



**PSN COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**(Autonomous)**  
**DEPARTMENT OF MECHANICAL ENGINEERING**

**MULTIPLE CHOICE QUESTION BANK**

**Year/Semester: IV / VII**

**Academic Year: 2025 - 2026**

**Subject: ME607417 ROBOTICS AND MECHANICAL ACTUATORS**

### VISION AND MISSION OF THE INSTITUTE:

|                            |                                                                                                          |                                                                                                                                           |
|----------------------------|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Institution Vision</b>  | To emerge as a pioneer institute inculcating engineering education, skills, research, values and ethics. |                                                                                                                                           |
| <b>Institution Mission</b> | <b>IM-1</b>                                                                                              | To achieve greater heights of excellence in technical knowledge and skill development through innovative teaching and learning practices. |
|                            | <b>IM-2</b>                                                                                              | To develop the state of art infrastructure to meet the demands of technological revolution.                                               |
|                            | <b>IM-3</b>                                                                                              | To improve and foster research in all dimensions for betterment of society.                                                               |
|                            | <b>IM-4</b>                                                                                              | To develop individual competencies to enhance innovation, employability and entrepreneurship among students.                              |
|                            | <b>IM-5</b>                                                                                              | To instil higher standards of discipline among students, inculcating ethical and moral values for societal harmony and peace.             |

### VISION AND MISSION OF THE DEPARTMENT:

|                           |                                                                                                                             |                                                                                                                |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <b>Department Vision</b>  | To emerge as a preeminent department to produce quality Mechanical Engineering Graduates to meet national and global needs. |                                                                                                                |
| <b>Department Mission</b> | <b>DM-1</b>                                                                                                                 | To educate students to be creative, inquisitive, and innovative to become quality engineers and entrepreneurs. |
|                           | <b>DM-2</b>                                                                                                                 | To instill advanced knowledge with research capabilities for global careers and higher studies                 |
|                           | <b>DM-3</b>                                                                                                                 | To inculcate moral and ethical standards in life and career.                                                   |

# PSN COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous)

## B.E. MECHANICAL ENGINEERING

Semester – V

(ACADEMIC YEAR: 2025 - 2026)

### 501026 EXPERIMENTAL AERODYNAMICS

Regulation –2022

#### MULTIPLE CHOICE QUESTION BANK









(Each question carries one mark)










**Instructions:** Choose the correct option (A / B / C / D)










1. Who is credited with formulating the Three Laws of Robotics?
  - A) Alan Turing
  - B) Isaac Newton
  - C) Isaac Asimov
  - D) Nikola Tesla
2. Which of the following best defines a robot according to standard robotics definitions?
  - A) A machine that stores data
  - B) A programmable machine capable of carrying out a complex series of actions automatically
  - C) A computing system designed for high-speed data
  - D) A telecommunication system for remote control
3. What does DOF stand for in robotics?
  - A) Degree of Fluctuation
  - B) Degree of Freedom
  - C) Domain of Function
  - D) Direction of Force
4. Which of the following is NOT a typical element of robotic systems?
  - A) Sensor
  - B) Manipulator
  - C) Actuator
  - D) Resistor
5. The term "compliance" in robotics refers to:
  - A) Speed of movement
  - B) Resistance to motion
  - C) Flexibility under force
  - D) Power consumption
6. Resolution in robotic systems refers to:
  - A) The speed at which a robot completes tasks
  - B) The ability to control position precisely
  - C) The durability of the robotic arm
  - D) The total length of the manipulator
7. What is the typical number of DOFs in a 6-axis industrial robotic arm?
  - A) 3
  - B) 4
  - C) 5
  - D) 6










8. Repeatability in robotics is best defined as:
  - A) Ability to adapt to new tasks
  - B) Ability to return to a position consistently
  - C) Time taken to complete a task
  - D) Torque output of the motor
9. The RCC device in robotics is used for:
  - A) Actuator calibration
  - B) End-effector compliance
  - C) Motion control
  - D) Reducing errors in sensors
10. Which of the following classifications is based on robot workspace?
  - A) SCARA
  - B) Delta
  - C) Cylindrical
  - D) All of the above
11. The first industrial robot was introduced in:
  - A) 1935
  - B) 1950
  - C) 1961
  - D) 1975
12. Which work volume shape is associated with a SCARA robot?
  - A) Spherical
  - B) Cylindrical
  - C) Rectangular
  - D) Planar
13. Dexterity of a robot refers to:
  - A) Its strength
  - B) Its cost
  - C) Its ability to manipulate objects in confined spaces
  - D) Its energy consumption
14. Which law of robotics states “A robot must obey the orders given by human beings”?
  - A) First
  - B) Second
  - C) Third
  - D) None
15. A robot with 3 rotational joints is often referred to as a:
  - A) Cartesian robot
  - B) Cylindrical robot
  - C) Articulated robot
  - D) SCARA robot
16. Which component defines the physical form of a robot?
  - A) Processor
  - B) Sensor
  - C) Anatomy
  - D) Software
17. What type of robot drive is known for high precision but low speed?
  - A) Pneumatic
  - B) Hydraulic
  - C) Electric servo
  - D) Manual
18. RCC stands for:
  - A) Reactive Cartesian Control
  - B) Remote Controlled Configuration
  - C) Remote Center Compliance
  - D) Robotic Calibration Component

19. Which parameter defines a robot's minimum measurable motion?
  - A) Accuracy
  - B) Repeatability
  - C) Resolution
  - D) Precision
20. In robot classification, Cartesian robots have which movement type?
  - A) Polar
  - B) Rotational
  - C) Linear
  - D) Hybrid
21. A cylindrical robot has movement in:
  - A) X, Y, and Z only
  - B) Linear + rotational (cylinder axis)
  - C) Only linear
  - D) Only rotational
22. Which of the following parameters is critical for welding robots?
  - A) Dexterity
  - B) Payload
  - C) Repeatability
  - D) Speed
23. The term "robot" is derived from a word in which language?
  - A) Greek
  - B) Czech
  - C) Latin
  - D) Russian
24. What limits the maximum load a robot arm can carry?
  - A) Weight of the base
  - B) Joint flexibility
  - C) Payload capacity
  - D) Processor type
25. Misunderstood robotic devices often refer to:
  - A) Devices mistaken as robots
  - B) Miswired systems
  - C) Faulty control logic
  - D) Poorly programmed systems
26. The classification "Articulated Robot" refers to robots with:
  - A) Linear joint movement
  - B) Multiple revolute joints
  - C) Hydraulic actuation
  - D) Single task capacity
27. Which of these is NOT a typical robot application?
  - A) Painting
  - B) Assembly
  - C) Data compression
  - D) Welding
28. Accuracy in robotics is defined as:
  - A) Ability to repeat a task
  - B) Proximity to intended target position
  - C) Execution time
  - D) Energy used
29. A robot designed for a repetitive fixed task is best classified under:
  - A) Autonomous robot
  - B) Service robot
  - C) Hard automation
  - D) Adaptive robot









30. In which domain are robots most widely used today?
- A) Medical surgery
  - B) Industrial manufacturing
  - C) Aerospace navigation
  - D) Office automation
31.  Which of the following is a mechanical type of gripper?
- A) Magnetic gripper
  - B) Pneumatic finger gripper
  - C) Suction cup
  - D) Electroadhesive gripper
32.  The purpose of a robotic gripper is to:
- A) Calculate the trajectory
  - B) Control motion
  - C) Hold and manipulate objects
  - D) Measure velocity
33.  Which gripper is most suitable for handling metallic sheets?
- A) Suction gripper
  - B) Magnetic gripper
  - C) Vacuum gripper
  - D) Friction gripper
34.  Force analysis of grippers is mainly done to:
- A) Determine actuator type
  - B) Select sensor configuration
  - C) Ensure object stability during manipulation
  - D) Reduce energy consumption
35.  Which of the following is not a type of sensor used in robotics?
- A) Tactile sensor
  - B) Vision sensor
  - C) Humidity sensor
  - D) Torque sensor
36.  A vision system in a robot helps in:
- A) Measuring temperature
  - B) Enhancing gripper strength
  - C) Detecting objects and guiding operations
  - D) Communicating with humans
37.  Tactile sensors in robotics are primarily used for:
- A) Identifying light intensity
  - B) Measuring force and contact
  - C) Reading barcode data
  - D) Transmitting signals
38.  The function of a force/torque sensor in a robotic arm is to:
- A) Calculate arm length
  - B) Measure and control applied forces
  - C) Increase arm velocity
  - D) Regulate temperature

39.  The use of proximity sensors in robotics is mainly for:
- A) Measuring fluid levels
  - B) Detecting presence or absence of objects
  - C) Temperature control
  - D) Wireless communication
40.  Piezoelectric sensors convert:
- A) Light into voltage
  - B) Mechanical stress into electrical signals
  - C) Sound into mechanical energy
  - D) Electrical energy into sound
41.  A capacitive sensor operates based on changes in:
- A) Temperature
  - B) Capacitance
  - C) Current
  - D) Resistance
42.  Which of the following sensors is best suited for measuring joint angles in robotic arms?
- A) Force sensor
  - B) Ultrasonic sensor
  - C) Potentiometer
  - D) Infrared sensor
43.  Infrared sensors are typically used in robotics for:
- A) Thermal regulation
  - B) Speed monitoring
  - C) Obstacle detection
  - D) Trajectory planning
44.  Optical encoders are used to measure:
- A) Position and speed
  - B) Temperature
  - C) Load
  - D) Humidity
45.  The selection of a sensor depends primarily on:
- A) Robot size
  - B) Environmental conditions and task requirements
  - C) Material of the robot body
  - D) Actuator type
46.  Which of the following is a contact-type sensor?
- A) Ultrasonic sensor
  - B) LIDAR
  - C) Tactile sensor
  - D) Proximity sensor
47.  A strain gauge sensor is used to measure:
- A) Acceleration
  - B) Force or stress

- C) Temperature
  - D) Pressure
48.  In a robot vision system, the frame grabber is used for:
- A) Capturing images from a camera
  - B) Compressing image files
  - C) Controlling motion
  - D) Storing commands
49.  Binary sensors provide:
- A) Continuous voltage output
  - B) Multilevel signals
  - C) Two-level (on/off) outputs
  - D) Sound signals
50.  What type of gripper is best suited for delicate materials?
- A) Magnetic
  - B) Pneumatic
  - C) Soft robotic gripper
  - D) Hydraulic
51.  The term "end-effector" in robotics typically refers to:
- A) A sensor
  - B) A display panel
  - C) A tool or gripper at the robot's wrist
  - D) A processor
52.  Vision systems in robots are primarily implemented for:
- A) Force feedback
  - B) Human interaction
  - C) Object recognition and tracking
  - D) Speed control
53.  Which type of sensor is used in robotic navigation for mapping?
- A) Tactile sensor
  - B) LIDAR
  - C) Thermistor
  - D) Reed switch
54.  Sensor calibration is important to ensure:
- A) Sensor aesthetics
  - B) Programming logic
  - C) Measurement accuracy
  - D) Material compatibility
55.  The primary limitation of ultrasonic sensors is:
- A) Power consumption
  - B) Inaccuracy in vacuum
  - C) Inability to detect color
  - D) Fragility
56.  Which parameter is critical when selecting a gripper for an application?
- A) Number of motors
  - B) Material color










- C) Object geometry and weight
  - D) Battery capacity
57.  Which sensor provides distance based on light reflection?
- A) LVDT
  - B) Infrared sensor
  - C) Tactile sensor
  - D) Barometer
58.  The simplest method to detect object presence is using:
- A) Vision sensor
  - B) Proximity switch
  - C) Accelerometer
  - D) GPS
59.  The term “sensor fusion” refers to:
- A) Melting sensors
  - B) Using one sensor for all functions
  - C) Combining multiple sensor data for better decision-making
  - D) Creating new sensors
60.  What kind of robotic gripper mimics the human hand’s functionality?
- A) Claw gripper
  - B) Two-finger gripper
  - C) Anthropomorphic gripper
  - D) Magnetic gripper
61.  Which of the following is a type of robotic drive system?
- A) Optical
  - B) Thermal
  - C) Electric
  - D) Biochemical
62.  Pneumatic drive systems are typically powered by:
- A) Hydraulic oil
  - B) Compressed air
  - C) Electric current
  - D) Solar energy
63.  A key advantage of hydraulic drives is:
- A) Quiet operation
  - B) High precision
  - C) High power-to-weight ratio
  - D) Low cost
64.  Which drive system is most suitable for precise control in small-scale robots?
- A) Hydraulic
  - B) Pneumatic
  - C) Electric servo
  - D) Combustion engine
65.  What type of transmission system uses chains or belts?
- A) Direct drive
  - B) Gear drive

- C) Flexible transmission
  - D) Rack and pinion
66. 📄 Which actuator is commonly used in pick-and-place robots for fast response?
- A) Pneumatic actuator
  - B) Hydraulic actuator
  - C) Stepper motor
  - D) Combustion actuator
67. 📄 Which parameter is essential when selecting an actuator for a robotic joint?
- A) Number of gears
  - B) Color of wires
  - C) Required torque and speed
  - D) Weight of the sensor
68. 📄 The function of a transmission system in robotics is to:
- A) Provide vision feedback
  - B) Transmit power from actuator to end-effector
  - C) Increase electrical resistance
  - D) Cool the actuators
69. 📄 A stepper motor moves in:
- A) Continuous rotation
  - B) Pulsed discrete steps
  - C) Oscillatory motion
  - D) Fluid-controlled direction
70. 📄 Which of the following is a rotary actuator?
- A) Cylinder
  - B) Servo motor
  - C) Solenoid
  - D) Linear encoder
71. 📄 Closed-loop control systems provide:
- A) Open responses
  - B) Feedback for error correction
  - C) High energy loss
  - D) Manual override only
72. 📄 Which of the following sensors is used in closed-loop feedback control for position?
- A) Thermocouple
  - B) Encoder
  - C) Humidity sensor
  - D) pH sensor
73. 📄 The primary difference between open-loop and closed-loop systems is:
- A) Power source
  - B) Material of links
  - C) Feedback mechanism
  - D) Drive type
74. 📄 In a DC motor control system, what is typically used for speed feedback?
- A) Voltage regulator










- B) Potentiometer
  - C) LED
  - D) Transistor
75.  Torque control in actuators is important for:
- A) Minimizing data loss
  - B) Preventing overheating
  - C) Accurate force application
  - D) Power saving
76.  Which drive system offers smooth motion and better precision?
- A) Pneumatic
  - B) Hydraulic
  - C) Stepper motor
  - D) Electric servo
77.  Which of the following transmission systems converts rotary motion to linear motion?
- A) Belt drive
  - B) Rack and pinion
  - C) Chain drive
  - D) Coupling
78.  The purpose of gears in robotic joints is to:
- A) Store electrical energy
  - B) Provide visual display
  - C) Alter torque and speed
  - D) Reduce circuit load
79.  What is the most common drawback of hydraulic systems?
- A) Low power
  - B) Slow response
  - C) Leakage and maintenance
  - D) Incompatibility with AI
80.  A solenoid actuator produces:
- A) Thermal energy
  - B) Rotary motion
  - C) Linear motion
  - D) Optical signal
81.  What component is responsible for regulating voltage in actuator circuits?
- A) Relay
  - B) Transistor
  - C) Voltage regulator
  - D) Encoder
82.  The closed-loop control system continuously compares:
- A) Actual output with desired input
  - B) Voltage with temperature
  - C) Drive torque with mass
  - D) Light intensity with battery level










83. 📄 Brushless DC motors are preferred in robotics because they:
- A) Are cheap
  - B) Require frequent maintenance
  - C) Have no commutators and offer high efficiency
  - D) Produce high vibration
84. 📄 Which control strategy minimizes the error in real-time applications?
- A) Feedforward only
  - B) Manual control
  - C) Feedback control
  - D) Open switching
85. 📄 Which of the following is not a component of a control system?
- A) Actuator
  - B) Controller
  - C) Feedback
  - D) Monitor stand
86. 📄 In robotic actuation, hysteresis refers to:
- A) Constant feedback
  - B) Energy recovery
  - C) Lag between input and output
  - D) High frequency response
87. 📄 Torque-speed characteristics are essential for choosing:
- A) Controller ICs
  - B) Drive batteries
  - C) Robot joints and motors
  - D) Keyboard layout
88. 📄 The efficiency of gear-based transmission depends on:
- A) Tooth design and material
  - B) Gripper type
  - C) Sensor size
  - D) Number of joints
89. 📄 An example of a linear actuator is:
- A) DC motor
  - B) Pneumatic piston
  - C) Servo motor
  - D) Rotary encoder
90. 📄 In a PID control loop, the 'D' component refers to:
- A) Delay
  - B) Derivative
  - C) Direct
  - D) Dynamic
91. 📄 In robot programming, the WAIT command is used to:
- A) Pause until a condition is met
  - B) Initiate motion
  - C) Reset all subroutines
  - D) Cancel execution










92. 📺 The SIGNAL command is typically used to:
- A) Turn off the system
  - B) Set an output or flag for another process
  - C) Delay a routine
  - D) Reboot the controller
93. 📺 The DELAY command performs what function?
- A) Measures sensor output
  - B) Executes commands faster
  - C) Introduces a time pause
  - D) Generates output pulses
94. 📺 A subroutine in robot programming is:
- A) A visual interface
  - B) A main program loop
  - C) A reusable block of code
  - D) An interrupt handler
95. 📺 The VAL programming language is:
- A) A scripting language for mobile phones
  - B) A low-level assembly variant
  - C) A dedicated language for controlling robots
  - D) A language for image processing
96. 📺 The AML language was developed by:
- A) ABB
  - B) KUKA
  - C) IBM
  - D) Mitsubishi
97. 📺 Which of the following is an open-source robotics middleware framework?
- A) VAL
  - B) ROS
  - C) AML
  - D) RAPID
98. 📺 In robot programming, conditional statements are used to:
- A) Set time intervals
  - B) Loop sensor data
  - C) Make decisions based on logic
  - D) Declare variables
99. 📺 Which language is most commonly used in academic robot simulations?
- A) COBOL
  - B) BASIC
  - C) Python
  - D) Fortran
100. 📺 In ROS, a “node” refers to:
- A) A sensor
  - B) A motor
  - C) An executable process
  - D) A data table






101.  What is a key benefit of using ROS in robotics?
- A) High memory usage
  - B) Proprietary limitations
  - C) Modular and scalable design
  - D) High cost
102.  Which of the following best describes a robot “task-level” program?
- A) Focuses on hardware control
  - B) Specifies low-level actuator logic
  - C) Describes high-level job operations
  - D) Controls transistor switching
103.  What is the main function of a robot control loop?
- A) Repeat visual commands
  - B) Monitor and adjust motion continuously
  - C) Switch power
  - D) Handle file storage
104.  An example of an event-based command in robotics is:
- A) DELAY
  - B) START
  - C) SIGNAL
  - D) REPEAT
105.  Python is preferred for robotic simulation because:
- A) It is a low-level language
  - B) It does not support libraries
  - C) It is easy to read and integrates well with ROS
  - D) It runs only on Linux
106.  In ROS, topics are used for:
- A) Decision making
  - B) Signal generation
  - C) Inter-process communication
  - D) Memory cleanup
107.  A programming loop is essential for:
- A) Initializing sensors
  - B) Repeating tasks
  - C) Designing grippers
  - D) Assembling hardware
108.  Which of the following is NOT a feature of robot programming languages?
- A) Interrupt handling
  - B) Trajectory planning
  - C) Statistical regression
  - D) Motion control
109.  A structured robot program includes:
- A) Randomly executed instructions
  - B) Only hardware logic
  - C) Initialization, execution, and termination blocks
  - D) Machine learning scripts only

110. 🎬 A typical ROS launch file uses what format?  
A) JSON  
B) XML  
C) HTML  
D) CSV
111. 🎬 AML stands for:  
A) Automated Machine Language  
B) A Manufacturing Language  
C) Adaptive Motion Logic  
D) Algorithmic Motion Link
112. 🎬 In Python, libraries commonly used in robotics include:  
A) pandas, numpy, matplotlib  
B) keras, sklearn  
C) opencv, rospy  
D) tkinter, django
113. 🎬 Which robot programming method is based on teaching by demonstration?  
A) Lead-through  
B) Offline coding  
C) Manual coding  
D) Object-based programming
114. 🎬 In robot programming, which of the following handles exception routines?  
A) SIGNAL  
B) WAIT  
C) ERROR or TRY-CATCH  
D) START
115. 🎬 A program loop that never ends is referred to as:  
A) Dead loop  
B) Infinite loop  
C) Nested routine  
D) Binary sequence
116. 🎬 The primary advantage of subroutines is:  
A) Decrease in code size and reuse  
B) Graphical programming  
C) Increase in processing power  
D) Only hardware control
117. 🎬 Which ROS tool visualizes robot models and sensor data?  
A) rviz  
B) plotJuggler  
C) moveit  
D) opencv
118. 🎬 Which keyword in Python is used to define a function?  
A) def  
B) function  
C) start  
D) sub

119.  In ROS, what command is used to initialize a node?
- A) rosnode create
  - B) rosruntime
  - C) rospy.init\_node()
  - D) start\_node
120.  Which robot programming language is known for its simplicity and widespread use in industry?
- A) AML
  - B) RAPID
  - C) VAL
  - D) Python
121.  UAV stands for:
- A) Universal Aerial Vehicle
  - B) Unmanned Autonomous Vehicle
  - C) Unmanned Aerial Vehicle
  - D) Unified Aero Vehicle
122.  Which of the following is a primary application of UAVs?
- A) Underwater surveillance
  - B) Tunnel drilling
  - C) Aerial mapping and surveillance
  - D) Ground transportation
123.  Fixed-wing UAVs are characterized by:
- A) Vertical take-off
  - B) Hovering stability
  - C) Long flight range and endurance
  - D) High payload for short distance
124.  Multi-copter UAVs are best suited for:
- A) Long-range delivery
  - B) High-speed racing
  - C) Hovering and vertical lift
  - D) Submarine communication
125.  Which component provides lift in a fixed-wing UAV?
- A) Rotor blades
  - B) Ducted fans
  - C) Wings
  - D) Wheels
126.  UAVs are classified based on:
- A) Color
  - B) Type of material
  - C) Wing configuration and propulsion system
  - D) Fuel type only
127.  A flapping wing UAV mimics the flight of:
- A) Helicopter
  - B) Jet

- C) Bird or insect
  - D) Glider
128.  Swarm robotics in UAVs refers to:
- A) High-speed drones
  - B) Multiple UAVs coordinating autonomously
  - C) UAVs with loud sound
  - D) Artificial insect bots
129.  Which is a major advantage of swarm UAVs?
- A) Lower flight speed
  - B) Independent operation
  - C) Collective decision-making and redundancy
  - D) Heavy payload
130.  A UAV designed for disaster response must prioritize:
- A) Long-term hovering
  - B) Durability and autonomous navigation
  - C) Water resistance
  - D) Dual motors
131.  UAVs are most commonly used in agriculture for:
- A) Ground tilling
  - B) Plant breeding
  - C) Remote sensing and crop monitoring
  - D) Soil excavation
132.  Which sensor is essential for UAV navigation?
- A) Thermocouple
  - B) GPS
  - C) Proximity sensor
  - D) LIDAR
133.  Payload in a UAV refers to:
- A) Battery
  - B) Structural weight
  - C) Equipment carried for the mission
  - D) Propeller mass
134.  Which of these UAVs can perform vertical take-off and landing?
- A) Jet-powered UAVs
  - B) Flapping-wing UAVs
  - C) Multi-copter UAVs
  - D) Fixed-wing UAVs
135.  A UAV's flight endurance is mainly limited by:
- A) Altitude
  - B) Payload
  - C) Battery/fuel capacity
  - D) Motor size
136.  Remote sensing by UAV involves:
- A) Direct contact measurements
  - B) Sensor-based data acquisition from a distance

- C) High-pressure scanning
  - D) Radio signal jamming
137.  Which part of UAV handles the directional control?
- A) Propeller
  - B) Rudder/elevator
  - C) Battery
  - D) Winglet
138.  A fixed-wing UAV typically requires:
- A) No propulsion system
  - B) A long runway for takeoff
  - C) Vertical launch pad
  - D) A launcher drone
139.  Which of the following is a challenge in multi-copter UAVs?
- A) Stability
  - B) Short flight duration
  - C) Overheating propellers
  - D) Low thrust-to-weight ratio
140.  In aerial surveillance, UAVs are preferred because of:
- A) Low speed
  - B) High noise
  - C) Rapid deployment and mobility
  - D) Need for multiple operators
141.  Swarm UAVs typically communicate through:
- A) Ultrasonic waves
  - B) Swarm neural links
  - C) Wireless networks and protocols
  - D) Hardwired systems
142.  What kind of UAV is best suited for forest fire monitoring?
- A) Fixed-wing
  - B) Multi-copter with thermal imaging
  - C) Flapping-wing
  - D) Subterranean drone
143.  UAVs used for search and rescue are often equipped with:
- A) Solar panels
  - B) Cameras, GPS, and infrared sensors
  - C) Loudspeakers
  - D) Painting tools
144.  UAV taxonomy refers to:
- A) Genetic classification of drones
  - B) Systematic classification based on structure and usage
  - C) Biological application of UAVs
  - D) Thermal signature classification
145.  Which UAV type is least suited for hovering in place?
- A) Multi-copter
  - B) Hybrid VTOL

- C) Fixed-wing
  - D) Flapping-wing
146.  What is the key advantage of flapping-wing UAVs?
- A) Battery life
  - B) Camouflage and agility in confined spaces
  - C) Payload capacity
  - D) Vibration resistance
147.  The onboard controller in UAVs is responsible for:
- A) Fuel efficiency
  - B) Manual override
  - C) Navigation, stability, and feedback control
  - D) Launch and recovery
148.  Vertical Take-off and Landing (VTOL) is a feature of:
- A) Fixed-wing aircraft
  - B) Gliders
  - C) Hybrid drones and multi-copters
  - D) Submarine UAVs
149.  UAV communication with base station uses:
- A) Optical cables
  - B) RF (Radio Frequency) signals
  - C) Compressed air pulses
  - D) Direct wiring
150.  Which is a key safety concern in UAV operations?
- A) Rotor color
  - B) Operator name
  - C) Mid-air collision and power loss
  - D) Paint texture

**PSN COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**(Autonomous)**  
**B.E. AERONATICAL ENGINEERING**  
Semester – V  
**(ACADEMIC YEAR: 2023 - 2024)**  
**501026 EXPERIMENTAL AERODYNAMICS**  
**Regulation –2018**

**MULTIPLE CHOICE QUESTION BANK**

**Answer:**

| <b>Q. No</b> | <b>Ans</b> | <b>Q. No</b> | <b>Ans</b> | <b>Q. No</b> | <b>Ans</b> | <b>Q. No</b> | <b>Ans</b> | <b>Q. No</b> | <b>Ans</b> |
|--------------|------------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|
| 1            | C          | 31           | B          | 61           | C          | 91           | A          | 121          | C          |
| 2            | B          | 32           | C          | 62           | B          | 92           | B          | 122          | C          |
| 3            | B          | 33           | B          | 63           | C          | 93           | C          | 123          | C          |
| 4            | D          | 34           | C          | 64           | C          | 94           | C          | 124          | C          |
| 5            | C          | 35           | C          | 65           | C          | 95           | C          | 125          | C          |
| 6            | B          | 36           | C          | 66           | A          | 96           | C          | 126          | C          |
| 7            | D          | 37           | B          | 67           | C          | 97           | B          | 127          | C          |
| 8            | B          | 38           | B          | 68           | B          | 98           | C          | 128          | B          |
| 9            | B          | 39           | B          | 69           | B          | 99           | C          | 129          | C          |
| 10           | D          | 40           | B          | 70           | B          | 100          | C          | 130          | B          |
| 11           | C          | 41           | B          | 71           | B          | 101          | C          | 131          | C          |
| 12           | B          | 42           | C          | 72           | B          | 102          | C          | 132          | B          |
| 13           | C          | 43           | C          | 73           | C          | 103          | B          | 133          | C          |
| 14           | B          | 44           | A          | 74           | B          | 104          | C          | 134          | C          |
| 15           | C          | 45           | B          | 75           | C          | 105          | C          | 135          | C          |
| 16           | C          | 46           | C          | 76           | D          | 106          | C          | 136          | B          |
| 17           | C          | 47           | B          | 77           | B          | 107          | B          | 137          | B          |
| 18           | C          | 48           | A          | 78           | C          | 108          | C          | 138          | B          |
| 19           | C          | 49           | C          | 79           | C          | 109          | C          | 139          | B          |

|    |   |    |   |    |   |     |   |     |   |
|----|---|----|---|----|---|-----|---|-----|---|
| 20 | C | 50 | C | 80 | C | 110 | B | 140 | C |
| 21 | B | 51 | C | 81 | C | 111 | B | 141 | C |
| 22 | C | 52 | C | 82 | A | 112 | C | 142 | B |
| 23 | B | 53 | B | 83 | C | 113 | A | 143 | B |
| 24 | C | 54 | C | 84 | C | 114 | C | 144 | B |
| 25 | A | 55 | B | 85 | D | 115 | B | 145 | C |
| 26 | B | 56 | C | 86 | C | 116 | A | 146 | B |
| 27 | C | 57 | B | 87 | C | 117 | A | 147 | C |
| 28 | B | 58 | B | 88 | A | 118 | A | 148 | C |
| 29 | C | 59 | C | 89 | B | 119 | C | 149 | B |
| 30 | B | 60 | C | 90 | B | 120 | D | 150 | C |