body of neuron and thus can't be at ends of it so can not receive and transmit signals
11	2	What is used to improve the performance of heuristic search?	Quality of heuristic function	Functional Dependency	Data set	None	Quality of the function is used to improve the performance.
12	2	Hill climbing algorithm stops when-	No neighbour has higher value	All neighbour has higher values	No neighbour has lower values	All neighbour has lower values	Hill Climbing algorithm stops as no neighbour has higher values.

	marks	question	A	B	C	D	ans
13	2	Removing detail from a given state representation is called-	Abstraction	Extraction	Absorbition	All	Removing detail from a given state representation is called Abstraction.
14	2	Hill climbing approach stuck for the following reasons-	Both	Local maxima	Ri-dges	None	Hill Climbing approach sticks because of local maxima and ridges
15	2	Representing your problem with variable & parameter is defined as-	State Space	Search Space	Both a and b	None	Representing your problem with variable & parameter is defined as State Space.
16	2	A search algorithm takes _____ as an input & return solution as an output.	Problem	Data	Initial state	All	A search algorithm takes problem as an input & return solution as an output.
17	2	which method is used to expand the node that is closest to the goal?	Greedy BFS	Hill Climbing	DFS	BFS	Greedy BFS is used to expand the node that is closest to the goal.
18	2	What is the general formula that is used to calculate the leas number of moves required to solve a Tower of Hanoi with 3pegs and n dishes? (Eg-> 1,3,7,15.....)	$(2^{n+1})-1$	$(2^{n+1})+1$	$(2^{n+1})-2$	$(2^{n+1})+2$	This is an explanation.
19	2	What is used in mapping sentence plan into sentence structure	Text Realization	Text Proofing	Text Rooting	All of the above	Text Realization is used in mapping sentence plan into sentence structure.
20	2	Which of the following search is complete & optimal when $h(n)$ is consistent	A* search	Heuristic Search	BFS search	DFS search	A* Search is complete and optimal when $h(n)$ is consistent.
21	2	In greedy approach, function of evalution is-	Path cost from start node to current node+heuristic cost	Path cost from last node +heuristic cost	Heuristic cost	None	Function of evaluation in a greedy approach is path cost from start node to current node+heuristic cost
22	2	Which is not a backtracking algorithm?	Tower of Hanoi	Travelling Salesman Problem	N Queen problem	Knight Tour problem	Tower of Hanoi is not a back tracking algorithm.
23	2	A* algorithm is-	BFS	DFS	Both a and b	None	This is an explanation.



	marks	question	A	B	C	D	ans
24	2	Main component of neural liquified?	Potassium	Sodium	Iron	Nickle	Potassium is the main constituent of neuron liquid and responsible for potential on neuron body
25	3	Types of informed search method are-	4	3	2	5	This is an explanation.
26	3	Complexity of DFS is (v=vertices, E = edges):	$O(V+E)$	$O(V)$	$O(E)$	None	This is an explanation.
27	3	The result of breadth first search traversal is-	Tree	Rectangle	Graph with back edge	All of the above	The result of a BFS traversal is a tree.
28	3	A problem solving approach works well for-	Mars hoves	8 puzzle	8 queen	Hill Climbing	A problem solving approach works well for Mars Hoves.
29	3	Heuristic function $h(n)$ is-	Estimated cost of cheapest path from root to goal node	The function $h(n)$ is an admissible heuristic	Estimated cost of highest path from goal to root node	All	This is an explanation.
30	1	8- Queen problem domination number is	5	6	4	2	8- Queen problem domination number is 5
31	1	backtracking approach is used to solve:	Combinational problems	NP problems	NP hard problems	Arithmetic Problems	Backtracking approach is used to solve complax problems which cannot be solved by exhaustive serach algorithm.
32	1	Divide and Conquer algorithm will work on:	Subgoal independence	Supergoal independence	Both a and b	None	This is an explanation.
33	1	Queens can attack each other in how many ways?	3	2	4	5	Queens can attack each other in 3 ways
34	1	How many states are available in state space approach:	4	3	2	5	There are four states available in state space search. They are initial state, actions, goal test and step cost.
35	2	Placing n Queen in a chess board here no 2 Queen can attack each other is called as:	N Queen	Hypothesis	8 Queen problem	All	This is an explanation.
36	2	Who published the eight queen puzzle:	Max Bezzel	Franz Nauck	carl	Friedrich	The first Eight Queen Puzzle was published by Max Friedrich william Bezzel.

	marks	question	A	B	C	D	ans
37	2	What are the components of partial order planning:	All	Goal	Casual links	Binding	This is an explanation.
38	2	Brute force technique is not slower than:	Backtracking algorithm	8-Queen's Problem	Knapsack Problem	All	Brute force technique is not slower than back tracking problem.
39	2	Which of the following is an application of Backtracking?	All	Crossword	Puzzles	N-Queens Problem	This is an explanation.
40	2	Initial state + goal stack in search terminology for:	Problem Instance	Space complexity	Time Instance	All	Initial state + goal stack in search terminology for problem instance
41	2	A constructive approach in which no commitment is made unless it is necessary to do:	Least commitment approach	High commitment approach	No commitment approach	None	This is an explanation.
42	2	Rule-based systems are also called?	Expert System	Constraint systems	Fact System	None	This is an explanation.
43	2	Total order planning is opposite of:	Partial order planning	No order planning	Null order planning	Half-order planning	Total order planning is opposite of partial order planning.
44	2	How many types of rule based system are there?	2	3	4	1	There are 2 types of Rule based systems.
45	2	Who coined the term "Backtrack"?	Lehmer	Ravin Russo	Bell	None	The term "backtrack" was coined by American mathematician D. H. Lehmer in the 1950s.
46	2	Rule based system was developed in?	1917	1920	1900	1915	This is an explanation.
47	2	How many solutions does a 10-Queen problem has:	724	756	512	256	This is an explanation.
48	2	In how many ways, we can solve state-space search:	2	3	5	4	We can solve state space search using two ways.
49	3	Rules are expressed by a set of:	If then statement	If then else statement	For statement	While Statement.	Rules are expressed as a set combination of if and then statemtn.
50	3	Which of the following is a drawback of planning system:	A lot of computation is needed	Space complexity	Time complexity	All	Main drawback of planning system is that it requires a lot of computation at each node.
51	3	Backward state space search is also called :	Regression planning	Regression Control	ML algorithm	ML Planning	This is an explanation.

	marks	question	A	B	C	D	ans
52	3	Space complexity of DFS is:	$O(h)$	$O(n \log h)$	$O(n)$	$O(h^2)$	Space complexity of DFS is $O(h)$ where $h$ is the height of the tree.
53	3	Time complexity of Backtracking Algorithm is	$O(NK)$	$O(N)$	$O(K)$	$O(1)$	Time complexity of Backtracking Algorithm is $O(NK)$ .
54	3	Constraint propagation works using _____ variables?	3	2	4	6	Constraint propagation works using 3 variables i.e. $y$ , $t$ and $z$ .
55	3	The most number of possible solutions for 8-queen problem is:	92	56	70	64	This is an explanation.
56	3	Time complexity of Breadth first search algorithm:	$b^d$	$O(n)$	$O(n \log n)$	$O(1)$	This is an explanation.
57	3	What is the application of backtracking algorithm:	Crossword	Puzzles	Knapsack Problem	Travelling Salesman problem	Crossword puzzle are based on backtracking approach whereas the rest are travelling salesman problem, knapsack problem and dice game.
58	3	The most straight forward approach for planning algorithm:	State space search	Dijkstra algorithm	Greedy approach	Divide and conquer technique	This is an explanation.
59	3	To which depth , Alpha - Beta pruning can be applied:	Any depth	Half Depth	NO depth	Least depth	To which depth , Alpha - Beta pruning can be applied to any depth
60	1	The face recognition system is based on-	Applied AI approach	ML Approach	Regression approach	Cloud approach	Face recognition system is based on applied AI approach.
61	1	Agents can improve its performance by-	Learning	Cloning	Fusion	None	This is an explanation.
62	1	Agents can select its external action by-	Performance	Learning	Prediction	All	Agents can select its external action by Performance.
63	1	Simple reflex agents action completely depends -	Current perception	Past Perception	Both a and b	None	Simple reflex agents action completely depends current perception.
64	1	A proposition is also known as	Declarative statement which is either true or false	Declarative statement which is yes	Declarative statement which is no.	Assumptive statement which is either yes or no.	A proposition is also known as declarative statement which is either true or false.

	marks	question	A	B	C	D	ans
65	2	Two propositions are said to be logically equivalent:	If and only if the columns in the truth table are identical to each other	If and only if the rows in the truth table are identical to each other	If and only if the columns in the truth table are not identical to each other	All	Two propositions are said to be logically equivalent if and only if the columns in the truth table are identical to each other.
66	2	What are the properties of Forward chaining-	All	It is a process of making a conclusion based on known facts or data	It is a down-up approach as it moves from bottom to top	Forward - chaining approach is commonly used in the expert system	This is an explanation.
67	2	what is Meronymy relation	A is part of B	B is a part of A	Both a and b	None	A meronym denotes a constituent part of or a member of something. That is, 'X' is a meronym of 'Y' if Xs are parts of Y(s), or 'X' is a meronym of 'Y' if Xs are members of Y(s)
68	2	How we can create compound prepositions:	With the help of logic connective	By the help of connective	Help of contradiction	Help of tautology	We can create compound prepositions with the help of logic connective
69	2	A propositional formula which is always false is called	Contradiction	Tautology	Both a and b	None	A propositional formula which is always false is called contradiction.
70	2	Limitaion of semantic networks :	Lack in expressing some of the properties	Lack in space complexity	Lack in time complexity	All	This is an explanation.
71	2	Backward chaining algorithm is same as	DFS algorithm	BFS algorithm	Regression algorithm	Hypothesis algorithm	It is depth first search algorithm because is space requirements are linear is the size f the proof
72	2	What are the basic element of propositional logic:	Both	Propositions	Connectives	None	This is an explanation.
73	2	A frame is also known as _____ in artificial intelligence.	Slot filter knowledge representation	Slot representation	Filter representation	Slot filter representation	A frame is also known as Slot filter knowledge representation in artificial intelligence.

	marks	question	A	B	C	D	ans
74	2	Semantic network represents:	Semantic relation between concepts	Semantic relation between nodes	Semantic relation between arguments	Semantic relation between approaches	This is an explanation.
75	2	What is used in backward chaining algorithm	Composition of substitution	Composition of diffusion	Composition	Composition of Predicate	Composition of substitution is used in backward chaining algorithm.
76	2	What are syntaxes-	The rules which divides how we can construct legal sentences in the logic	The rules which unites how we can destruct legal sentences.	The rules which divides how we can construct the logic	All	The rules which divides how we can construct legal sentences in the logic
77	2	what is Holonymy relation-	B is a part of A	A is a part of B	Both a and b	None	a hyponym is a word or phrase whose semantic field is included within that of another word, its hypernym
78	2	Production rules system consists of pairs which means	If condition then action	If condition	If then else condition	Eliff Condition	This is an explanation.
79	2	Logical representation can be divided into -	Both	Prepositional logics	Predicate logics	None	This is an explanation.
80	2	Semantic network are majority used for-	Supporting conceptual edition	Supporting navigation	both a and b	None	This is an explanation.
81	2	A propositional formula which is always true is called	Tautology	Contradiction	Propositional Logic	All	A propositional formula which is always true is called Tautology
82	3	What are the types of propositions:	Both	Atomic	Compound	None	This is an explanation.
83	3	What are the limitations of propositional logic:	All	Necessity and possibility are also not captured in propositional logic	Propositional logic has limited expressive power	Weak generalization power	This is an explanation.
84	3	Logic programming is mainly used to check the working process of which system-	Automated Reasoning	Artificial Intelligence	ML algorithm	Propositional Network	Logic programming is mainly used to check the working process of automated reasoning system-
85	3	What is known as inference rules-	Templates for generating valid arguments.	Templates for generating arguments.	Templates for arguments.	Templates for generating non valid arguments.	Inference rules are templates for generating valid arguments.

	marks	question	A	B	C	D	ans
86	3	Forward chaining approach is also called-	Data driven approach	Logic driven approach	Argument driven approach	All	Forward-chaining approach is also called as data-driven as we reach to the goal using available data.
87	3	Directed graph gives the representation of which network-	Semantic network	ANN network	Logical Network	Propositional Netwrok	This is an explanation.
88	3	Hypothetical syllogism is a type of-	Inference rule	Predicate rule	Propositional rule	Chaining rule	Hypothetical syllogism is a type of Inference rule.
89	3	Semantic networks are alternative of:	Predicate logic	Pseudo code	Prepositional Logic	All	Semantic networks are alternative of predicate logics.
90	1	Another task can be performed by boltzman machine:	Pattern association	Speech recognition	Image preception	All	This is an explanation.
91	1	What is the full form of NLP:	Natural Language Processing	Neutral Language Processing	Nature Logic Process	Neural Logic Programming	This is an explanation.
92	1	What is the full from of NLG:	Natural Language Genration	Nature Language Genetic	Natural Logic Genetic	Nature Language Genration	NLG stands for Natural Language Generation
93	1	How many compoments are there in NLP:	2	3	6	4	There are 2 components in NLP
94	1	What is the result when mean field approximation is used with boltzmann learning:	It speed up	It slows down	No change	Equal	When mean field approximation is used with boltzmann learning, it speeds up.
95	2	Rectifier is also known as:	Ramp Function	Activation Function	Axon	ANN	Rectifier is also known as Ramp function.
96	2	In which year, invention of first artificial neural network is:	1958	1856	1957	1959	First invention of ANN was done in 1958
97	2	Function of a real variable is a function whose domain is:	Real Number	Integers	Positive Numbers	All	function of a real variable is a function whose domain is the real numbers
98	2	In ANN feedforword , the flow of information is:	Unidirectional	Multidirectional	Equal	All the above	Feedforward ANN the informationflow is unidirectional
99	2	What is the classical example of unsupervised learning in the study of neutral network is:	Donald Hebb's Principle	Dijkstra's Algorithm	N-Queen Problem	NP problems	This is an explanation.

	marks	question	A	B	C	D	ans
100	2	What is the method used in unsupervised learning:	Principal component & Cluster analysis	Neural Networks	Regression	Classification	This is an explanation.
101	2	Neurocomputer was invented by:	Dr. Robert Heet-Nielsen	Dijkstra	J L Baird	None	This is an explanation.
102	2	What is the major test of NLP:	Automatic summarization	Information retrieval	Automatic ques.- ans. System	All the above	Automatic summarization is the major test of NLP
103	2	which statement is true- (i) Neuro software is designed to aid experts in real world. (ii) Nero software is powerful and easy neural network:	(ii)	Both are correct	(i)	None are correct	This is an explanation.
104	2	What are the challenges with reinforcement learning:	Preparing the simulation environment	Data set	Data cleaning	Data Transformation	This is an explanation.
105	2	A unit employing the rectifier is also called:	Rectified Linear Unit(ReLu)	ANN	Robotics	Axons	A unit employing the rectifier is also called a rectified linear unit (ReLU)
106	2	The weighted sum in ANN is also called:	Activation	Weighted sum	ANN	Nonr	This is an explanation.
107	2	How many layers are there in "Shallow" :	Three	Two	Four	Six	There are 3 layers in shallow.
108	3	Elementary unit in ANN is:	Neurons	Edges	Activation function	All	This is an explanation.
109	3	Ising model of a neural network is called:	Hopfield Networks	ANN	Axon	Sigmoid	Ising model of a neural network is called Hopfield Networks.
110	3	Loops are allowed in which ANN:	Feedback ANN	Forward ANN	Both a and b	None	This is an explanation.
111	3	Feedforward and feedback are the type of which network:	ANN ( Artifical Neural Network )	Regression	Classification	Hypothesis	This is an explanation.
112	3	Heavy side step function is also known as:	Unit step function	ANN	Activation function	Sigmoid	Heavy side step function is alsp called unit step function.
113	3	What is node value:	Output of each node	Input of node	Both a and b	None	This is an explanation.
114	3	The connections are also called_____ in ANN.	Edges	Neurons	Weights	Axons	The connections are also called Edges.
115	3	What is the main drowback ofNLP:	Handling ambiguity of sentances	Linguistres	POS- Tagging handling	All the above	There are enormous ambiguity exists when processing natural language

	marks	question	A	B	C	D	ans
116	3	A_____ is an activation function defined as the positive part of its argument.	Rectifier	ANN network	Axon	Neuron	Rectifier is an activation function defined as the positive part of its argument:
117	3	Which is the most popular activation function for deep neural networks.	Rectifier	Axons	Neurons	All	The rectifier is, as of 2017, the most popular activation function for deep neural networks.
118	3	Boltzmann Machine is of How many types:	3	4	2	5	Boltzmann Machine is of 3 types.
119	3	Objective of feature maps :	To capture the features in space of input patterns	To capture the features in space of output patterns	To capture the features in time of input patterns	To capture the features in time of output patterns	Objective of feature map is to capture the features in space of input patterns
120	1	The message sent from robot sensors to robot controllers are known as:	Feedback	Acknowledgment	Reciept	All	The message sent from robot sensors to robot controllers are known as Feedback.
121	1	Select the place where the the operation of the robots is least:	Privates homes	Industry	Medical	Research	This is an explanation.
122	2	Robotics intitute of American robotics center is located out :	CMU	LMU	UNR	All	This is an explanation.
123	2	Decision support program help managers in:	Business Decisions	Market visiting	Recognition	All	This is an explanation.
124	2	Which gas is used to drive the robot devices :	Pneumatic	Photosensitive	Noble	All	This is an explanation.
125	2	What is the application of robotics:	All	Medical	Military	Research	This is an explanation.
126	2	For hardware and software_____ is not the advantages with a robotics implementation program :	Low cost	High cost	Programming	None	For hardware and software low cost is not the advantages with a robotics implementation program :
127	2	If a robot has k legs, number of possible events will be :	$N = (2k-1)!$	$N=2k$	$N=k+1$	$N=2k+1$	This is an explanation.
128	2	Ultrasonic sensor is a type of:	Proximity sensor	Genomic Sensor	Neural Sensor	None	Ultrasonic sensor is a type of proximity sensor
129	2	Actuators are also known as:	Drives	Peripheral tools	Neurons	Axon	This is an explanation.
130	2	A robotic manipulator is also known as :	Robotic arms	Whell	Activation function	Sigmoid	This is an explanation.



	marks	question	A	B	C	D	ans
131	2	If a robot can change its trajectory with external condition , it is said to be :	Intelligent	Clever	Trained	All	If a robot can change its trajectory with external condition , it is said to be intelligent.
132	2	What do you understand by "humanoid" robot :	A robot which looks like overall as a human body	Human made robot	Human recognizing robot	All	Humanoid robot is a robot which looks like overall as a human body
133	2	Select the one that is not a basic part of robot :	Peripheral tools	Neurons	Axons	Machinery	Peripheral tools are not a basic part of robots.
134	2	Collaborative robots are also known as:	Cobots	Cola Robots	Human Robots	All	This is an explanation.
135	2	HRI stands for:	Human Robot Interface	Human Resource Interface	Human Robot Initialization	None	This is an explanation.
136	2	What are the basic aspect of robotics :	All	Electrical	Mechanical	Computer programs	This is an explanation.
137	3	Programming a robot by physically moving through projectory, it is called :	Continous path control	Discrete path control	Both a and b	None	This is an explanation.
138	3	is not an essential components for construction of robot :	Energy	ANN	Neurons	All	This is an explanation.
139	3	How many degrees of freedom would the robot have :	6	8	4	2	A robot has 6 degree of freedom
140	3	How many Laws of Robotics are there?	3	4	2	5	This is an explanation.
141	3	Which of the following is a type of "humanoid " robots :	Both	Android humanoid	Gynoids humanoid	None	This is an explanation.
142	3	Plug and Pray was released in:	2010	2009	2011	2013	This is an explanation.
143	3	Which wheel used to rotates around the wheel axle and contact :	Standard wheel	Rotatory Wheel	Frictive Wheel	None	This is an explanation.
144	3	Cobots were invented in which year?	1996	1998	2000	2004	Cobots were inventedbin the 1996 year
145	3	What was the first industrial robot :	Unimate	Kinztech	Both a and b	None	Unimate was first industrial robot.
146	3	Rotational motion of a robot arm refers to :	Roll	Sigmoid	Axon	Alll	Rotational motion of a robot arm refers to roll.

	marks	question	A	B	C	D	ans
147	3	A type of robot which can perform any task with autonomous is called :	Autonomous robot	Humanoid Robot	Electro Robot	All	A type of robot which can perform any task with autonomous is called Autonomous Robot.
148	3	Physical structure of robot which moves around is called :	Manipulator	Actuator	Arm	None	Physical structure of robot which moves around is called Manipulator
149	3	Ultrasonic actuators are designed to produce movements in a micrometer order at ultrasonic frequencies of:	20 kHz	40 kHz	30 kHz	50 kHz	Ultrasonic actuators are designed to produce movements in a micrometer order at ultrasonic frequencies (over 20 kHz).
150	1	Which of the following is not a programming language for computer controlled robot :	AMU	VAL	RAIL	HELP	This is an explanation.
151	1	The robot designed with cartesian co-ordinate system has :	Three linear movement	Four linear movement	Two linear movement	One linear movement	The robot designed with cartesian co-ordinate system has three linear movement.
152	1	Recursive Filtering is also called:	Infinite Impulsive Response	Impulsive Response	Infinite Response	None	Recursive filtering is also known as Infinite Impulsive Response.
153	1	The robot designed with cylindrical co-ordinate system has :	Two linear and one rotational movement	One linear and one rotational movement	Two linear and no rotational movement	NO linear and one rotational movement	The robot designed with cylindrical co-ordinate system has two linear and one rotational movement
154	2	The basic principle for the agriculture robot is :	The stability factor	Linear Factor	Coordinate factor	All	This is an explanation.
155	2	Which person used the name "robot" first time in print :	Isaac asimov	Donald Heeb	Dijkstra	None	Issac Asimov used the name "robot" first time.
156	2	The .....used to provide autometed crop survey as well as to measure crop nutrients status :	Portal robot	Human Robot	Both	None	The Portal Robot used to provide autometed crop survey as well as to measure crop nutrients status :
157	2	Robot toy for kids was:	Furby	Roomba	Looj	RoboCup	Robot toy for kids was Furby
158	2	Servo motors are driven by	Signals	Voltage	Current	All	Servo motors are driven by signals

	marks	question	A	B	C	D	ans
159	2	The Space Robotics Technical Committee has _____ main areas of interest.	2	3	6	4	The Space Robotics Technical Committee has two main areas of interest
160	2	MF scamp robots are designed for	All	Harvesting and Picking	Scouting	Weeding	This is an explanation.
161	2	What form of renewable energy can some automove use :	Solar energy	Wind Energy	Hydra Energy	All	This is an explanation.
162	2	How many types of signal processing are available:	6	5	4	3	There are 6 types of sinal processing.
163	2	Icub was developed by which county	Italy	Japan	India	China	This is an explanation.
164	2	Brick Laying Robot was developed by;	Fast brick Robotics	Doxel	SafeAI	Steer	Brick Laying Robot was developed by Fast brick Robotics
165	2	What are the applications of agreicultural Robot :	All mentioned	Harvesting and Picking	Utility Platforms	Phenotyping	This is an explanation.
166	2	Automated drone seeders are mostly used in	Forestry Industry	Crop Industry	Farming	Mechanic Department	Automated drone seeders are mostly used in Forestry.
167	2	What does the "Ironing "robot look like :	Inflatable dummy	Humans	Both a and b	None	The "Ironing "robot look like inflatable dummy.
168	3	The_____platform is used for selective harvesting of fruits which detects fruits	CROP robotics	Crop mechanism	Robotics	All	The CROP Robotics platform is used for selective harvesting of fruits which detects fruits
169	3	Humanoid Robot developed by Honda in 2000 was:	ASIMO	Atlas	Roomba	RoboCup	Humanoid Robot developed by Honda in 2000 was ASIMO
170	3	.....is an multipurpose robotic plateform for applications in agriculture :	BoniRob	GIThub	ANM	All	This is an explanation.
171	3	Rice Planting Robot was developed by which country:	Japan	USA	India	China	Rice Planting Robot was developed by Japan.
172	3	Educational robot developed in 1980 was called:	HERO	Topo	Roomba	All	Educational robot developed in 1980 was called HERO
173	3	Furby was developed in	1998	2000	2002	2001	Furby was developed in 1998
174	3	Manual controls give home-owner..... with robot :	Two - way communication	One way communication	Both a and b	None	This is an explanation.

	marks	question	A	B	C	D	ans
175	3	Proprioception is the sense of self-movement and body position. It is also called	Kinesthesia	Prosthesis	Both	None	Proprioception also referred to as kinaesthesia (or kinesthesia), is the sense of self-movement and body position.
176	3	What do you people often put on a robot when it is going be repaired :	A mark	Mole	Credentials	All	people often put a mark on a robot when it is going be repaired
177	3	An autonomous modular multipurpose robot was developed by:	Saga Robotics	Bell Robotics	Both	None	An autonomous modular multipurpose robot was developed by Saga Roboticc.
178	3	Autonomous Robots are also called:	Autobot	Bot	No-Bot	All	Autonomous Robots are also called Autobot
179	3	Humanoid Robot developed by NASA was:	Valkyrie	Atlas	Icub	All	Humanoid Robot developed by NASA was Valkyrie

what is the issue of Forward State Space Planning?

- A. low branching factor.
- B. large branching factor.
- C. work in forward fashion
- D. work in backward fashion

ANSWER: B

Goal Stack Planning breaks up a \_\_\_\_\_

- A. initial state
- B. stack in different part
- C. set of goal predicates into individual subgoals
- D. All of the above

ANSWER: C

What is true about Linear Planning?

- A. It refers to the fact that the subgoals are attempted and solved in a linear order.
- B. attempts to solve subgoals individually one after another.
- C. attempts to solve subgoal individually in non linear fashion
- D. Both A & B

ANSWER: D

Agent interacts with the world via \_\_\_\_\_ and \_\_\_\_\_

- A. decision , effect
- B. Perception, decision
- C. Perception, Action
- D. Perception, effect

ANSWER: C

The start node for search in plan space planning is \_\_\_\_\_

- A. BFS
- B. DFS
- C. Both DFS and BFS
- D. A\*

ANSWER: C

In which chaining, the Left-Hand side is used to match the rules and Right-Hand side is used to check the effect of using the rule.

- A. Forward Chaining
- B. Backward Chaining
- C. Reverse Chaining
- D. Both B & C

ANSWER: A

The components of Expert system are?

- A. A Set of Rules, The Inference Engine (IE), Forward Chaining
- B. A Set of Rules, Backward Chaining, A Working Memory (WM)
- C. A Set of Rules, The Inference Engine (IE), A Working Memory (WM)
- D. A Set of Rules, Forward Chaining, Backward Chaining

ANSWER: C

What is true about Artificial Intelligence?

- A. The ability to solve problems.
- B. The ability to act rationally.
- C. The ability to act like humans
- D. All of the above

ANSWER: D

Which of the following are Informed search algorithms?

- A. Best First Search
- B. A\* Search
- C. Iterative Deeping Search
- D. Both a & b

ANSWER: D

If there is a solution, breadth first search is \_\_\_\_\_ to find it

- A. Difficult
- B. Guaranteed
- C. Not able to find
- D. None of the above

ANSWER: B

Which search strategy is combining the benefits of both BFS and DFS?

- A. Depth Limited Search
- B. A\*
- C. Iterative Deepening Depth first search
- D. Best first search

ANSWER: C

Admissibility of the heuristic function is given as:

- A.  $h(n) \geq h^*(n)$
- B.  $h(n) < h^*(n)$
- C.  $h(n) == h^*(n)$
- D.  $h(n) \leq h^*(n)$

ANSWER: D

The efficiency of A\* algorithm depends on \_\_\_\_\_

- A. depth
- B. the quality of heuristic
- C. unknown nodes
- D. d.None of the above

ANSWER: B

What is the termination criteria in Hill climbing?

- A. when no successor of the node has better heuristic value.
- B. when successor of the node has better heuristic value.
- C. when no ancestor of the node has better heuristic value.
- D. when ancestor of the node has better heuristic value.

ANSWER: A

What is true about variable neighborhood function?

- A. Neighbourhood functions that are sparse lead to quicker movement during search
- B. algorithm has to inspect very fewer neighbours
- C. VDN starts searching with sparse Neighbourhood functions, when it reaches an optimum, it switches to denser function.
- D. All of the above

ANSWER: D

\_\_\_\_\_ requires Linear Space but uses backtracking

- A. Breadth First Search
- B. Recursive Best First Search (RBFS)
- C. A\*
- D. IDA\*

ANSWER: B

Which property asks that the algorithm is locally admissible?

- A. Admissibility
- B. Monotonicity
- C. Informedness
- D. None of the above

ANSWER: B

A\* Search Algorithm \_\_\_\_\_

- A. does not expand the node which have the lowest value of  $f(n)$ ,
- B. finds the shortest path through the search space using the heuristic function i.e  $f(n)=g(n) + h(n)$
- C. terminates when the goal node is not found.
- D. All of the above

ANSWER: B

Which is not problem in Hill climbing?

- A. Plateau
- B. Ridges
- C. Local Maximum
- D. landscape

ANSWER: D



Tabu search is designed \_\_\_\_\_

- A. as it does not follow aspiration criteria
- B. to escape the trap of local optimality.
- C. to unrecord forbidden moves, which are referred to as tabu moves .
- D. All of the above

ANSWER: B

Production/Rule looks like \_\_\_\_\_

- A. Pattern-->Data
- B. Action-->Data
- C. Pattern-->Action
- D. None of the above

ANSWER: C

How can we convert AO graph with mixed nodes into graph with pure AND and OR nodes?

- A. By traversing multiple node
- B. By deleting one of the node
- C. By addition of extra node
- D. None of the above

ANSWER: C

Arc consistency in AO graph is concerned with \_\_\_\_\_

- A. Nodes
- B. finding consistent values for pairs of variables.
- C. unary constraint
- D. All of the above

ANSWER: B

A planning problem P in BSSP is defined as a \_\_\_\_\_

- A. triple (S, G, O)
- B. triple (S1, S2, O)
- C. triple (G1, G, O)
- D. None of the above

ANSWER: A

Plan representation in Plan Space Planning is done with\_\_ -----links

- A. binding links
- B. ordering links and casual link
- C. Contigent link
- D. head step

ANSWER: B

What is true about Iterative Deepening DFS?

- A. It does not perform DFS in a BFS fashion.
- B. It is the preferred informed search method
- C. It's a Depth First Search, but it does it one level at a time, gradually increasing the limit, until a goal is found.
- D. Is a depth-first search with a fixed depth limit

ANSWER: C

What is the main advantage of backward state-space search?

- A. Cost
- B. Actions
- C. Relevant actions
- D. All of the mentioned

ANSWER: C

Backward State Space Planning (BSSP)\_\_\_\_\_

- A. simply explores the set of all future states in possible order
- B. Start searching backwards from the goal
- C. leads to huge search space
- D. has no sense of direction

ANSWER: B

In Backward State Space Planning ,`regress(A,G)` that returns \_\_\_\_\_

- A. the regressed goal over action A when applied to goal G.
- B. the goal state over action A when applied to goal G.
- C. the initial state over action A when applied to goal G.
- D. Both A & B

ANSWER: A

What is true about Backward State Space Planning?

- A. goal states are often incompletely specified.
- B. expresses only what is desired in the final state, rather than a complete description of the final state.
- C. It uses regression
- D. All of the above

ANSWER: D

effects (a) in Forward State Space Planning denotes \_\_\_\_\_

- A. denotes the set of negative effects of action a
- B. denotes the set of neutral effects of action a

- C. denotes the set of positive effects of action a
- D. None of the above

ANSWER: C

In Forward State Space Planning , Progress ( A, S) function returns \_\_\_\_\_

- A. the successor state S when action A is applied to state S.
- B. the predecessor state S when action A is applied to state S.
- C. Both A & B
- D. None of the above

ANSWER: A

What are the drawbacks of Forward State Space Planning?

- A. FSSP has very huge search space
- B. It includes the actions that have nothing go do with achieving the goal
- C. Regression is used in Forward State Space Planning
- D. Both A & B

ANSWER: D

What arcs represents in AO Graph?

- A. subproblem to be solved individually
- B. solution
- C. Path
- D. Sequence of actions

ANSWER: A

Which are the first AI applications of AO graph?

- A. SAINT
- B. XCON
- C. DENDRAL
- D. Both A and C

ANSWER: D

What is Hyper-Edge in AO Graph?

- A. Many edges together can be Hyber edge
- B. Those are AND Edges only
- C. Both 1 and 2
- D. None of the above

ANSWER: C

What cost is assumed for arc while solving AO\* progress example?

- A. 0
- B. 1

C. 2

D. 3

ANSWER: B

What is the heuristic cost of SOLVED nodes in AO\* example?

A. 0

B. 1

C. 2

D. 3

ANSWER: A

What is used to label primitive problems in AO problem?

A. Unvisited

B. UNSOLVED

C. SOLVED

D. visited

ANSWER: C

The working memory of the problem solver is like its \_\_\_\_\_

- A.Long term memory
- B.Short term memory
- C.Permanent Memory
- D.None of these

ANSWER:B

\_\_\_\_\_search regresses over goals and validate a plan before returning it.

- A.Forward state space
- B.Backward state space
- C.Goal stack
- D.None of these

ANSWER:B

\_\_\_\_\_ Procedure selects a flaw in a given plan and looks for a resolver.

- A.Goal stack planning
- B.The plan space planning
- C.Recursive goal stack planning
- D.Partial order Planning

ANSWER:B

The relationships between behavioral acts are not defined in the partial order plan until absolutely necessary.

- A.True
- B.False

ANSWER:B

A\* generates will not generate optimal solution if  $h(n)$  is a consistent heuristics and the search space is graph

- A.True
- B.False

ANSWER:B

Which of the following combination of labels is not allowed for W joint in scene labelling is not allowed

- A.(+,-,+)
- B.(-,+,+)
- C.(,+,)
- D.(,,)

ANSWER:D

If it is possible to extend each pair of consistent variable instantiation to a third variable, a CSP is said to be \_\_\_\_\_

- A.Arc Consistent

B.1- Consistent  
C.Path consistent.  
D.2- consistent  
ANSWER:C

The \_\_\_\_\_ algorithm explores the domain in a depth first manner.

A.Backtracking  
B.Forward checking  
C.Arc consistency  
D.Strategic Retreat  
ANSWER:A

\_\_\_\_\_ are mathematical problems defined as a set of objects whose state must satisfy a number of constraints or limitations.

A.Constraints Satisfaction Problems  
B.Uninformed Search Problems  
C.Local Search Problems  
D.All of the mentioned  
ANSWER:A

Which of the Following problems can be modeled as CSP?

A.8-Puzzle problem  
B.8-Queen problem  
C.Map coloring problem  
D.All of the mentioned  
ANSWER:D

The term \_\_\_\_\_ is used for a depth-first search that chooses values for one variable at a time and returns when a variable has no legal values left to assign.

a) Forward search  
b) Backtrack search  
c) Hill algorithm  
d) Reverse-Down-Hill search  
ANSWER:B

Consider a problem of preparing a schedule for a class of student. What type of problem is this?

a) Search Problem  
b) Backtrack Problem  
c) CSP  
d) Planning Problem  
ANSWER:C

Constraint satisfaction problems on finite domains are typically solved using a form of \_\_\_\_\_

- a) Search Algorithms
- b) Heuristic Search Algorithms
- c) Greedy Search Algorithms
- d) All of the mentioned

ANSWER:D

Backtracking is based on \_\_\_\_\_

- A.Last in first out
- B.First in first out
- C.Recursion
- D.Both Last in first out & Recursion

ANSWER:D

The inference engine goes through which cycle?

- A. Match-Resolve-Execute
- B. Execute-Resolve-Match
- C. Resolve Match Match
- D. Resolve Match Execute

ANSWER: A

The output of MATCH routine in Inference Engine is \_\_\_\_\_

- A. Pattern set
- B. Conflict set (CS)
- C. Rule set
- D. Action set

ANSWER: B

Operator PUTDOWN has which of the following sequence of actions?

- A. holding(x),Ontable(x),holding(x)
- B. holding(x),armempty, holding(x)
- C. holding(x),Ontable(x)
- D. holding(x),Ontable(x)^armempty, holding(x)

ANSWER: D

Frame problem in STRIPS Domain can be solved by \_\_\_\_\_

- A. Operator
- B. Frame Axioms
- C. Precondition
- D. Action

ANSWER: B

PDDL stands for \_\_\_\_\_

- A. Path data description Language
- B. Planning Domain Description Language
- C. Planning data Description Language
- D. Path data deleted Language

ANSWER: B

In PDDL, the Language is based on \_\_\_\_\_

- A. Propositional logic notation
- B. Second Order Logic Notation
- C. First Order Logic Notation
- D. All of these

ANSWER: C

STRIPS operators are made up of which three components:

- A. P: Precondition List , A: Add List , D:Delete List
- B. P: Postcondition List , A: Add List , D:Delete List
- C. P: Precondition List , S: Sub List , D:Delete List
- D. P: Postcondition List , S: Sub List , D:Delete List

ANSWER: A

Which search algorithm imposes a fixed depth limit on nodes?

- A. Depth-limited search
- B. Depth-first search
- C. Iterative deepening search
- D. Bidirectional search

ANSWER: A

In a rule-based system, procedural domain knowledge is in the form of: \_\_\_\_\_

- A. production rules
- B. rule interpreters
- C. meta-rules
- D. control rules

ANSWER: A

\_\_\_\_\_ is a state that is better than all its neighboring states but is not better than some other states further away

- A. Plateau
- B. Local Maximum
- C. Global Maximum
- D. All of the above



ANSWER: B

\_\_\_\_\_ algorithm keeps track of k states rather than just one.

- A. Hill-Climbing search
- B. Local Beam search
- C. Stochastic hill-climbing search
- D. Random restart hill-climbing search

ANSWER: B

Which is the most straightforward approach for planning algorithm?

- A. Best-first search
- B. State-space search
- C. Depth-first search
- D. Hill-climbing search

ANSWER: B

\_\_\_\_\_ is/are the well known Expert System/s for medical diagnosis systems

- A. MYSIN
- B. CADUCEUS
- C. DENDRAL
- D. SMH.PAL

ANSWER: A

Which of the following statement(s) is true for Sparse-Memory Graph Search (SMGS)?

- A. The boundary is defined as those nodes in CLOSED that have at least one successor still in OPEN
- B. The nodes in CLOSED that are not on the boundary are in the kernel
- C. The number of relay nodes on each path is exactly one.
- D. Both A & B

ANSWER: D

When do we call the states are safely explored?

- A.A goal state is unreachable from any state
- B.A goal state is denied access
- C.A goal state is reachable from every state
- C.None of the mentioned

ANSWER:C

Which of the following algorithm is generally used CSP search algorithm?

- A.Breadth-first search algorithm
- B.Depth-first search algorithm
- C.Hill-climbing search algorithm
- D.None of the mentioned

ANSWER:B

Which of the following conditions must hold for a solution to a CSP?

- A.All relations in all constraints must hold
- B.At least one relation in all constraints must hold.
- C.More than one relation in all constraints must hold.
- D.All relations in at least one constraint must hold.

ANSWER:B

Which of the following are true for the algorithms Beam Stack Search (BSS)and Divide-and-Conquer Beam Stack Search (DCBSS).

- A. BSS finds the optimal path while DCBSS does not.
- B. DCBSS finds the optimal path while BSS does not.
- C. Both BSS and DCBSS find the optimal path
- D. Neither BSS and DCBSS find the optimal path

ANSWER: C

The performance of an agent can be improved by \_\_\_\_\_

- A. Learning
- B. Observing
- C. Perceiving
- D. Sensing

ANSWER: A

\_\_\_\_\_ Is an algorithm, 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. Reverse-Down-Hill search

ANSWER: B

Is the below statement true for the domain of positive integers

$$p \vee q \wedge (p + q = 7)$$

A.Yes

B.No

ANSWER:A

Which of the following is a sound rule of inference?

A. $Q \wedge (P \vee Q) \rightarrow P$

B. $P \wedge (P \vee Q)$

C. $Q \wedge (P \vee Q) \rightarrow P$

D.All of above

ANSWER:B

Is the following Sentence valid?

$$\forall x \exists y P(x,y) \rightarrow \exists y \forall x P(x,y)$$

A.Yes

B.No

ANSWER:B

Is  $\exists z S(x,y)$  a well-formed formula?

A.Yes

B.No

ANSWER:A

The statement comprising the limitations of FOL is/are \_\_\_\_\_

A.Expressiveness

B.Formalizing Natural Languages

C.Many-sorted Logic

D.All of the mentioned

ANSWER:D

The adjective "first-order" distinguishes first-order logic from \_\_\_\_\_ in which there are predicates having predicates or functions as arguments, or in which one or both of predicate quantifiers or function quantifiers are permitted.

A.presentational Verification

B.Representational Adequacy

C.Higher Order Logic

D.Inferential Efficiency

ANSWE:C

"In AI systems, Knowledge can be represented in two ways. What are these two ways?

i.Machine Logic

- ii. Predicate Logic
- iii. Propositional Logic
- iv. Compound Logic"

- A. i. and ii.
- B. i. and iii.
- C. ii. and iii.
- D. iii. and iv.

ANSWER:C

Not only do formal logics allow representation of knowledge, but they also allow representation of knowledge Mechanisms for reasoning using a collection of well-defined manipulation rules Of Representations.

A.True

B.False

ANSWER:A

If a logic produces only true statements and does not produce any false statement it shows which of the following property

A.Completeness

B.Soundness

C.Consistency

D.None of these

ANSWER:B

Is the following rule of inference valid one

A.No

B.Yes

ANSWER:B

\_\_\_\_\_ Graph is used to represent semantic network

A.Undirected

B.Directed

C.Undirected

D.Any one of the above

ANSWER:B

What is the nature of the sentence:  $x \ y \ (\text{TeacherOf}(x,y) \ \text{StudentOf}(y,x))$

A.Symmetry

B.Exhaustiveness

C.Inverse

D.None of the above

ANSWER:C

The formula or sentences that can be made true by certain valuation function are called

A.Valid formula

B.Satisfiable formula

C.Unsatisfiable formula

D.Invalid Formula

ANSWER:B

A \_\_\_\_\_ is used to demonstrate, on a purely syntactic basis, that one formula is a logical consequence of another formula.

A.Deductive Systems

B.Inductive Systems

C.Reasoning with Knowledge Based Systems

D.Search Based Systems

ANSWER:A

A common convention is:

- is evaluated first
- and are evaluated next
- Quantifiers are evaluated next
- is evaluated last.

A.True

B.False

ANSWER:A

A Term is either an individual constant (a 0-ary function), or a variable, or an n-ary function applied to n terms:  $F(t_1 t_2 \dots t_n)$ .

A.True

B.False

ANSWER:A

First Order Logic is also known as \_\_\_\_\_

A.First Order Predicate Calculus

B.Quantification Theory

C.Lower Order Calculus

D.All of the mentioned

ANSWER:D

Which is created by using single propositional symbol?

A.Complex sentences

B.Atomic sentences

C.Composition sentences

D.None of the mentioned

ANSWER:B

Which is used to construct the complex sentences?

- A.Symbols
- B.Connectives
- C.Logical connectives
- D.All of the mentioned

ANSWER:C

How many proposition symbols are there in artificial intelligence?

- A.1
- B.2
- C.3
- D.4

ANSWER:B

Which is used to compute the truth of any sentence?

- A.Semantics of propositional logic
- B.Alpha-beta pruning
- C.First-order logic
- D.Both Semantics of propositional logic & Alpha-beta pruning

ANSWER:A

Which are needed to compute the logical inference algorithm?

- A.Logical equivalence
- B.Validity
- C.Satisfiability
- D.All of the mentioned

ANSWER:D

From which rule does the modus ponens are derived?

- A.Inference rule
- B.Module rule
- C.Both Inference & Module rule
- C.None of the mentioned

ANSWER:A

Which is also called single inference rule?

- A.Reference
- B.Resolution
- C.Reform
- D.None of the mentioned

ANSWER:B



Which form is called as a conjunction of disjunction of literals?

- A. Conjunctive normal form
- B. Disjunctive normal form
- C. Normal form
- D. All of the mentioned

ANSWER:A

What can be viewed as a single literal of disjunction?

- A. Multiple clause
- B. Combine clause
- C. Unit clause
- D. None of the mentioned

ANSWER:C

A) Knowledge base (KB) is consists of set of statements.

B) Inference is deriving a new sentence from the KB.

Choose the correct option.

- A. A is true, B is true
- B. A is false, B is false
- C. A is true, B is false
- D. A is false, B is true

ANSWER:A

What among the following constitutes the representation of the knowledge in different forms?

- A. Relational method where each fact is set out systematically in columns
- B. Inheritable knowledge where relational knowledge is made up of objects
- C. Inferential knowledge
- D. All of the mentioned

ANSWER:D

What are Semantic Networks?

- A. A way of representing knowledge
- B. Data Structure
- C. Data Type
- D. None of the mentioned

ANSWER:A

Graph used to represent semantic network is \_\_\_\_\_

- A. Undirected graph
- B. Directed graph
- C. Directed Acyclic graph (DAG)

D. Directed complete graph

ANSWER:B

The basic inference mechanism in semantic network is to follow the links between the nodes.

A. True

B. False

ANSWER:A

Which of the following elements constitutes the frame structure?

A. Facts or Data

B. Procedures and default values

C. Frame names

D. Frame reference in hierarchy

ANSWER:A

There exists two way to infer using semantic networks in which knowledge is represented as Frames.

A. Intersection Search

B. Inheritance Search

ANSWER:A

Which problem can frequently occur in backward chaining algorithm?

A. Repeated states

B. Incompleteness

C. Complexity

D. Both Repeated states & Incompleteness

ANSWER:D

How to eliminate the redundant rule matching attempts in the forward chaining?

A. Decremental forward chaining

B. Incremental forward chaining

C. Data complexity

D. None of the mentioned

ANSWER:B

Which of the following is an extension of the semantic network?

A. Expert Systems

B. Rule Based Expert Systems

C. Decision Tree Based networks

D. Partitioned Networks

ANSWER:D

# **By OnlineInterviewQuestions.com**

## **Artificial Intelligence MCQ Quiz**

### **Take Artificial Intelligence Quiz To test your Knowledge**

Below are few **Artificial Intelligence MCQ** test that checks your basic knowledge of Artificial Intelligence. This **Artificial Intelligence MCQ Test** contains around 20 questions of multiple choice with 4 options. You have to select the right answer to a question. You can see the correct answer by clicking view answer link.

Also, Read [Best Artificial Intelligence interview questions.](#)

**Q1. An Artificial Intelligence system developed by Terry A. Winograd to permit an interactive dialogue about a domain he called blocks-world.**

- A. SIMD
- B. STUDENT
- C. SHRDLU
- **D. BACON**

**Q2. What is Artificial intelligence?**

- A. Programming with your own intelligence
- B. Putting your intelligence into Computer
- **C. Making a Machine intelligent**
- D. Playing a Game

**Q3. DARPA, the agency that has funded a great deal of American Artificial Intelligence research, is part of the Department of:**

- A. Education
- **B. Defense**
- C. Energy
- D. Justice

**Q4. Who is the “father” of artificial intelligence?**

- A. John McCarthy
- **B. Fisher Ada**
- C. Allen Newell
- D. Alan Turning

**Q5. KEE is a product of:**

- **A. IntelliCorp**
- B. Teknowledge
- C. Texas Instruments
- D. Tech knowledge

**Q6. Default reasoning is another type of -**

- A. Analogical reasoning
- B. Bitonic reasoning
- **C. Non-monotonic reasoning**
- D. Monotonic reasoning

**Q7. Weak AI is**

- A. a set of computer programs that produce output that would be considered to reflect intelligence if it were generated by humans.
- **B. the study of mental faculties through the use of mental models implemented on a computer.**
- C. the embodiment of human intellectual capabilities within a computer.
- D. All of the above

**Q8. If a robot can alter its own trajectory in response to external conditions, it is considered to be:**

- A. mobile
- B. open loop
- **C. intelligent**
- D. non-servo

**Q9. One of the leading American robotics centers is the Robotics Institute located at**

- A. RAND

- B. MIT
- C. CMU
- D. SRI

**Q10. What is the name of the computer program that contains the distilled knowledge of an expert?**

- A. Management information System
- B. Expert system
- C. Data base management system
- D. Artificial intelligence

**Q11. In LISP, the function evaluates both <variable> and <object> is -**

- A. setq
- B. add
- C. set
- D. eva

**Q12. What is Artificial intelligence?**

- A. Making a Machine intelligent
- B. Putting your intelligence into Computer
- C. Programming with your own intelligence
- D. putting more memory into Computer

**Q13. Which is not the commonly used programming language for AI?**

- A. PROLOG
- B. LISP
- C. Perl
- D. Java script

**Q14. Which is not a property of representation of knowledge?**

- A. Inferential Adequacy
- B. Representational Adequacy
- **C. Representational Verification**
- D. Inferential Efficiency

**Q15. A Hybrid Bayesian network contains**

- A. Both discrete and continuous variables
- B. Only Discontinuous variable
- **C. Both Discrete and Discontinuous variable**
- D. Continuous variable only.

**Q16. Computational learning theory analyzes the sample complexity and computational complexity of -**

- A. Forced based learning
- B. Weak learning
- **C. Inductive learning**
- D. Knowledge based learning.

**Q17. Which is true?**

- A. All formal languages are like natural language
- **B. Not all formal languages are context-free**

**Q18. What stage of the manufacturing process has been described as "the mapping of function onto form"?**

- A. Distribution
- B. project management
- **C. Design**
- D. field service

**Q19. Programming a robot by physically moving it through the trajectory you want it to follow is called:**

- **A. continuous-path control**

- **B.** robot vision control
- **C.** contact sensing control
- **D.** pick-and-place control

**Q20. In LISP, the addition  $3 + 2$  is entered as -**

- **A.** 3 add 2
- **B.**  $3 + 2$
- **C.**  $3 + 2 =$
- **D.** (+ 3 2)

**Q21. Knowledge engineering is a field of Artificial intelligence.**

- **A.** True
- **B.** False

**Q22. The first ai programming language was called**

- **A.** Python
- **B.** IPL
- **C.** LISP
- **D.** Machine Language

Please Visit [OnlineInterviewquestions.com](https://OnlineInterviewquestions.com) to download more pdfs

The working memory of the problem solver is like its \_\_\_\_\_

- A. Long term memory
- B. Short term memory
- C. Permanent Memory
- D. None of these

ANSWER:B

\_\_\_\_\_ search regresses over goals and validate a plan before returning it.

- A. Forward state space
- B. Backward state space
- C. Goal stack
- D. None of these

ANSWER:B

\_\_\_\_\_ Procedure selects a flaw in a given plan and looks for a resolver.

- A. Goal stack planning
- B. The plan space planning
- C. Recursive goal stack planning
- D. Partial order Planning

ANSWER:B

The relationships between behavioral acts are not defined in the partial order plan until absolutely necessary.

- A. True
- B. False

ANSWER:B

A\* generates will not generate optimal solution if  $h(n)$  is a consistent heuristics and the search space is graph

- A. True
- B. False

ANSWER:B

Which of the following combination of labels is not allowed for W joint in scene labelling is not allowed

- A. (+, -, +)
- B. (-, +, -)
- C. ( $\leftarrow$ , +,  $\leftarrow$ )
- D. ( $\leftarrow$ ,  $\leftarrow$ ,  $\leftarrow$ )

ANSWER:D

If it is possible to extend each pair of consistent variable instantiation to a third variable, a CSP is said to be \_\_\_\_\_

- A. Arc Consistent
- B. 1- Consistent
- C. Path consistent.
- D. 2- consistent

ANSWER:C

The \_\_\_\_\_ algorithm explores the domain in a depth first manner.

- A. Backtracking
- B. Forward checking
- C. Arc consistency
- D. Strategic Retreat

ANSWER:A

\_\_\_\_\_ are mathematical problems defined as a set of objects whose state must satisfy a number of constraints or limitations.

- A. Constraints Satisfaction Problems
- B. Uninformed Search Problems



C. Local Search Problems  
D. All of the mentioned  
ANSWER: A

Which of the following problems can be modeled as CSP?  
A. 8-Puzzle problem  
B. 8-Queen problem  
C. Map coloring problem  
D. All of the mentioned  
ANSWER: D

The term \_\_\_\_\_ is used for a depth-first search that chooses values for one variable at a time and returns when a variable has no legal values left to assign.  
a) Forward search  
b) Backtrack search  
c) Hill algorithm  
d) Reverse-Down-Hill search  
ANSWER: B

Consider a problem of preparing a schedule for a class of student. What type of problem is this?  
a) Search Problem  
b) Backtrack Problem  
c) CSP  
d) Planning Problem  
ANSWER: C

Constraint satisfaction problems on finite domains are typically solved using a form of \_\_\_\_\_.  
a) Search Algorithms  
b) Heuristic Search Algorithms  
c) Greedy Search Algorithms  
d) All of the mentioned  
ANSWER: D

Backtracking is based on \_\_\_\_\_.  
A. Last in first out  
B. First in first out  
C. Recursion  
D. Both Last in first out & Recursion  
ANSWER: D

The inference engine goes through which cycle?  
A. Match-Resolve-Execute  
B. Execute-Resolve-Match  
C. Resolve Match Match  
D. Resolve Match Execute  
ANSWER: A

The output of MATCH routine in Inference Engine is \_\_\_\_\_.  
A. Pattern set  
B. Conflict set (CS)  
C. Rule set  
D. Action set  
ANSWER: B

Operator PUTDOWN has which of the following sequence of actions?  
A. holding(x), Ontable(x), holding(x)  
B. holding(x), armempty, holding(x)

C.  $\text{holding}(x), \text{Ontable}(x)$   
D.  $\text{holding}(x), \text{Ontable}(x) \wedge \text{armempty}, \text{holding}(x)$   
ANSWER: D

Frame problem in STRIPS Domain can be solved by \_\_\_\_\_  
A. Operator  
B. Frame Axioms  
C. Precondition  
D. Action  
ANSWER: B

PDDL stands for \_\_\_\_\_  
A. Path data description Language  
B. Planning Domain Description Language  
C. Planning data Description Language  
D. Path data deleted Language  
ANSWER: B

In PDDL, the Language is based on \_\_\_\_\_  
A. Propositional logic notation  
B. Second Order Logic Notation  
C. First Order Logic Notation  
D. All of these  
ANSWER: C

STRIPS operators are made up of which three components:  
A. P: Precondition List , A: Add List , D:Delete List  
B. P: Postcondition List , A: Add List , D:Delete List  
C. P: Precondition List , S: Sub List , D:Delete List  
D. P: Postcondition List , S: Sub List , D:Delete List  
ANSWER: A

Which search algorithm imposes a fixed depth limit on nodes?  
A. Depth-limited search  
B. Depth-first search  
C. Iterative deepening search  
D. Bidirectional search  
ANSWER: A

In a rule-based system, procedural domain knowledge is in the form of: \_\_\_\_\_  
A. production rules  
B. rule interpreters  
C. meta-rules  
D. control rules  
ANSWER: A

\_\_\_\_\_ is a state that is better than all its neighboring states but is not better than some other states further away  
A. Plateau  
B. Local Maximum  
C. Global Maximum  
D. All of the above  
ANSWER: B

\_\_\_\_\_ algorithm keeps track of k states rather than just one.  
A. Hill-Climbing search  
B. Local Beam search  
C. Stochastic hill-climbing search  
D. Random restart hill-climbing search

ANSWER: B

Which is the most straightforward approach for planning algorithm?

- A. Best-first search
- B. State-space search
- C. Depth-first search
- D. Hill-climbing search

ANSWER: B

\_\_\_\_\_ is/are the well known Expert System/s for medical diagnosis systems

- A. MYSIN
- B. CADUCEUS
- C. DENDRAL
- D. SMH.PAL

ANSWER: A

Which of the following statement(s) is true for Sparse-Memory Graph Search (SMGS)?

- A. The boundary is defined as those nodes in CLOSED that have at least one successor still in OPEN
- B. The nodes in CLOSED that are not on the boundary are in the kernel
- C. The number of relay nodes on each path is exactly one.
- D. Both A & B

ANSWER: D

Is the below statement true for the domain of positive integers

$\forall p \exists q (p + q = 7)$

A. Yes

B. No

ANSWER:A

Which of the following is a sound rule of inference?

A.  $Q \wedge (P \rightarrow Q) \rightarrow P$

B.  $P \rightarrow (P \vee Q)$

C.  $Q \vee (P \rightarrow Q) \rightarrow P$

D. All of above

ANSWER:B

Is the following Sentence valid?

$\forall x \exists y P(x,y) \equiv \exists y \forall x P(x,y)$

A. Yes

B. No

ANSWER:B

Is  $\forall z S(x,y)$  a well-formed formula?

A. Yes

B. No

ANSWER:A

The statement comprising the limitations of FOL is/are \_\_\_\_\_

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Not only do formal logics allow representation of knowledge, but they also allow representation of knowledge Mechanisms for reasoning using a collection of well-defined manipulation rules Of Representations.

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If a logic produces only true statements and does not produce any false statement it shows which of the following property

- A. Completeness
- B. Soundness
- C. Consistency
- D. None of these

ANSWER:B

Is the following rule of inference valid one

- A. No
- B. Yes

ANSWER:B

\_\_\_\_\_ Graph is used to represent semantic network

- A. Undirected
- B. Directed
- C. Undirected
- D. Any one of the above

ANSWER:B

What is the nature of the sentence:  $\forall x \forall y (\text{TeacherOf}(x,y) \supset \text{StudentOf}(y,x))$

- A. Symmetry
- B. Exhaustiveness
- C. Inverse
- D. None of the above

ANSWER:C

The formula or sentences that can be made true by certain valuation function are called

- A. Valid formula
- B. Satisfiable formula
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A \_\_\_\_\_ is used to demonstrate, on a purely syntactic basis, that one formula is a logical consequence of another formula.

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A common convention is:

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ANSWER:D

Which is created by using single propositional symbol?

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ANSWER:B

Which is used to construct the complex sentences?

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B.Connectives

C.Logical connectives

D.All of the mentioned

ANSWER:C

How many proposition symbols are there in artificial intelligence?

A.1

B.2

C.3

D.4

ANSWER:B

Which is used to compute the truth of any sentence?

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B.Alpha-beta pruning

C.First-order logic

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- B. Data Structure
- C. Data Type
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- C. Directed Acyclic graph (DAG)
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- B. Incompleteness
- C. Complexity
- D. Both Repeated states & Incompleteness

ANSWER:D

How to eliminate the redundant rule matching attempts in the forward chaining?

- A. Decremental forward chaining
- B. Incremental forward chaining
- C. Data complexity
- D. None of the mentioned

ANSWER:B

Which of the following is an extension of the semantic network?

- A. Expert Systems
- B. Rule Based Expert Systems
- C. Decision Tree Based networks
- D. Partitioned Networks

ANSWER:D



what is the issue of Forward State Space Planning?

- A. low branching factor.
- B. large branching factor.
- C. work in forward fashion
- D. work in backward fashion

ANSWER: B

Goal Stack Planning breaks up a \_\_\_\_\_

- A. initial state
- B. stack in different part
- C. set of goal predicates into individual subgoals
- D. All of the above

ANSWER: C

What is true about Linear Planning?

- A. It refers to the fact that the subgoals are attempted and solved in a linear order.
- B. attempts to solve subgoals individually one after another.
- C. attempts to solve subgoal individually in non linear fashion
- D. Both A & B

ANSWER: D

Agent interacts with the world via \_\_\_\_\_ and \_\_\_\_\_

- A. decision , effect
- B. Perception, decision
- C. Perception, Action
- D. Perception, effect

ANSWER: C

The start node for search in plan space planning is \_\_\_\_\_

- A. BFS
- B. DFS
- C. Both DFS and BFS
- D. A\*

ANSWER: C

In which chaining, the Left-Hand side is used to match the rules and Right-Hand side is used to check the effect of using the rule.

- A. Forward Chaining
- B. Backward Chaining
- C. Reverse Chaining
- D. Both B & C

ANSWER: A

The components of Expert system are?

- A. A Set of Rules, The Inference Engine (IE), Forward Chaining
- B. A Set of Rules, Backward Chaining, A Working Memory (WM)
- C. A Set of Rules, The Inference Engine (IE), A Working Memory (WM)
- D. A Set of Rules, Forward Chaining, Backward Chaining

ANSWER: C

What is true about Artificial Intelligence?

- A. The ability to solve problems□.
- B. The ability to act rationally.
- C. The ability to act like humans
- D. All of the above

ANSWER: D

Which of the following are Informed search algorithms?

- A. Best First Search
- B. A\* Search
- C. Iterative Deepening Search
- D. Both a & b

ANSWER: D

If there is a solution, breadth first search is \_\_\_\_\_ to find it

- A. Difficult
- B. Guaranteed
- C. Not able to find
- D. None of the above

ANSWER: B

Which search strategy is combining the benefits of both BFS and DFS?

- A. Depth Limited Search
- B. A\*
- C. Iterative Deepening Depth first search
- D. Best first search

ANSWER: C

Admissibility of the heuristic function is given as:

- A.  $h(n) \geq h^*(n)$
- B.  $h(n) < h^*(n)$
- C.  $h(n) == h^*(n)$
- D.  $h(n) \leq h^*(n)$

ANSWER: D

The efficiency of A\* algorithm depends on \_\_\_\_\_

- A. depth
- B. the quality of heuristic
- C. unknown nodes
- D. d. None of the above

ANSWER: B

What is the termination criteria in Hill climbing?

- A. when no successor of the node has better heuristic value.
- B. when successor of the node has better heuristic value.
- C. when no ancestor of the node has better heuristic value.
- D. when ancestor of the node has better heuristic value.

ANSWER: A

What is true about variable neighborhood function?

- A. Neighbourhood functions that are sparse lead to quicker movement during search
- B. algorithm has to inspect very fewer neighbours
- C. VDN starts searching with sparse Neighbourhood functions, when it reaches an optimum, it switches to denser function.
- D. All of the above

ANSWER: D

\_\_\_\_\_ requires Linear Space but uses backtracking

- A. Breadth First Search

- B. Recursive Best First Search (RBFS)
- C. A\*
- D. IDA\*

ANSWER: B

Which property asks that the algorithm is locally admissible?

- A. Admissibility
- B. Monotonicity
- C. Informedness
- D. None of the above

ANSWER: B

A\* Search Algorithm \_\_\_\_\_

- A. does not expand the node which have the lowest value of  $f(n)$ ,
- B. finds the shortest path through the search space using the heuristic function i.e  $f(n)=g(n) + h(n)$
- C. terminates when the goal node is not found.
- D. All of the above

ANSWER: B

Which is not problem in Hill climbing?

- A. Plateau
- B. Ridges
- C. Local Maximum
- D. landscape

ANSWER: D

Tabu search is designed \_\_\_\_\_

- A. as it does not follow aspiration criteria
- B. to escape the trap of local optimality.
- C. to unrecord forbidden moves, which are referred to as tabu moves .
- D. All of the above

ANSWER: B

Production/Rule looks like \_\_\_\_\_

- A. Pattern-->Data
- B. Action-->Data
- C. Pattern-->Action
- D. None of the above

ANSWER: C

How can we convert AO graph with mixed nodes into graph with pure AND and OR nodes?

- A. By traversing multiple node
- B. By deleting one of the node
- C. By addition of extra node
- D. None of the above

ANSWER: C

Arc consistency in AO graph is concerned with \_\_\_\_\_

- A. Nodes
- B. finding consistent values for pairs of variables.
- C. unary constraint
- D. All of the above

ANSWER: B

A planning problem P in BSSP is defined as a \_\_\_\_\_

- A. triple (S, G, O)
- B. triple (S1, S2, O)

C. triple (G1, G, O)  
D. None of the above  
ANSWER: A

Plan representation in Plan Space Planning is done with\_\_\_ -----  
links  
A. binding links  
B. ordering links and casual link  
C. Contigent link  
D. head step  
ANSWER: B

What is true about Iterative Deepening DFS?  
A. It does not perform DFS in a BFS fashion.  
B. It is the preferred informed search method  
C. It's a Depth First Search, but it does it one level at a time, gradually increasing the limit, until a goal is found.  
D. Is a depth-first search with a fixed depth limit l  
ANSWER: C

What is the main advantage of backward state-space search?  
A. Cost  
B. Actions  
C. Relevant actions  
D. All of the mentioned  
ANSWER: C

Backward State Space Planning (BSSP) \_\_\_\_\_  
A. simply explores the set of all future states in possible order  
B. Start searching backwards from the goal  
C. leads to huge search space  
D. has no sense of direction  
ANSWER: B

In Backward State Space Planning ,regress(A,G) that returns \_\_\_\_\_  
A. the regressed goal over action A when applied to goal G.  
B. the goal state over action A when applied to goal G.  
C. the initial state over action A when applied to goal G.  
D. Both A & B  
ANSWER: A

What is true about Backward State Space Planning?  
A. goal states are often incompletely specified.  
B. expresses only what is desired in the final state, rather than a complete description of the final state.  
C. It uses regression  
D. All of the above  
ANSWER: D

effects<sup>+</sup> (a) in Forward State Space Planning denotes \_\_\_\_\_  
A. denotes the set of negative effects of action a  
B. denotes the set of neutral effects of action a  
C. denotes the set of positive effects of action a  
D. None of the above  
ANSWER: C

In Forward State Space Planning , Progress ( A, S) function returns \_\_\_\_\_

- A. the successor state S when action A is applied to state S.
- B. the predecessor state S when action A is applied to state S.
- C. Both A & B
- D. None of the above

ANSWER: A

What are the drawbacks of Forward State Space Planning?

- A. FSSP has very huge search space
- B. It includes the actions that have nothing go do with achieving the goal
- C. Regression is used in Forward State Space Planning
- D. Both A & B

ANSWER: D

What arcs represents in AO Graph?

- A. subproblem to be solved individually
- B. solution
- C. Path
- D. Sequence of actions

ANSWER: A

Which are the first AI applications of AO graph?

- A. SAINT
- B. XCON
- C. DENDRAL
- D. Both A and C

ANSWER: D

What is Hyper-Edge in AO Graph?

- A. Many edges together can be Hyber edge
- B. Those are AND Edges only
- C. Both 1 and 2
- D. None of the above

ANSWER: C

What cost is assumed for arc while solving AO\* progress example?

- A. 0
- B. 1
- C. 2
- D. 3

ANSWER: B

What is the heuristic cost of SOLVED nodes in AO\* example?

- A. 0
- B. 1
- C. 2
- D. 3

ANSWER: A

What is used to lable primitive problems in AO problem?

- A. Unvisited
- B. UNSOLVED
- C. SOLVED
- D. visited

ANSWER: C

When do we call the states are safely explored?

- A.A goal state is unreachable from any state
- B.A goal state is denied access
- C.A goal state is reachable from every state
- C.None of the mentioned

ANSWER:C

Which of the following algorithm is generally used CSP search algorithm?

- A.Breadth-first search algorithm
- B.Depth-first search algorithm
- C.Hill-climbing search algorithm
- D.None of the mentioned

ANSWER:B

Which of the following conditions must hold for a solution to a CSP?

- A.All relations in all constraints must hold
- B.At least one relation in all constraints must hold.
- C.More than one relation in all constraints must hold.
- D.All relations in at least one constraint must hold.

ANSWER:B

Which of the following are true for the algorithms Beam Stack Search (BSS)and Divide-and-Conquer Beam Stack Search (DCBSS) .

- A. BSS finds the optimal path while DCBSS does not.
- B. DCBSS finds the optimal path while BSS does not.
- C. Both BSS and DCBSS find the optimal path
- D. Neither BSS and DCBSS find the optimal path

ANSWER: C

The performance of an agent can be improved by \_\_\_\_\_

- A. Learning
- B. Observing
- C. Perceiving
- D. Sensing

ANSWER: A

\_\_\_\_\_ Is an algorithm, 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. Reverse-Down-Hill search

ANSWER: B