CBCS SCHEME

21AE581

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Question Paper Version : A

Fifth Semester B.E. Degree Examination, Dec.2023/Jan.2024
Drone Pilot Training

Time: 1 hrs.] [Max. Marks: 50

INSTRUCTIONS TO THE CANDIDATES

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

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1. What does DGCA stands for?
   a) Department of General Civil Aviation
   b) Directorate General of Civil Aviation
   c) Domestic Government Civil Aviation
   d) Divisional General Civil Aviation

2. What is the primary purpose of ATC procedures?
   a) Ensuring aircraft safety
   b) Monitoring weather conditions
   c) Managing airport finances
   d) Conducting pilot training programs

3. What is the primary purpose of obtaining a Unique Identification Number (UIN) for a drone, as per DGCA rules?
   a) To operate the drone in controlled air space
   b) To ensure insurance coverage for the drone
   c) To track and identify the drone owner
   d) To participate in drone racing events

4. What is the significance of the term "Critical Engine" in aviation?
   a) The most powerful engine on the aircraft
   b) The engine with the highest fuel efficiency
   c) The engine whose failure has the most adverse effect on the aircraft's handling
   d) The engine responsible for electric power generation

5. In aviation, what is the purpose of squawking a transponder code?
a) Initiating engine shutdown
b) Communicating with ATC
c) Requesting in-flight catering
d) Indicating fuel status

6. What is the primary function of the control surfaces on an aircraft?
a) Provide lift
b) Generate thrust
c) Control and stabilize the aircraft's altitude and direction
d) Manage fuel flow

7. What is the purpose of the "Mayday" radio call in aviation?
a) Reporting a navigational error
b) Declaring an emergency
c) Requesting a change of altitude
d) Requesting landing clearance

8. What is the significance of the term "PAPI" in aviation?
a) Pilot's Approach Path Indicator
b) Precision Approach Path Indicator
c) Personal Aircraft Position Indicator
d) Primary Altitude Path Indicator

9. What is the purpose of SID (Standard Instrument Departure)?
a) Guiding pilots during departure
b) Providing weather information
c) Directing Ground Traffic
d) Coordinating air shows

10. According to DGCA's Drone Rule 2021, what category do drones weighing less than 250 grams fall into.
a) Nano b) Micro c) Small d) Medium

11. What is the primary lifting surface on a fixed wing aircraft?
a) Rotor b) Wing c) Propeller d) Fuselage

12. In fixed wing aerodynamics, what is the angle between the chord line and the relative wind called?
a) Angle of attack b) Pitch angle c) Bank angle d) Yaw angle

13. What is the primary method of controlling pitch in a fixed wing aircraft?
a) Ailerons b) Elevators c) Flaps d) Rudders

14. In multirotor operations, what is the primary mechanism for controlling the aircraft's attitude?
a) Ailerons b) Elevators
c) Rotor speed variation d) Flaps

15. Which term refers to the force that opposes the aircraft's forward motion in fixed wing aerodynamics?
a) Thrust b) Lift c) Drag d) Weight

16. What is the purpose of the fuselage in fixed wing aerodynamics?
a) Generate lift
b) Control pitch
c) Provide structural support
d) Control roll

17. What is the primary factor influencing the stability of a fixed wing aircraft during flight?
a) Engine power b) Wing size c) Center of gravity d) Altitude

18. What is the significance of the term "stall speed" in aviation?
a) The speed at which the aircraft loses communication
b) The minimum speed required for level flight
c) The maximum speed allowed during landing
d) The speed at which the aircraft exceeds its design limit

19. What is the significance of "P-factor" in multi rotor aerodynamics?
a) It influences yaw control
b) It determines lift distribution
c) It affects roll stability
d) It measures battery power

20. Which statement is true regarding the effect of high altitude on multi-rotor performance?
a) Higher altitude increases lift efficiency
b) Higher altitude decreases the effectiveness of propellers
c) Altitude has no impact on multirotor aerodynamics
d) Multirotors are designed to perform better at higher altitudes

21. What does the term "METAR" stand for in meteorology?
a) Meteorological Alert and Reporting
b) Meteorological Aerodrome Report
c) Meteorological Emergency Tracking and Response
d) Meteorological Elevation and Range

22. What is the purpose of a barometer in meteorology?
a) Measure wind speed
b) Measure humidity
c) Measure air pressure
d) Measure temperature

23. In drone equipment and maintenance, what is the purpose of a gimbal?
a) Control drone speed
b) Stabilize the camera for smooth footage
c) Adjust drone altitude
d) Enhance GPS accuracy

24. What is the function of an anemometer?
a) Measure air pressure
b) Measure wind speed
c) Measure Temperature
d) Measure humidity

25. In drone operations, what does the term "FPV" stand for?
a) Fixed Position View
b) First Person View
c) Fast Precision Vision
d) Flight Position Verification

26. In meteorology, what does the term "dew point" represent?
a) The temperature at which air becomes saturated with moisture
b) The point of maximum air pressure
c) The point of minimum humidity
d) The temperature at which clouds form

27. In drone equipment, what does the term "LiPo" refer to?
a) Linear polarizer
b) Lithium polymer
c) Low pressure
d) Local positioning

28. In drone maintenance, what is the purpose of calibrating the IMU (Inertial Measurement Unit)?
a) Adjusting the camera focus
b) Optimizing battery performance
c) Ensuring accurate sensor readings for stabilization
d) Enhancing GPS signal reception

29. What is the purpose of a windsock at an airport?
a) Indicate wind direction and speed
b) Measure air temperature
c) Display airport status
d) Signal emergency conditions

30. In drone operations, what is the function of the geofencing feature?
a) Control drone speed
b) Restrict drone operations in certain areas
c) Adjust drone altitude
d) Enhance camera stabilization

31. In Image/Video interpretation, what does NDVI stand for?
a) Non-Dimensional Visual Interpretation
b) Normalized Digital Video Integration
c) Near-Infrared Digital Vegetation Index
d) National Digital Video Initiative

32. What is the purpose of LiDAR technology in payload installation on drones?
a) Capture high resolution images
b) Measure distances and create detailed maps
c) Record video footage
d) enhance communication signals

33. In payload utilization, what is the primary application of a multispectral camera on a drone?
a) Terrain mapping
b) Wildlife monitoring
c) Crop health assessment
d) Real time video streaming

34. What is the significance of the term "Pay Load Capacity" in drone operations?
a) Maximum altitude a drone can reach
b) Maximum speed a drone can achieve
c) Maximum weight a drone can carry
d) Maximum battery life of a drone

35. In image/video interpretation, what does the term "Orthomosaic" refer to?
a) Three dimensional mapping
b) Panoramic images stitched together
c) Infrared imagery
d) Thermal imaging

36. What is the primary advantage of using thermal cameras in drone payload?
a) Capture high resolution images
b) Monitor crop health
c) Detect heat signatures and temperature variations
d) Record detailed videos

37. In final test theory, what is the purpose of a preflight checklist?
a) Evaluate payload performance
b) Ensure proper functioning of the drone before flight
c) Analyze weather conditions
d) Conduct image analysis

38. What does the term "Remote Sensing" means in the context of payload utilization on drones?
a) Controlling the drone from a distant location
b) Capturing data without physical contact using sensors
c) Managing communication remotely
d) Streaming video footage in real time

39. What is the purpose of the "Return to Home" feature in drone operations?
a) Capture high resolution images
b) Return the drone to its takeoff point automatically
c) Record real time video footage
d) Enhance communication signals

40. What is the primary function of a magnetometer in payload installation on a drone?
a) Measure Temperature
b) Measure air speed
c) Measure magnetic field strength
d) Enhance camera stabilization

41. What is the primary purpose of flight simulator training?
a) To simulate real world flight conditions for pilot practice
b) To teach drone maintenance procedures
c) To control air traffic control simulations
d) To analyze meteorological data

42. What is the purpose of practical lessons in the lab for aviation students?
a) Hands on experience with aircraft maintenance
b) Real time simulation of flight scenarios
c) In depth study on meteorological phenomena
d) Communication training for air traffic control

43. What does the term "ATC" stand for in aviation?
a) Airline Traffic Coordination
b) Airspace Traffic Control
c) Air Traffic Communication
d) Air Traffic Control

44. What is the primary role of an instructor during practical flying lessons?
a) Simulating flight scenarios in a lab
b) Conducting air traffic control simulations
c) Providing guidance and training during actual flights
d) Analyzing meteorological data

45. What does "Touch and Go" refer to?
a) Landing and immediately taking off again without coming to a full stop
b) Emergency landing procedures
c) Final approach before landing
d) Pre-flight checklist completion

46. What does the term "Crosswind Landing" refer to?
a) Landing into the wind to minimize drift
b) Landing with a tailwind for increased speed
c) Landing under autopilot control
d) Landing during adverse weather conditions

47. What is the purpose of the "Autopilot" feature?
a) Simulate emergency procedures
b) Allow the aircraft to fly automatically without manual control
c) Simulate air traffic control communications
d) Analyze aerodynamic characteristics

48. What does "stall" refer to?
a) The sudden loss of engine power
b) A controlled descent for landing
c) The critical angle of attack, causing a loss of lift
d) A pattern used for air traffic control communication

49. What does the term "Ground Effect" refer to?
a) The impact of weather on flight performance
b) The influence of ground proximity on lift and drag
c) The simulation of take-off procedures
d) The communication between pilots and air traffic controllers

50. What is the primary benefit of incorporating weather simulation in flight training?
a) Simulating emergency procedures
b) Enhancing communication signals
c) Providing exposure to various weather conditions
d) Analyzing aerodynamic characteristics

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