



BRAINWARE UNIVERSITY

Term End Examination 2021 - 22

Programme – Diploma in Mechanical Engineering

Course Name – Industrial Robotics and Automation

Course Code - DME604

(Semester VI)

Time allotted : 1 Hrs.15 Min.

Full Marks : 60

[The figure in the margin indicates full marks.]

Group-A

(Multiple Choice Type Question)

1 x 60=60

Choose the correct alternative from the following :

- (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
- (2) 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
- (3) 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
- (4) One of the leading American robotics centers is the Robotics Institute located at?
 - a) CMU
 - b) MIT
 - c) RAND
 - d) SRI
- (5) Which of the following is not application domains of Computer Vision?
 - a) Agriculture
 - b) Biometrics
 - c) Page control
 - d) Transport
- (6) Which of the following is not a type of Robot Locomotion?
 - a) Legged
 - b) Wheeled
 - c) Tracked deslip
 - d) Tracked skid
- (7) Which of the following is not an essential components for construction of robots?
 - a) Power Supply
 - b) Actuators

- c) Sensors
d) Energy
- (8) Decision support programs are designed to help managers make _____
a) budget projections
b) visual presentations
c) business decisions
d) vacation schedules
- (9) 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
- (10) 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
- (11) Which of the following is not application of Robotics?
a) Industries
b) Military
c) Medicine
d) Hills
- (12) Which of the following terms refers to the rotational motion of a robot arm?
a) swivel
b) axle
c) retrograde
d) roll
- (13) 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
- (14) 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
- (15) Robot is derived from Czech word
a) Rabota
b) Robota
c) Rebot
d) Ribota
- (16) The main objective(s) of Industrial robot is to
a) To minimize the labour requirement
b) To increase productivity
c) To enhance the life of production machines
d) All of the above
- (17) Match the following
a) a-1, b-4, c-2, d-3
b) a-3, b-4, c-2, d-1
c) a-3, b-2, c-4, d-1
d) a-4, b-3, c-2, d-1
- (18) Industrial Robots are generally designed to carry which of the following coordinate system(s).
a) Cartesian coordinate systems
b) Polar coordinate systems
c) Cylindrical coordinate system
d) All of the above
- (19) The Robot designed with Polar coordinate systems has
a) Three linear movements
b) Three rotational movements

- c) Two linear and one rotational movement d) Two rotational and one linear movement
- (20) Which of the following work is done by General purpose robot?
- a) Part picking b) Welding
c) Spray painting d) All of the above
- (21) Internal state sensors are used for measuring _____ of the end effector.
- a) Position b) Position & Velocity
c) Velocity & Acceleration d) Position, Velocity & Acceleration
- (22) Which of the following sensors determines the relationship of the robot and its environment and the objects handled by it
- a) Internal State sensors b) External State sensors
c) Both (A) and (B) d) None of the above
- (23) Which of the following is not a programming language for computer controlled robot?
- a) AMU b) VAL
c) RAIL d) HELP
- (24) In a functional industrial robot unit, typically, how many degrees of freedom would the robot have?
- a) 6 b) 7
c) 8 d) 9
- (25) Which of the following having the nearest meanings to the rotational motion of a robot arm?
- a) swivel b) axle
c) retrograde d) roll
- (26) If we are working on LISP, the function returns t if is a “cons” cell and nil otherwise
- a) (cons) b) (cous =)
c) (eq) d) (consp)
- (27) Which of the following premises is least likely to include operational robots?
- a) Car showroom b) private homes
c) hospitals d) factory
- (28) A team of researchers at the University of Marseilles developed PROLOG. Who was the head of this team?
- a) John McCarthy b) Niklaus Wirth
c) Seymour Papert d) Alain Colmerauer
- (29) Which of the following refers to the usage of compressed gasses to drive the robot device?
- a) photosensitive b) hydraulic
c) piezoelectric d) pneumatic
- (30) Which of the following statements are most correct with regard to the physics of power systems used to operate robots?
- a) hydraulics includes the compression of liquids b) hydraulics includes the compression of air
c) chemical batteries produce AC power d) pneumatics involve the compression of air
- (31) Which of the following is not the advantage of a robotics implementation program?
- a) Quality of manufactured things can be better b) Robots work constantly around the clock
c) Low costs for hardware and software d) Decreased company cost for worker fringe advantages

- a) Low costs for hardware and software
- c) Quality of manufactured goods can be improved

- b) Robots work continuously around the clock
- d) Reduced company cost for worker fringe benefits

(57) In LISP, the function returns t if is a CONS cell and nil otherwise _____

- a) (cons)
- c) (eq)

- b) (consp)
- d) (cous =)

(58) In a rule-based system, procedural domain knowledge is in the form of _____

- a) production rules
- c) meta-rules

- b) rule interpreters
- d) control rules

(59) The LVDT can be used to measure

- a) Level
- c) Speed

- b) Acceleration
- d) All of these

(60) A Voltmeter should have

- a) Infinite resistance
- c) Low resistance

- b) Very high resistance
- d) Zero resistance