C–7981

Sub. Code
97213

B.Sc. DEGREE EXAMINATION, APRIL 2026.

First Semester

Aviation

INTRODUCTION TO AVIATION INDUSTRY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. The purpose of agriculture aviation are ————————

   (a) plant fields

   (b) manage of farm animals

   (c) treat crops

   (d) All

2. Freedoms of the air apply to ————————

   (a) Commercial aviation

   (b) Military aviation

   (c) General aviation

   (d) All

3. The Directorate General of Civil Aviation is the regulatory body in the field of Civil Aviation primarily dealing with ————————

   (a) safety issue

   (b) financial issue

   (c) infrastructure

   (d) All

4. The Bureau of Civil Aviation Security (BCAS) is an attached office of the ————————

(a) Ministry of Civil Aviation

(b) Ministry of defence

(c) Ministry of tourism

(d) All

5. Within an airport, an ———————— is the area of the airport designated to incoming airplanes and their passengers.

(a) departure area (b) arrival area

(c) parking area (d) all

6. Fare basis (code) — The code that determines the ————————of an airline ticket.

(a) Tax (b) Price

(c) Number (d) All

7. AOA refers to ————————

(a) angle of attack

(b) air operations area

(c) area of arrival

(d) all

8. Airport revenues are divided in to ————————

(a) aeronautical

(b) non-aeronautical

(c) non-operating revenue

(d) all

9. Which is the biggest airline industry in India ————————

(a) Vistara (b) Air-India

(c) Indigo (d) All

10. Who controls all airlines in India ————————

(a) AAI (b) BCAS

(c) DGCA (d) IAAI

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write short note on general aviation and civil aviation.

Or

(b) What are the freedoms of the air?

12. (a) List out the functions of DGCA.

Or

(b) What are the key functions of BCAS?

13. (a) What are traffic conference areas? And its significance.

Or

(b) Explain about the coding of airlines.

14. (a) Write short note on satellite terminal.

Or

(b) Explain the organisational structure of airport.

15. (a) What are the environmental considerations of aviation?

Or

(b) List out the broad features of national civil aviation policy.

Part C

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) List down and explain the ten types of general aviation.

Or

(b) Write down and explain nine freedoms of air.

17. (a) List out and explain the responsibilities of BCAS.

Or

(b) Discuss about the role of CISF in airport sector.

18. (a) Briefly explain about the traffic conference area-1.

Or

(b) Explain about the TACT rates uses. Prerequisites and its futures.

19. (a) Discuss about the typical terminal planning processes.

Or

(b) List out the functions of airport.

20. (a) Discuss about the Indian aviation market size.

Or

(b) List out 8 key challenges for the aviation sector.

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C–7982	Sub. Code 97215

B.Sc. DEGREE EXAMINATION, APRIL 2026.

First Semester

Aviation

BASICS OF AIRCRAFT ELECTRICALS AND ELECTRONICS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. In a purely inductive AC circuit, the phase difference between voltage and current is

   (a) 0° (b) 45°

   (c) 90° (d) 180°

2. The RMS value of a sinusoidal voltage is: What is the unit of reactive power?

   (a) Watt (W)

   (b) Joule

   (c) Volt-Ampere (VA)

   (d) Volt-Ampere Reactive (VAR)

3. The EMF equation of a DC generator is based on

   (a) Faraday's law of electromagnetic induction

   (b) Ohm's law

   (c) Kirchhoff's law

   (d) Coulomb's law

4. A transformer works on the principle of

(a) Self-induction

(b) Mutual induction

(c) Electromagnetic force

(d) Electrostatic force

5. A Zener diode is primarily used as a

(a) Voltage regulator (b) Rectifier

(c) Amplifier (d) Switch

6. An inverter converts

(a) AC to DC (b) AC to AC

(c) DC to AC (d) DC to DC

7. A Karnaugh map (K-map) is used for

(a) Logic function minimization

(b) Circuit simulation

(c) Signal analysis

(d) Data storage

8. A full-adder circuit has how many inputs and outputs?

(a) 2 inputs, 1 output

(b) 3 inputs, 2 outputs

(c) 2 inputs, 2 outputs

(d) 3 inputs, 1 output

9. Which standard is used for the calibration of instruments?

(a) Primary Standard

(b) Secondary Standard

(c) Working Standard

(d) All of the above

10. Potential transformers (PTs) are used to
    (a) Step up current
    (b) Step down voltage
    (c) Step up voltage
    (d) Step down current

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Describe the methods of nodal and mesh analysis for solving DC circuits with independent sources.

Or

(b) What is Power Factor? Explain its significance in electrical circuits.

12. (a) Derive the torque equation of a DC motor.

Or

(b) Explain the construction and working of a transformer.

13. (a) Describe the structure and characteristics of a JFET.

Or

(b) Explain the working of a half-wave rectifier with a circuit diagram.

14. (a) Convert the decimal number 57 into binary, octal, and hexadecimal.

Or

(b) What are universal gates? Prove that NAND and NOR are universal gates.

15. (a) Define the functional elements of an instrument with a block diagram.

Or

(b) Explain the working of an energy meter with a neat diagram.

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain the concept of voltage and current division in series and parallel circuits.

Or

(b) Explain the concept of star-delta transformation with necessary derivations and applications.

17. (a) Describe in detail the different types of DC generators and their voltage characteristics.

Or

(b) Discuss the applications of electrical machines in aircraft systems. Explain how these machines contribute to the operation and safety of aircraft.

18. (a) Explain the difference between intrinsic and extrinsic semiconductors with diagrams.

Or

(b) Explain the principle of operation of an SCR and its applications with neat sketch.

19. (a) Explain in detail the Hamming code and how it is used for error detection and correction.

Or

(b) Explain how K-map is used to simplify Boolean expressions with at least two examples.

20. (a) Discuss the importance of calibration in measurement systems. Describe the different types of standards used.

Or

(b) Explain the block diagram of a Digital Storage Oscilloscope (DSO).

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C–7983	Sub. Code 97223

B.Sc. DEGREE EXAMINATION, APRIL 2026.

Second Semester

Aviation

BASIC OF AIRCRAFT

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Who are credited with inventing the first successful powered airplane?

   (a) Wright Brothers

   (b) Newton Brothers

   (c) Boeing Engineers

   (d) Airbus Designers

2. Which type of aircraft has two wings stacked one above the other?

   (a) Monoplane (b) Glider

   (c) Biplane (d) Triplane

3. What is the primary control surface used to control pitch of an aircraft?

   (a) Rudder (b) Aileron

   (c) Elevator (d) Flaps

4. What type of control system uses electrical signals to move control surfaces?

(a) Hydraulic (b) Manual

(c) Fly-by-wire (d) Pneumatic

5. Which law explains how force equals mass times acceleration?

(a) Newton's First Law

(b) Newton's Second Law

(c) Newton's Third Law

(d) Bernoulli's Principle

6. What does the Mach number represent?

(a) Altitude

(b) Air pressure

(c) Speed relative to the speed of sound

(d) Lift-to-drag ratio

7. Which engine type is most commonly used in modern commercial jets?

(a) Piston (b) Steam

(c) Jet (d) Turboprop

8. Which component in a rocket engine provides thrust?

(a) Propeller (b) Combustion chamber

(c) Piston (d) Radiator

9. What type of aircraft structure has an external skin that Supports the load?

(a) Truss (b) Monocoque

(c) Wire-frame (d) Cantilever

10. Which of the following is a composite material used in aircraft?

(a) Titanium

(b) Carbon Fiber Reinforced Polymer (CFRP)

(c) Stainless Steel

(d) Aluminium Alloy

Part B $(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the contributions of the Wright Brothers to aviation.

Or

(b) Write a short note on the evolution of aircraft structures and materials.

12. (a) Describe the function of the main components of an aircraft.

Or

(b) Write a note on powered and conventional control systems.

13. (a) Define lift, drag, and moment with neat sketches.

Or

(b) Explain temperature and pressure variation with altitude.

14. (a) Compare piston engines and turboprop engines.

Or

(b) Explain the working principle of a rocket engine.

15. (a) Differentiate between monocoque and semi-monocoque structures.

Or

(b) State Hooke's law and explain stress-strain diagram.

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Discuss the history of flight starting from balloon flight to modern aircraft.

Or

(b) Describe the developments in aerodynamics and propulsion systems over the years.

17. (a) Explain various aircraft configurations with examples and control actuation systems.

Or

(b) Discuss the basic instruments used for flying and their functions.

18. (a) Explain Newton's laws of motion as applied to aeronautics with examples.

Or

(b) Describe the structure of the atmosphere and its significance in aerodynamics.

19. (a) Describe in detail the types of jet engines and their working principle.

Or

(b) Explain the types of rockets and their applications in space exploration.

20. (a) Explain the construction of wings and fuselage using various materials.

Or

(b) Describe the culture of safety and its implementation in airside operations.

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C–7984

Sub. Code
97225

B.Sc. DEGREE EXAMINATION, APRIL 2026.

Second Semester

Aviation

AVIATION PHYSICS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. What is the SI unit of force?
   (a) Watt (b) Pascal
   (c) Newton (d) Joule

2. Which of the following quantities is a measure of how much work is done in a unit time?
   (a) Energy (b) Power
   (c) Force (d) Torque

3. Which of the following is a class 1 lever?
   (a) Tweezers (b) Wheelbarrow
   (c) Seesaw (d) Fishing rod

4. The mechanical advantage of a machine is defined as
   (a) Output force × Input force
   (b) Input force / Output force
   (c) Output force / Input force
   (d) Work / Power

5. What type of motion does a pendulum exhibit?

(a) Circular (b) Linear

(c) Periodic (d) Spiral

6. The acceleration of a body is defined as

(a) Distance / Time

(b) Change in velocity / Time

(c) Velocity × Time

(d) Speed / Distance

7. Which of the following is a method of heat transfer?

(a) Compression

(b) Convection

(c) Radiation

(d) Both (a) and (c)

8. What is the device used to measure pressure called?

(a) Thermometer (b) Barometer

(c) Manometer (d) Anemometer

9. What principle states that "an increase in fluid speed results in a decrease in pressure"?

(a) Boyle's Law

(b) Pascal's Law

(c) Bernoulli's Principle

(d) Archimedes' Principle

10. The Doppler Effect is observed in

(a) Heat conduction

(b) Sound wave frequency change

(c) Light reflection

(d) Force application

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the characteristics and properties of matter with examples.

Or

(b) Write a short on stress, strain, and their relationship.

12. (a) Discuss the different types of levers with diagrams.

Or

(b) Write a short note on gears and their types.

13. (a) Explain the difference between circular, rectilinear and curvilinear motion.

Or

(b) Describe Newton's three laws of motion.

14. (a) What is specific heat? Explain with example.

Or

(b) Explain the different types of heat transfer.

15. (a) Explain Bernoulli's principle and its applications.

Or

(b) Write short notes on frequency and speed of Sound.

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Discuss various forms of energy and their practical applications.

Or

(b) Explain work, power, and energy with formulas and examples.

17. (a) Describe the development of simple machines with examples.

Or

(b) Explain pulley systems and calculate mechanical advantages with neat diagrams.

18. (a) Define uniform periodic and rotational motion with diagrams and examples.

Or

(b) Solve a numerical problem involving distance time, and velocity.

19. (a) Describe the concepts of thermal conductivity and thermal expansion.

Or

(b) Explain the types of pressure (gauge, absolute and differential) with units.

20. (a) Discuss Boyle's and Charles's laws with their mathematical forms and graphs.

Or

(b) Explain Doppler effect and resonance with examples.

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C–7985

Sub. Code
97233

B.Sc. DEGREE EXAMINATION, APRIL 2026.

Third Semester

Aviation

AVIATION WEATHER AND METEOROLOGY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. The layer where meteors burn up is the
   (a) Troposphere (b) Stratosphere
   (c) Mesosphere (d) Thermosphere

2. The unit of temperature commonly used in meteorology is
   (a) Kelvin (b) Fahrenheit
   (c) Celsius (d) All of the above

3. The International Standard Atmosphere (ISA) defines standard sea-level pressure as
   (a) 1000 hPa (b) 1013.25 hPa
   (c) 1020 hPa (d) 980 hPa

4. The force that deflects moving objects due to the Earth's rotation is called the
   (a) Pressure gradient force
   (b) Coriolis force
   (c) Gravitational force
   (d) Frictional force

5. Anabatic winds occur during the

(a) Daytime (b) Nighttime

(c) Early morning (d) Late evening

6. Clear Air Turbulence (CAT) is most often associated with

(a) Surface winds (b) Mountain waves

(c) Fog (d) Jet streams

7. A large body of air with relatively uniform temperature and humidity is called an

(a) Front (b) Air mass

(c) Cyclone (d) Isobar

8. Tropical revolving storms in the North Atlantic Ocean are called: The Southwest Monsoon in India typically occurs during

(a) Winter (b) Summer

(c) Autumn (d) Spring

9. Prognostic charts provide a forecast of future weather conditions.

(a) True

(b) False

10. Meteorological satellites provide

(a) Surface pressure readings

(b) Upper air wind data

(c) Cloud imagery and temperature profiles

(d) Runway visibility

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write a short notes on mesosphere.

Or

(b) How does the composition of the atmosphere influence the Earth's climate and weather patterns?

12. (a) Differentiate between the environmental lapse rate and the dry adiabatic lapse rate.

Or

(b) Explain the pressure gradient force.

13. (a) Explain about the clouds base and tops.

Or

(b) Explain about Jet Streams.

14. (a) Discuss the different types of air masses.

Or

(b) Describe the Indian climatology, focusing on the monsoon system.

15. (a) Describe the functions of the Indian Meteorological Department (IMD).

Or

(b) Explain about prognostic charts.

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain about thermosphere and troposphere.

Or

(b) Discuss contour lines and how the' help in mapping terrain and elevation.

17. (a) Explain briefly about the stability and instability criteria.

Or

(b) Discuss the variations of atmospheric pressure with altitude and location.

18. (a) Explain briefly about the guest and squalls.

Or

(b) Explain the basics of wind and the convergence divergence concept.

19. (a) Describe the Intertropical Convergence Zone (ITCZ), its occurrence, associated weather, and seasonal variations.

Or

(b) Explain the origin, development, and tracks of tropical revolving storms.

20. (a) Explain about the weather observation technologies.

Or

(b) Explain the various types of weather charts used in aviation meteorology.

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C–7986

Sub. Code
97235

B.Sc. DEGREE EXAMINATION, APRIL 2026.

Third Semester

Aviation

FLIGHT SAFETY AND SUPPORT SYSTEMS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which of the following is NOT a part of aircraft ground handling?
   (a) Towing (b) Marshalling
   (c) In-flight catering (d) Jacking

2. How should aircraft be moored during adverse weather conditions?
   (a) Using additional tie-downs
   (b) Facing into the wind
   (c) Both (a) and (b)
   (d) Only with wheel chocks

3. What is the primary function of the control tower?
   (a) Passenger boarding
   (b) Aircraft fueling
   (c) Managing air traffic
   (d) Baggage handling

4. Which of the following is NOT part of the airfield lighting system?

(a) Runway edge lights
(b) Taxiway lights
(c) Cabin lights
(d) Approach lights

5. Which equipment is used for loading baggage into aircraft cargo holds?

(a) Compressor
(b) Belt freight loader
(c) Hydraulic test stand
(d) Charging trolley

6. Which equipment is used for lifting heavy components like engines?

(a) Belt freight loader (b) Gantry crane
(c) Fire extinguisher (d) Charging trolley

7. Which tool is used to measure tension in control cables?

(a) Protractor (b) Tensiometer
(c) Spirit level (d) Hydraulic jack

8. What is aircraft rigging primarily concerned with?

(a) Engine maintenance
(b) Aligning flight control surfaces
(c) Cabin pressure control
(d) Refuelling

9. Which issue occurs when aircraft brakes do not release fully?

(a) Grabbing
(b) Dragging
(c) Fading
(d) Excessive pedal travel

10. How are worn aircraft brake pads typically repaired?

(a) Adjusted for more travel

(b) Replaced with new pads

(c) Cleaned with water

(d) Painted to reduce wear

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Describe the safety precautions of levelling of an aircraft.

Or

(b) Write short notes on Aircraft Cleaning.

12. (a) Write short notes on Airfield Firefighting system.

Or

(b) Briefly explain about Control Tower.

13. (a) Describe about Pressure Oil Unit.

Or

(b) Describe about the belt freight loaders.

14. (a) Explain the balance check of flying control surface.

Or

(b) State the various occasions for symmetry check.

15. (a) Explain the maintenance of landing gear brakes in detail.

Or

(b) Write a short note about dismantling and inspection of wheels.

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Describe about the Marshalling done during different times of day.

Or

(b) Explain about Aircraft Jacking in detail.

17. (a) Explain about Aircraft rescue and fire fighting in detail.

Or

(b) Explain in detail about the safety procedures followed at Airports. What are dispersal areas?

18. (a) Explain about the following:

(i) Platforms

(ii) Trestles

(iii) Chocks .

Or

(b) Explain the Operation procedure of Ground Support Air start Unit.

19. (a) Describe flying controls rigging procedure.

Or

(b) Explain the safety precautions to be followed while rigging and what is the procedure for that.

20. (a) Describe the procedure for shock strut charging and bleeding.

Or

(b) Explain about Excessive Brake Pedal Travel in detail.

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C–7987

Sub. Code
97236

B.Sc. DEGREE EXAMINATION, APRIL 2026

Third Semester

Aviation

BASIC MATHEMATICS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. What is the purpose of resolving a rational function into partial fractions?

   (a) To simplify differentiation and integration

   (b) To make calculations complex

   (c) To remove fractions

   (d) To increase the degree of the function

2. What is the general term in the expansion of $(1+x)^n$ using the Binomial Theorem?

   (a) $\binom{n}{\gamma} x^r$ (b) $\binom{n}{\gamma} x^{n-r}$

   (c) $\binom{n}{\gamma} x^r y^{n-r}$ (d) None of the above

3. What is the modulus of the complex number $z = 3 + 4i$?

(a) 3 (b) 4

(c) 5 (d) $\sqrt{7}$

4. The expansion of tan θ in ascending powers of θ is derived using:

(a) Taylor series

(b) Maclaurin series

(c) De Moivre's theorem

(d) L'Hôpital's rule

5. The nth derivative of $f(x) = e^x$ is

(a) e^x (b) ne^x

(c) $x^n\ e^x$ (d) 0

6. The partial derivative of $f(x, y)$ with respect to x means:

(a) Differentiating with respect to x while treating y as a constant

(b) Differentiating with respect to y while treating x as a constant

(c) Differentiating both x and y

(d) None of the above

7. The integral of $\int \frac{dx}{x}$ is

(a) $\frac{1}{x} + C$ (b) $x + C$

(c) $\ln|x| + C$ (d) $e^x + C$

8. The integral of $\int \frac{dx}{x^2 + a^2}$ gives:

(a) $\tan^{-1}\left(\frac{x}{a}\right) + c$

(b) $\ln \left|x^2 + a^2\right| + c$

(c) $\sec^{-1}\left(\frac{x}{a}\right) + c$

(d) $\cos^{-1}\left(\frac{x}{a}\right) + c$

9. The general form of a differential equation solvable for p is:

(a) $P = f(x, y)$

(b) $y = f(x, p)$

(c) $x = f(y, p)$

(d) All of the above

10. Clairaut's equation is given by:

(a) $y = Px + f(P)$

(b) $P = f(x, y)$

(c) $y = f(P) + Px$

(d) $y = x^P + Py$

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Resolve $\frac{3x+5}{(x+1)(x-2}$ into partial fractions.

Or

(b) Expand $(1-x)^{-3}$ using the binomial series up to four terms.

12. (a) Define modulus and amplitude of a complex number and find them for $z=-1+i\sqrt{3}$.

Or

(b) Expand cos 4θ in terms of powers of cos θ.

13. (a) Define successive differentiation and find the second and third derivatives of $f(x)=x^3+2x^2+3x+4$.

Or

(b) Evaluate $\frac{\partial}{\partial x}(x^2+y^2)$ and $\frac{\partial}{\partial y}(x^2+y^2)$.

14. (a) Solve $\int\frac{dx}{x^2+4}$ using trigonometric substitution.

Or

(b) Find $\int\frac{x^2+1}{(x+1)(x+2)}$ using partial fraction decomposition.

15. (a) Define a first-order and higher-degree differential equation. Give an example.

Or

(b) Solve $y = Px + \frac{1}{p}$ for its singular solution.

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) State and prove the general binomial theorem for any rational index.

Or

(b) Find the coefficient of x^4 in the expansion of $(1+x)^{10}$ using the binomial theorem.

17. (a) Derive De Moivre's theorem and use it to find $(\cos\theta + i\sin\theta)^6$.

Or

(b) Expand tan θ in ascending powers of θ up to θ^5.

18. (a) Derive Leibnitz's theorem and apply it to find the fourth derivative of $f(x) = x^2\, e^x$.

Or

(b) Explain the concept of homogeneous functions and derive the general form of Euler's theorem for three variables.

19. (a) Solve $\int \frac{dx}{\sqrt{x^2 - 9}}$ using trigonometric substitution and explain the steps.

Or

(b) Derive the formula for $\int \frac{dx}{(x + a)(x + b)}$ using partial fractions.

20. (a) Explain how to solve a first-order, higher-degree differential equation by eliminating p.

Or

(b) Find the general and singular solutions of $y = Px + e^{-P}$.

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C–7988

Sub. Code
97243

B.Sc. DEGREE EXAMINATION, APRIL 2026.

Fourth Semester

Aviation

INDUSTRIAL DRAWING PRACTICES

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. BIS stands for
   (a) Bureau of Industrial Standards
   (b) Bureau of International Standards
   (c) Bureau of Indian Standards
   (d) Basic Industrial Standards

2. The true length of a line is seen when it is
   (a) Parallel to one reference plane
   (b) Inclined to both planes
   (c) Perpendicular to VP
   (d) Parallel to both planes

3. Orthographic projection involves projection on
   (a) One plane (b) Three planes
   (c) Two planes (d) Four planes

4. A prism is a solid with

(a) Curved surface

(b) Circular base

(c) Identical ends

(d) Variable cross-section

5. A section plane is used to

(a) Measure area (b) Cut the solid

(c) Paint the object (d) Show outer view

6. True shape of a section is seen in a plane

(a) Perpendicular to HP

(b) Parallel to cutting plane

(c) Perpendicular to cutting plane

(d) Parallel to VP

7. Isometric projection is a type of

(a) Perspective view (b) Pictorial view

(c) Orthographic view (d) Sectional view

8. Angle between isometric axes is

(a) 90° (b) 60°

(c) 30° (d) 120°

9. Perspective projection gives

(a) Realistic view (b) Top view

(c) Bottom view (d) Section view

10. Picture plane is

(a) Plane on which solid rests

(b) Plane to draw perspective

(c) Base of the solid

(d) Axis of solid

Part B $(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) A line AB 80 mm long is inclined at 30° to HP and 45° to VP. Point A is 20 mm above HP and 15 mm in front of VP. Draw its projections and find its true length.

Or

(b) Draw the orthographic projections of a point P located 25 mm above HP and 35 mm in front of VP.

12. (a) A square prism, side of base 30 mm and height 60 mm, rests on HP on its base. One of its base edges is inclined at 30° to VP. Draw its projections.

Or

(b) A hexagonal pyramid base 25 mm and axis 60 mm long, rests with its base on HP such that one of its base edges is parallel to VP. Draw its projections.

13. (a) A cylinder, diameter 40 mm and height 70 mm, is resting on HP. It is cut by a plane inclined at 45° to HP and perpendicular to VP, passing through the axis. Draw sectional front view and true shape of the section.

Or

(b) A square prism base 30 mm and height 60 mm, rests on HP. It is cut by an auxiliary inclined plane making 60° with HP and passing through the mid-point of the axis. Draw the projections and true shape.

14. (a) Draw the isometric projection of a cube of side 40 mm kept on HP.

Or

(b) Draw the isometric projection of a square prism, base 30 mm, height 60 mm, kept with base on HP.

15. (a) Draw the Perspective projection of a cube of 40 mm side resting on the ground plane with vertical edges, using the visual ray method.

Or

(b) Draw the one-point perspective view of a square prism base 30 mm, height 60 mm, placed such that one face is parallel to the picture plane.

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) A line CD 100 mm king has its front view measuring 80 mm and top view measuring 60 mm. One end is 20 mm above HP and 30 mm in front of VP. Draw its projections and find the inclinations with HP and VP.

Or

(b) A line EF is inclined at 40° to HP and parallel to VP. The end E is 15 mm above HP and 20 mm front of VP. The true length of the line is 70 mm. Draw its projections.

17. (a) A cone diameter 40 mm and height 70 mm, rests on HP. Its axis is inclined at 45° to VP and remains parallel to HP. Draw its projections.

Or

(b) Draw the projections of a cylinder, diameter 30 mm and height 50 mm, resting on HP with its axis inclined at 30° to HP and parallel to VP.

18. (a) A pentagonal pyramid, base 25 mm and height 60 mm, stands on HP. A section plane perpendicular to VP cuts it such that the true shape is a trapezium. Draw projections and true shape.

Or

(b) A cone, diameter 50 mm and height 70 mm, is resting on HP. It is cut by a plane inclined at 30° to HP and passing through the midpoint of the axis. Draw the sectional front view and true shape.

19. (a) Draw the isometric projection of a frustum of a cone (base dia. 50 mm, top dia. 30 mm, height 60 mm).

Or

(b) Draw the isometric view of a combination of cylinder (diameter 30 mm, height 50 mm) with a cone (diameter 30 mm, height 40 mm) placed above it.

20. (a) Draw the two-point perspective projection of a cube (40 mm side) placed on ground plane such that vertical edges are visible.

Or

(b) A rectangular prism (40 mm × 30 mm × 60 mm) is placed on ground with one rectangular face inclined to picture plane, Draw the perspective view.

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C–7989

Sub. Code
97245

B.Sc. DEGREE EXAMINATION, APRIL 2026.

Fourth Semester

Aviation

AVIATION COMMUNICATION AND RADIO AIDS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which of the following defines the number of cycles per second in a wave?
   (a) Amplitude (b) Wavelength
   (c) Frequency (d) Phase

2. What does AM stand for in radio communication?
   (a) Antenna Modulation
   (b) Air Modulation
   (c) Amplitude Modulation
   (d) Alternate Mode

3. What does VHF stand for?
   (a) Variable High Frequency
   (b) Very High Frequency
   (c) Very Hot Frequency
   (d) Voltage High Frequency

4. Which wave type can travel through the ionosphere?

(a) Surface wave (b) Ground wave

(c) Sky wave (d) Microwave

5. What is the primary use of a weather radar?

(a) Detect terrain

(b) Detect enemy aircraft

(c) Detect clouds and storms

(d) Track satellites

6. What does VSI stand for in aircraft instruments?

(a) Vertical Speed Indicator

(b) Variable Sound Index

(c) Virtual Signal Indicator

(d) Voltage Sensing Instrument

7. What signal is used to indicate a distress emergency?

(a) PAN-PAN (b) MAYDAY

(c) ROGER (d) WILCO

8. What is the first step in take-off communication procedure?

(a) Announce landing

(b) Request taxi clearance

(c) Report flight level

(d) Contact radar

9. What is the full form of TCAS?

(a) Traffic Control Alert System

(b) Terminal Collision Avoidance System

(c) Traffic Collision Avoidance System

(d) Time-based Coordination Alerting System

10. Which radio aid is used for non-directional navigation?

(a) VOR (b) NDB

(c) ILS (d) MLS

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain modulation and the types of modulation used in radio communication.

Or

(b) Discuss the effects of the ionosphere on the propagation of ratio waves.

12. (a) Write a note on attenuation, refraction, and sky waves.

Or

(b) Describe the uses and limitations of GPS arid VHF as radio aids.

13. (a) Write short notes on ACARS and SELCAL systems.

Or

(b) Explain the working principle of the pressure altimeter.

14. (a) Describe the take-off and en-route procedures in ATC communication.

Or

(b) Write a short note on communication failure and radar assistance during emergencies.

15. (a) Explain the functions of VOR and DME.

Or

(b) What is RNAV and how does it improve navigation accuracy?

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain the frequency spectrum, wavelength, phase difference, and their importance in aviation.

Or

(b) Describe AM, FM, and CW-Keying with suitable examples.

17. (a) Describe in detail the classification of radio aids and their critical limitations.

Or

(b) Explain surface waves, sky waves, and multi-hop refraction with diagrams.

18. (a) Discuss the types of radar used in aviation and their respective applications.

Or

(b) Explain various types of radio communication (LF, HF, VHF, UHF) and the factors affecting range.

19. (a) Describe ATC communication procedures during emergencies, aircraft lost, and medical transport.

Or

(b) Explain distress and urgency procedures with suitable case examples.

20. (a) Write a detailed note on modern navigation systems: ILS, MLS, RNAV and TCAS.

Or

(b) Explain localization slope indicators, and bearing classification in aviation navigation.

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C–7990

Sub. Code
97246

B.Sc. DEGREE EXAMINATION, APRIL 2026.

Fourth Semester

Aviation

PHYSICAL AND HEALTH EDUCATION

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which of the following is not a goal of health education?
   (a) Developing awareness
   (b) Promoting unhealthy habits
   (c) Diseases prevention
   (d) Teaching hygiene

2. Health education does NOT include
   (a) Spiritual education
   (b) Environmental health
   (c) Political education
   (d) Social well-being

3. Exercise helps in
   (a) Increasing mental stress
   (b) Weight gain
   (c) Weight loss and emotional control
   (d) Ignoring health

4. Mental health refers to
   (a) Physical ability
   (b) Emotional well-being
   (c) Wealth
   (d) Academic success

5. Which disease is caused by the tobacco habit?
   (a) Dengue (b) Malaria
   (c) Cancer (d) Typhoid

6. AIDS is caused by
   (a) Fungi (b) Virus
   (c) Bacteria (d) Protozoa

7. Carbohydrates provide
   (a) Minerals (b) Water
   (c) Energy (d) Fiber

8. Which of the following is NOT a function of water in the body?
   (a) Transport of nutrients
   (b) Regulating temperature
   (c) Providing calories
   (d) Maintaining hydration

9. Which number should you dial for emergency medical help (in India)?
   (a) 101 (b) 108
   (c) 100 (d) 102

10. In case of choking, what first aid method is commonly used?
   (a) CPR
   (b) Heimlich maneuver
   (c) Ice pack
   (d) Leg elevation

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Differentiate between health education and physical education.

Or

(b) Explain the contribution of state-level organizations in health education.

12. (a) Define emotional intelligence and explain the types of emotions.

Or

(b) Explain how mental health contributes to overall well-being.

13. (a) Describe the causes and effects of smallpox and chickenpox.

Or

(b) Explain how tobacco consumption causes cancer.

14. (a) Define nutritive value and explain how food supports body function.

Or

(b) Describe the principles of diet planning and the importance of personal hygiene.

15. (a) Write detailed notes on the treatment and care of fractures and dislocations.

Or

(b) What is the proper first aid for a person who is bleeding severely?

Part C

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Write short notes on any two international health organizations.

Or

(b) Discuss how health education influences personal and community health.

17. (a) Describe the importance of regular physical activity in maintaining health.

Or

(b) Discuss the importance of emotional control and mental strength.

18. (a) What are the community-level measures to prevent the spread of communicable diseases?

Or

(b) Describe how awareness campaigns help in disease prevention.

19. (a) What are the differences between macro and micronutrients?

Or

(b) Discuss how poor nutrition affects physical and mental health.

20. (a) Describe the causes, symptoms, and first aid treatment for fainting and shock.

Or

(b) What are the general principles of administering basic life support (BLS)?

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C–7991

Sub. Code
97251

B.Sc. DEGREE EXAMINATION, APRIL 2026.

Fifth Semester

Aviation

AIR NAVIGATION (General)

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. What is the primary objective of navigation?

   (a) To determine and control the movement of an aircraft from one place to another

   (b) To locate enemy aircraft

   (c) To communicate with ATC

   (d) To maintain the aircraft's altitude

2. One nautical mile is equal to how many statute miles?

   (a) 0.85

   (b) 1.15

   (c) 1.25

   (d) 1.5

3. The drift angle is the angle between which two elements?

(a) Ground speed and airspeed

(b) Track and true north

(c) Magnetic north and compass heading

(d) Heading and course

4. What is the true course (TC) in navigation?

(a) The angle measured from true north to the planned flight path

(b) The angle between heading and wind direction

(c) The heading corrected for variation and deviation

(d) The path over the ground without wind correction

5. What type of signal does a VOR station transmit?

(a) UHF signals (b) VHF signals

(c) HF signals (d) LF signals

6. Which country operates the GLONASS navigation system?

(a) USA (b) Russia

(c) China (d) European Union

7. Which of the following features is NOT commonly found on a topographical map?

(a) Contour lines

(b) Magnetic variation lines

(c) Rivers and lakes

(d) Roads and landmarks

8. Which type of aeronautical chart is commonly used for VFR navigation?

(a) Enroute High Altitude Chart

(b) Terminal Area Chart (TAC)

(c) Sectional Chart

(d) Radar Summary Chart

9. What causes the seasons on Earth?

(a) The Earth's distance from the Sun

(b) The tilt of the Earth's axis

(c) The rotation of the Earth

(d) The gravitational pull of the Moon

10. Nautical twilight is important for

(a) Measuring temperature

(b) Observing stars and planets

(c) Navigational purposes at sea

(d) Meteorological studies

Part B $(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain what aircraft navigation is and define the terms:

(i) Position

(ii) Direction

(iii) Distance.

Or

(b) Explain the uses of the navigational computer.

12. (a) An aircraft is flying with a beading of 45° but its actual track over the ground is 60°. Explain the factors that could cause this difference.

Or

(b) Define True Course (TC) and Magnetic Heading (MH). How are they related?

13. (a) Compare and contrast LORAN-C and OMEGA navigation systems.

Or

(b) What is the function of an aircraft transponder? Describe the different transponder modes.

14. (a) Explain why the shortest distance between two points on Earth is along a great circle track.

Or

(b) Discuss the concept of chart distortion and how different projections minimize it.

15. (a) Describe the role of atomic clocks in modern timekeeping.

Or

(b) Explain how a day and a year are measured. Why is there a difference between a sidereal day and a solar day?

Part C

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) What is 1 in 60 rule? Explain about their application in navigation.

Or

(b) Calculate the distance between two locations given their latitude and longitude using the Haversine formula.

17. (a) Explain how pilots determine their desired course and maintain it during flight.

Or

(b) How do magnetic anomalies and aircraft electrical systems affect deviation in a magnetic compass?

18. (a) What is Radio Navigation? Explain about any two radio navigation system.

Or

(b) Explain the use Dead Reckoning Navigation in conjunction with modern navigation systems.

19. (a) Explain the difference between a Mercator Projection and a Lambert Conformal Projection.

Or

(b) Differentiate between large-scale and small-scale charts. Provide examples of when each is used.

20. (a) Using Keplers laws, explain why planets move faster when closer to the Sun and slower when farther away. How does this affect seasonal variations on Earth?

Or

(b) Explain the significance of time zones and how they are determined across the globe.

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C–7992

Sub. Code
97252

B.Sc. DEGREE EXAMINATION, APRIL 2026

Fifth Semester

Aviation

AIRCRAFT SYSTEMS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Double acting actuator used in hydraulic system for _____.

   (a) Landing gear doors

   (b) Landing gear Cylinder

   (c) None

   (d) All

2. _____ used in pneumatic system to absorb the humidity in the air.

   (a) Filter (b) Cotton

   (c) Silica Gel (d) All

3. As the internal volume of the landing gear cylinders decreases, the gas pressure rises until it balances the _____.

   (a) upward force (b) downward force

   (c) side force (d) all

4. Underwing Landing Gear Units functions are _____.

(a) Absorb landing shocks

(b) Holding the entire weight of aircraft

(c) Steering

(d) All

5. The movement of the flying control surfaces in response to the movement of the cockpit controls may be achieved by _____.

(a) Mechanically (b) Hydraulically

(c) Electrically (d) All

6. Control in roll is achieved by _____.

(a) Elevator (b) Aileron

(c) Rudder (d) All

7. The specific gravity of AVGAS100 is _____.

(a) 0.80 (b) 0.72

(c) 0.75 (d) all

8. A lubricity agent is added to the fuel to reduce _____ in the fuel system components.

(a) Friction (b) Wear

(c) Heat (d) All

9. The ACS uses a _____ to cool the hot air from the engines.

(a) Primary heat exchanger

(b) Secondary heat exchanger

(c) Cooler

(d) All

10. Hypoxia will result in a reduction in the

(a) Ability to concentrate

(b) Loss of consciousness

(c) Finally death

(d) All

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the functions of hydraulic reservoir and its types.

Or

(b) Write down short note on selector valve used in hydraulic system.

12. (a) What are the loads sustained by the landing gear?

Or

(b) Write short note on nose wheel steering.

13. (a) Write short note on throttle used in aircraft control system.

Or

(b) List out the basic components of auto pilot system and its types.

14. (a) Explain the purpose of fuel heater in the fuel system.

Or

(b) Write short on gas turbine ignition system.

15. (a) How does Air Conditioning work on an Airplane?

Or

(b) List out the minimum indications required for a pressurization system.

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain about the typical pneumatic system used in large commercial transport aircraft with neat diagram.

Or

(b) Write short note on (i) Pressure regulator (ii) Shuttle valve.

17. (a) Discuss about the landing gear position indication.

Or

(b) How to execute the landing gear emergency lowering system?

18. (a) List out and explain the conventional flight control system components.

Or

(b) Explain about the fly-by-wire system with neat diagram.

19. (a) Discus about the fuel storage system in commercial; aircraft.

Or

(b) Explain the gravity feed fuel system with neat diagram.

20. (a) Briefly explain about the aircraft pressurisation system.

Or

(b) Explain about the continuous flow oxygen system in aircraft.

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C–7993

Sub. Code
97253A

B.Sc. DEGREE EXAMINATION, APRIL 2026

Fifth Semester

Aviation

AIRPORT & FLIGHT OPERATION

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Flight schedules are often displayed in _____ to avoid confusion and ensure accuracy in timing.

   (a) Coordinated Universal Time

   (b) International standard times

   (c) Local times

   (d) All

2. Elapsed transportation time is the time that passes between the _____.

   (a) Start and end of a journey

   (b) End of a journey

   (c) All

   (d) None

3. The width of a runway and safety area is required to be at least _____ of the associated runway.

(a) Twice (b) Three

(c) Five (d) All

4. Normal category aircraft are designed to withstand _____ or units of gravity.

(a) +3.8 to –1.52 g's (b) +2.5 to –2.00

(c) + to 4.00 to –2.00 (d) None

5. Flight crew means the _____ who fly the aircraft and shall also include a

(a) Pilot (b) Flight engineer

(c) Flight navigator (d) All

6. A Layover in aviation denotes a _____ stopover during a journey.

(a) Temporary (b) Intermittent

(c) Continuous (d) All

7. Block fuel is the total fuel required for the flight and is the sum of the

(a) Taxi fuel (b) Trip fuel

(c) Contingency fuel (d) All

8. Jet routes extend from _____.

(a) FL 180 to FL 450 (b) FL 100 to FL 150

(c) FL 50 to FL 100 (d) All

9. Aircraft weather charts are used to provide information about _____ at different altitudes.

(a) Wind

(b) Temperature

(c) Other weather conditions

(d) All

10. A flight plan is filed with air traffic control (ATC) to inform them of the _____.

(a) Aircraft's intended path

(b) Weather conditions

(c) Any restrictions

(d) All

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) What are traffic conference areas? And its significance.

Or

(b) How Does Time Change Affect Flights?

12. (a) Write short note on runway shoulder?

Or

(b) List out the risks arising from aircraft loading.

13. (a) List out and explain the key significance of layover for pilots.

Or

(b) Write short note on split duty with neat sketch.

14. (a) Write short note on contingency fuel planning.

Or

(b) Explain about the navigation plan.

15. (a) Write short note on METAR.

Or

(b) What's included in the load manifest and its important?

Part C

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) How to understanding the concept of time zones in aviation.

Or

(b) Explain the meaning of open sky policy in India.

17. (a) List out the factors affecting the length of the runway?

Or

(b) Explain the key steps in load control and subprocesses involved in it.

18. (a) List out and explain the key characteristics of layover for pilots.

Or

(b) Briefly discuss about the slot allocation in airport.

19. (a) Explain about the information provided in the navigation log.

Or

(b) Describe about the release procedure documentation.

20. (a) List out the rules applicable for completing a flight plan.

Or

(b) How does ETOPD works and its procedures?

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C–7994

Sub. Code
97253B

B.Sc. DEGREE EXAMINATION, APRIL 2026

Fifth Semester

Aviation

AIR REGULATIONS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which of the following is a primary function of IATA?
   (a) Air traffic control
   (b) Airport security
   (c) Regulating international airfares
   (d) Airline taxation

2. The Montreal Convention mainly deals with:
   (a) Aircraft hijacking
   (b) Cargo insurance
   (c) Airspace boundaries
   (d) Compensation for passengers in case of air accidents

3. What is the primary objective of Air Traffic Services (ATS)?

(a) To provide in-flight entertainment

(b) To prevent collisions and ensure safe air traffic flow

(c) To reduce airport congestion

(d) To manage airline ticketing

4. Clearances are issued primarily to

(a) Control ground operations

(b) Ensure separation and traffic flow

(c) Provide emergency services

(d) Approve passenger boarding

5. Which flight mysteriously disappeared in 2014, leading to a large-scale search operation?

(a) Air France 447

(b) Pan Am 103

(c) Malaysia Airlines MH370

(d) Concorde Flight 4590

6. What is the primary focus of the Indian Aircraft Rules 1954?

(a) Passenger behaviour regulations

(b) Public health and sanitation on aircraft

(c) Aircraft maintenance procedures

(d) Military aviation operations

7. Which type of error occurs due to a lapse in memory or attention?

(a) Skill-based error

(b) Rule-based error

(c) Knowledge-based error

(d) Intentional violation

8. Which personality trait is likely to lead to poor decision-making in high-stress situations?

(a) Confidence

(b) Overconfidence

(c) Assertiveness

(d) Situational awareness

9. What does NOTAM stand for?

(a) Notice to Airmen

(b) National Operational Traffic and Airspace Management

(c) Navigation Order for Terrain and Aircraft Movement

(d) None of the above

10. Which frequency is used for emergency communication in aviation?

(a) 121.5 MHz (b) 118.8 MHz

(c) 135.6 MHz (d) 108.0 MHz

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) What is the Open Sky Agreement, and why is it important in global aviation?

Or

(b) Explain the objectives of International Civil Aviation Organisation.

12. (a) What are the key components of controlled airspace?

Or

(b) Compare vertical and horizontal separation minima requirements.

13. (a) What is the difference between an aviation accident and an incident?

Or

(b) Explain the key provisions of the Indian Aircraft Act 1934.

14. (a) Discuss the importance of error management training for flight crews.

Or

(b) Explain 'cognitive overload and 'cognitive underload' of human performance.

15. (a) What are the key components required for an operator to obtain an Air Operator Certificate?

Or

(b) List the mandatory flight instruments required for commercial aircraft.

Part C ($5 \times 8 = 40$)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain the significance of bilateral agreements in international aviation.

Or

(b) What is the organizational structure of the DGCA?

17. (a) Explain how an ADIZ helps in national security.

Or

(b) Analyse the differences between a control area and a control zone.

18. (a) Describe the responsibilities of an FIR.

Or

(b) Explain the classification of dangerous goods under the Indian Aircraft Rules.

19. (a) Explain how imitations in human information processing can lead to errors in aviation.

Or

(b) Demonstrate effective stress management techniques suitable for aviation professionals.

20. (a) Explain Instrument and safety equipment requirement in detail.

Or

(b) Discuss the primary communication systems used between pilots and air traffic control.

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C–7995	Sub. Code 97253C

B.Sc. DEGREE EXAMINATION, APRIL 2026

Fifth Semester

Aviation

AIR TRAFFIC CONTROL

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Approach control service provide _____.
   (a) Current meteorological reports
   (b) Current pressure data for setting altimeter
   (c) Current surface wind
   (d) All

2. Weather conditions should be avoided under VFR are _____.
   (a) Heavy precipitation
   (b) Low visibility
   (c) Clouds
   (d) All

3. An ATS route is defined by route specifications, which may include _____.
   (a) ATS route designator
   (b) The path to or from significant points
   (c) Distance between significant points
   (d) All

4. Separation standards are minima and shall be increased when _____.

(a) Requested by the pilot

(b) Controller consider if necessary

(c) Specified in the station standing instruction manual.

(d) All

5. One major limitation of aviation weather radars is their range. These systems typically have a maximum range of around _____.

(a) 300 miles (b) 350 miles

(c) 400 miles (d) All

6. RADAR's range is limited to around _____.

(a) 200 ft (b) 400 ft

(c) 300 ft (d) All

7. Obstacle restriction to protect from _____.

(a) Take-off (b) Landing

(c) Approach (d) All

8. Runway surface irregularities would result in _____.

(a) Loss in braking action

(b) Affect the landing

(c) Affect the take-off

(d) All

9. Wind direction indicators at airports include _____.

(a) Windsocks

(b) Wind tees

(c) Wind tetrahedron

(d) All

10. Wind cone are made to orient against the wind when the wind speed reaches _____.

(a) Three knots (b) 5 knots

(c) 10 knots (d) All

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) What are the separation clearances issued by the ATC?

Or

(b) What are the objectives of ATC services?

12. (a) List out the objectives of ATS.

Or

(b) Write short note on ATS routes?

13. (a) What do you understand the area navigation route.

Or

(b) How does RNP works and its benefits?

14. (a) What are the types of aerodrome data and why is important?

Or

(b) List out the key points about obstacle restriction in an aerodrome.

15. (a) How to estimating the wind speed in aerodrome?

Or

(b) Write short note on role and types of aids to navigation.

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Briefly explain the airspace classification.

Or

(b) List out the regulations for VFR flight in controlled airspace.

17. (a) Explain about the lateral separation for departure.

Or

(b) Discuss about the RNAV and RNP.

18. (a) Explain the Role of Alerting Services in Aviation Safety.

Or

(b) Discuss about the radar approach control service.

19. (a) Discuss about the instrument runway.

Or

(b) Write short note on (i) aerodrome reference temperature (ii) declared distance.

20. (a) List out various navigational aids used in aerodrome.

Or

(b) Write the key characteristics of the signal area.

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C–7996

Sub. Code
97254A

B.Sc. DEGREE EXAMINATION, APRIL 2026

Fifth Semester

Aviation

PUBLIC RELATIONSHIP IN THE AVIATION INDUSTRY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. What is the primary characteristic of services that differentiates them from goods?
   (a) Tangibility (b) Intangibility
   (c) Uniformity (d) Inventory capability

2. Which of the following is a unique feature of services marketing?
   (a) Standardized production
   (b) Easy storage
   (c) Simultaneous production and consumption
   (d) Separate ownership and consumption

3. Which industry is part of hospitality marketing?
   (a) Banking
   (b) Pharmaceuticals
   (c) Hotel and Tourism
   (d) Retail

4. Positioning strategy in hospitality marketing focuses on:
   (a) Reducing staff requirements
   (b) Creating a unique service identity
   (c) Lowering ticket prices
   (d) Eliminating customer feedback

5. What is a key responsibility of Public Relations (PR) in aviation?
   (a) Cargo handling
   (b) Managing media relations and public
   (c) Aircraft maintenance
   (d) Pilot training image

6. Which of the following is a challenge in aviation PR?
   (a) Increasing aircraft speed
   (b) Passenger seat allocation
   (c) Ensuring integrity of information
   (d) Fuel cost reduction

7. What is the first step in crisis management at an airport?
   (a) Notifying the media
   (b) Preparing for a crisis
   (c) Creating a public report
   (d) Selling emergency tickets

8. Which public relations process step involves defining PR problems?
   (a) First step (b) Second step
   (c) Fourth step (d) Third step

9. Which of the following is an essential skill for successful PR personnel?
   (a) Mathematical ability
   (b) Physical strength
   (c) Empathy and persuasion
   (d) Advanced coding skills

10. What is a primary objective of Public Relations?

(a) Selling products

(b) Training employees

(c) Building and maintaining a positive public image

(d) Controlling air traffic

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Briefly explain the nature of services.

Or

(b) Explain various methods of pricing adopted in aviation industry.

12. (a) Explain positioning and differentiation strategies.

Or

(b) Discuss the various forms and categories of Travel.

13. (a) Explain some of the issues that are involved in public relations.

Or

(b) What are the Do's and don'ts in media handling?

14. (a) Write short notes on Crisis Management.

Or

(b) Explain the four steps involved in public relations process.

15. (a) Explain about the objectives of Public Relations.

Or

(b) Briefly explain the following terms:

(i) Human Relations

(ii) Empathy

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain elements of marketing mix in relation to aviation industry giving suitable examples for each marketing mix.

Or

(b) What is pricing? Explain how it is plays a major role in the industry.

17. (a) Explain Service marketing – Type and nature of services.

Or

(b) Examine the importance of leisure services in the tourism and hospitality industry.

18. (a) Examine the different types of media used in aviation PR and their respective roles.

Or

(b) Analyze the importance of media handling in aviation PR.

19. (a) Define crisis. Explain various ways of managing crisis at Airports.

Or

(b) Evaluate the importance of action and communication in crisis management at airports.

20. (a) Examine the role of human relations in public relations management.

Or

(b) Write short notes on

(i) Airport operators

(ii) Accessibility

(iii) Hospitality

(iv) Empathy

C–7997

Sub. Code
97254B

B.Sc. DEGREE EXAMINATION, APRIL 2026

Fifth Semester

Aviation

LOGISTICS & AIR CARGO MANAGEMENT

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which of the following is NOT a major component of logistics?

   (a) Transportation

   (b) Warehousing

   (c) Advertising

   (d) Inventory management

2. Which of the following is a key input for DRP?

   (a) Demand forecasts

   (b) Marketing strategy

   (c) Customer feedback forms

   (d) Employee attendance records

3. What pricing strategy is commonly used for perishable goods?

(a) Penetration pricing

(b) Cost-plus pricing

(c) Dynamic pricing

(d) Psychological pricing

4. Which of the following is a current trend in material handling?

(a) Manual inventory tracking

(b) Increasing paper-based processes

(c) Automation and robotics

(d) Decreasing use of data analytics

5. Which document serves as a contract between an exporter and an importer specifying terms of sale?

(a) Bill of Lading

(b) Commercial Invoice

(c) Certificate of Origin

(d) Packing List

6. Which strategy can help improve logistics performance?

(a) Increasing inventory holding costs

(b) Implementing real-time tracking systems

(c) Reducing technology adoption

(d) Limiting transportation options

7. Which of the following is considered special cargo?

(a) Live animals

(b) Packaged consumer goods

(c) Stationery items

(d) Plastic containers

8. Which factor affects air cargo tariff rates?

(a) The number of employees at the airport

(b) Weight and volume of cargo

(c) The colour of the cargo packaging

(d) The time of day the cargo is packed

9. What is the primary function of airport cargo activity?

(a) Managing passenger check-in

(b) Handling, storing, and transporting cargo

(c) Air traffic control management

(d) Providing aircraft maintenance

10. Which facility is commonly found in an airport cargo zone?

(a) Duty-free shops

(b) Cold storage and perishable goods handling

(c) Movie theatres

(d) Conference rooms

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) What are the different types of inventory costs?

Or

(b) What are the fundamental elements of Just-In-Time (JIT)?

12. (a) Discuss the benefits of a Transportation Management System (TMS).

Or

(b) How do inbound logistics and purchasing work together in supply chain management?

13. (a) What are the six main areas of concentration in global supply chain management?

Or

(b) How does a Delivery Order differ from a Dock Receipt?

14. (a) What is a Shipper's Letter of Instruction (SLI) and why is it important?

Or

(b) Describe the various functions of an Air Waybill (AWB).

15. (a) Write notes of aircraft handling cargo.

Or

(b) Explain Cargo Terminals and facilities.

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Describe the different parts of a logistics network.

Or

(b) How are various types of inventory management used in businesses?

17. (a) What are the five modes of transportation important in logistics?

Or

(b) Describe the key functions and roles of warehousing.

18. (a) What are the six key steps required for effective strategy formulation?

Or

(b) What are the primary elements of Total Quality Management (TQM)?

19. (a) Explain the regulatory and policy issues affecting air cargo development.

Or

(b) Explain all the cost element considered while calculating freight charges.

20. (a) Elucidate the types of boxes and containers used in Cargo carriers.

Or

(b) What are the emerging trends in cargo carrier?

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C–7999	Sub. Code 97255A

B.Sc. DEGREE EXAMINATION, APRIL 2026

Fifth Semester

Aviation

PRINCIPLES OF ROTORCRAFT

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. The gearbox in a helicopter is used to:
   (a) Increase rotor RPM
   (b) Reduce engine RPM to suitable rotor RPM
   (c) Provide anti-torque control
   (d) Control cyclic pitch

2. A higher rotor blade solidity generally results in
   (a) Increased lift but also increased drag
   (b) Lower weight and cost
   (c) Decreased power requirement
   (d) Decreased induced drag

3. Which aerodynamic issue occurs due to an imbalance in lift between advancing and retreating rotor blades?
   (a) Ground resonance
   (b) Dissymmetry of lift
   (c) Retreating blade stall
   (d) Vortex ring state

4. Which of the following contributes to parasite drag in helicopters?

(a) Fuselage and landing gear shape

(b) Rotor blade stall

(c) Airfoil efficiency improvement

(d) Ground effect

5. What is the main advantage of a gas turbine engine over a piston engine in helicopters?

(a) Lower operational costs

(b) Higher power-to-weight ratio

(c) Simpler maintenance

(d) Lower fuel consumption

6. A helicopter's range and endurance are primarily determined by

(a) Rotor diameter

(b) Fuel capacity and engine efficiency

(c) Number of passengers

(d) Landing gear type

7. Stick-fixed longitudinal stability in helicopters primarily affects which motion?

(a) Yaw (b) Pitch

(c) Roll (d) Descent rate

8. Which stability characteristic prevents excessive rolling in helicopters?

(a) Lateral stability

(b) Longitudinal stability

(c) Directional stability

(d) Control response

9. Stress analysis in helicopter rotor blades is essential for
   (a) Reducing engine power
   (b) Ensuring structural integrity and preventing failure
   (c) Increasing blade thickness
   (d) Decreasing airspeed

10. Feathering motion in helicopter rotor blades is used to
   (a) Change the angle of attack of the blades
   (b) Reduce blade flapping
   (c) Prevent vibration in the fuselage
   (d) Control tail rotor efficiency

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain in detail about powerplant of helicopter.

Or

(b) Explain Blade Loading and Solidity Ratio in detail.

12. (a) How to calculate Induced Power in a helicopter?

Or

(b) What is the effects of Vortex Ring state is a negative effect in helicopters? How to recover from it?

13. (a) Explain about Helicopter (AFCS) modes and the features.

Or

(b) Explain about the stability augmentation system.

14. (a) Explain the effect of disturbances in a steady level flight.

Or

(b) Explain about the static stability of Helicopter in Hovering.

15. (a) What is feathering motion in rotor blades, and how does it influence lift control?

Or

(b) Discuss the basic properties of vibrating systems in the context of helicopter dynamics.

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain the function and importance of the main rotor in helicopter flight.

Or

(b) Evaluate the impact of profile drag, compressibility, and other aerodynamic effects on rotor performance.

17. (a) Discuss the relationship between power loading and helicopter efficiency.

Or

(b) Explain the effect of forward flight on aerofoil characteristics in a helicopter.

18. (a) Describe the function and interaction of sensors, computers, controllers, and loads in helicopter AFCS.

Or

(b) Describe the factors affecting the rate of climb and best climbing speed of a helicopter.

19. (a) Describe the physical effects of disturbances on a helicopter's flight stability.

Or

(b) Explain the concept of control response in helicopters.

20. (a) What are the different types of vibration absorbers used in helicopters?

Or

(b) Discuss the general considerations in helicopter blade design.

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C–8000

Sub. Code
97255B

B.Sc. DEGREE EXAMINATION, APRIL 2026

Fifth Semester

Aviation

PISTON ENGINE AND PROPELLER

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which of the following factors affects the power output of a piston engine?

   (a) Fuel type

   (b) Compression ratio

   (c) Cylinder paint color

   (d) Wing shape

2. Which cycle is commonly used in diesel aircraft engines?

   (a) Otto cycle

   (b) Diesel cycle

   (c) Dual cycle

   (d) Brayton cycle

3. What is the function of a connecting rod in a piston engine?

(a) Control fuel flow

(b) Reduce engine vibration

(c) Transmit motion from the piston to the camshaft

(d) Transmit motion from the piston to the crankshaft

4. Which component helps regulate engine temperature in an air-cooled engine?

(a) Turbocharger

(b) Cooling fins

(c) Carburetor

(d) Inlet valves

5. Which part of the carburetor helps prevent fuel overflow?

(a) Float chamber

(b) Throttle valve

(c) Mixture control

(d) Nozzle

6. What is the main function of an aircraft lubrication system?

(a) Improve ignition timing

(b) Helps in complete combustion

(c) Increase compression ratio

(d) Reduce friction and wear between moving parts

7. What is the role of the ignition switch in an aircraft?

(a) Control the fuel flow

(b) Increase propeller thrust

(c) Enhance cooling efficiency

(d) Control the magneto operation

8. What is the purpose of magneto timing in an aircraft engine?

(a) Reduce weight

(b) Ensure proper valve opening

(c) Increase compression ratio

(d) Ensure proper ignition spark timing

9. Which factor primarily affects propeller efficiency?

(a) Cylinder arrangement

(b) Fuel quality

(c) Wing design

(d) Blade pitch angle

10. Which type of propeller is manually adjusted before flight?

(a) Constant-speed propeller

(b) Ground-adjustable propeller

(c) Metal propeller

(d) Wooden propeller

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the principle of valve timing in piston engines.

Or

(b) Discuss the effect of compression ratio on engine performance.

12. (a) Describe the construction and function of a crankshaft.

Or

(b) Explain the working principle of a supercharger in an aircraft engine.

13. (a) Discuss the causes and prevention of carburetor icing.

Or

(b) Explain the importance of lubrication in an aircraft engine.

14. (a) Describe the maintenance procedure for a magneto-type ignition system.

Or

(b) Explain the function of an engine starter motor and overrunning clutch mechanism.

15. (a) Explain the aerodynamic effects of a propeller in flight.

Or

(b) Describe the advantages of composite blade propellers over wooden propellers.

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Compare Otto, Diesel, and Dual cycles with respect to their efficiency and application in aircraft piston engines.

Or

(b) Explain in detail the various engine performance parameters and how they are calculated.

17. (a) Discuss the working principle, arrangement, and advantages of turbochargers in aircraft engines.

Or

(b) Explain the construction and function of an induction and exhaust manifold in piston engines.

18. (a) Describe in detail the working principle, operation, and maintenance of a hydromechanical fuel control system.

Or

(b) Explain the different types of lubricating oils used in aircraft engines and their characteristics.

19. (a) Explain the capacitor-type ignition system and its advantages over conventional systems.

Or

(b) Discuss the importance of spark plug servicing and pressure testing in aircraft engines.

20. (a) Explain the different types of propellers used in aircraft and their applications.

Or

(b) Discuss the forces acting on a propeller in flight and their impact on aircraft performance.

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C–8001

Sub. Code
97255C

B.Sc. DEGREE EXAMINATION, APRIL 2026

Fifth Semester

Aviation

TURBINE ENGINE

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. In the turbojet a high proportion of the gas Stream Energy is utilized to drive the _____ as it is in the turboprop.

   (a) Inlet (b) compressor

   (c) Turbine (d) All

2. In a turbofan engine, the fan speed is controlled by _____.

   (a) a reduction gear (b) wastegate

   (c) the turbine (d) varying the pitch

3. It is so designed to provide a relatively _____ free supply of air to the face of the low-pressure compressor or fan.

   (a) Laminar (b) Turbulent

   (c) Mixed (d) All

4. The compressor casing is constructed of _____.

(a) Aluminium alloy

(b) Stainless steel alloy

(c) Copper alloy

(d) All

5. Corrosion inhibitors protect _____ in fuel handling systems, such as pipelines and storage tanks, from corrosion.

(a) Ferrous metals (b) Non-ferrous metals

(c) Steel metals (d) All

6. Water droplets form and as the temperature is further reduced, they turn to _____ which can block fuel system components.

(a) ice crystals (b) ice bars

(c) ice particles (d) all

7. Spring loaded valve limits the pressure in the feed line and so controls the flow of oil to the _____.

(a) Bearing chambers (b) Splines

(c) Shaft (d) All

8. The oil used will be invariably _____ because of the high temperatures involved.

(a) Synthetic (b) Natural

(c) Chemical (d) All

9. The high energy ignition unit works on the principle of charging up a very large _____.

(a) Capacitor (b) Inductor

(c) Resistor (d) All

10. In ignition unit transformer action the voltage is passed to the secondary coil where its voltage is boosted to _____.

(a) 25000 volts (b) 10,000 Volts

(c) 15,000 Volts (d) All

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) What do you understand the propulsive efficiency?

Or

(b) Draw and explain the Brayton cycle P-v and T-s diagram.

12. (a) Write down the functions of air intake?

Or

(b) Write short note on multipool compressor.

13. (a) What are the effects of specific gravity of aviation fuel.

Or

(b) What are the functions of fuel heater in fuel system?

14. (a) Write the role of magnetic chip detector used in oil system.

Or

(b) Explain the importance of pressure relieve valve in oil system.

15. (a) Write short note on "hot start".

Or

(b) Explain the typical RPM/EGT relationship with neat sketch.

Part C

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain about the thrust variation with effect of altitude and velocity.

Or

(b) Describe about the water methanal injection method.

17. (a) Describe about the compressor stall.

Or

(b) Explain about the combustion stability.

18. (a) Explain the gravity feed fuel system of Cessna aircraft.

Or

(b) Briefly explain about the FADEC?

19. (a) Explain about the full flow type lubricating system.

Or

(b) Write short note on (i) Oil cooler (ii) Oil pumps.

20. (a) Explain the typical air starter motor used in the starting system.

Or

(b) Enumerate the types of starters used in gas turbine engine with its significance.

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C–8002	Sub. Code 97261

B.Sc. DEGREE EXAMINATION, APRIL 2026.

Sixth Semester

Aviation

AVIATION SECURITY & SAFETY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. BDDS stands for

   (a) Bomb Detection and Disposal Squad

   (b) Basic Disaster Defense Section

   (c) Bureau of Domestic Defense Services

   (d) Bomb Defusal and Disposal Sector

2. What is the function of the Airport and Airlines Security Team?

   (a) Ticket checking

   (b) Baggage loading

   (c) Passenger safety and surveillance

   (d) Aircraft maintenance

3. What does hold baggage refer to?

(a) Cabin baggage

(b) Unchecked baggage

(c) Checked-in luggage transported in aircraft hold

(d) Lost luggage

4. Which method is used for detecting threats in cargo?

(a) X-ray screening and bomb threat analysis

(b) Catering security

(c) Visual inspection only

(d) Manual weighing

5. What is the main aim of airport frisking procedures?

(a) Baggage tagging

(b) Searching for contraband

(c) Boarding announcements

(d) Issuing boarding passes

6. The Tokyo Convention primarily deals with:

(a) Meteorology

(b) In-flight security and offenses

(c) Engine maintenance

(d) Ticketing policies

7. What was a key aviation-related event during the 9/11 terrorist attack?

(a) Cargo theft

(b) Bombing of airport runways

(c) Hijacking of commercial aircraft

(d) Communication failure

8. How can aviation terrorism be combated?

(a) Reducing flights

(b) Encouraging tourism

(c) Enhanced intelligence and security measures

(d) Stopping online booking

9. What is the function of the X-ray baggage inspection system?

(a) To count baggage

(b) To label luggage

(c) To detect prohibited items inside baggage

(d) To weigh luggage

10. What is meant by profiling in aviation security?

(a) Checking flight times

(b) Assigning seat numbers

(c) Scanning barcode

(d) Identifying high-risk passengers based on behavior or history

Part B $(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Discuss the coordination among Airport and Airline Security teams with Local Police.

Or

(b) Explain how the Ministry of Civil-Aviation contributes to aviation safety regulations.

12. (a) Explain the catering security measures taken to prevent threats in inflight services

Or

(b) Analyze the process and importance of bomb threat analysis at airports.

13. (a) Describe how cockpit doors are designed and secured as a hijack prevention measure.

Or

(b) Discuss the responsibilities of the Sky Marshal during a hijack situation.

14. (a) Discuss the Security challenges faced during international summits and high-profile events.

Or

(b) Write a note on the 9/11 terrorist attacks and their impact on global aviation security.

15. (a) Discuss the responsibilities of staff dealing with VVIP/VIP or high-risk category passengers.

Or

(b) Describe the operation and advantages of X-ray baggage inspection systems.

Part C

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Highlight the importance of air transport security in the post-9/11 global Scenario

Or

(b) Explain the need for international cooperation in aviation safety and security.

17. (a) Discuss various types of inflight threats and measures to manage them.

Or

(b) Explain the procedures for detecting and responding to explosive threats in passenger baggage.

18. (a) Analyze the provisions of the Tokyo Convention and its relevance in hijack incidents.

Or

(b) Explain the role of Airport Enforcement Authorities in managing hijacking situations.

19. (a) What steps should airlines and airport authorities take to handle hostage situations?

Or

(b) Describe the role of international organizations in countering terrorism in aviation.

20. (a) What are the merits and demerits of profiling in aviation security?

Or

(b) Write short notes on

(i) SPG

(ii) Landside Security.

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C–8003	Sub. Code 97262

B.Sc. DEGREE EXAMINATION, APRIL 2026.

Sixth Semester

Aviation

AIRCRAFT INSTRUMENTS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. What does the International Standard Atmosphere (ISA) define at sea level?

   (a) 0°C and 1000 hPa

   (b) 15°C and 1013.25 hPa

   (c) 20°C and 980 hPa

   (d) 10°C and 1020 hPa

2. What is the primary function of qualitative displays?

   (a) To show exact measurements

   (b) To provide color-coded warnings

   (c) To show trends or conditions

   (d) To rotate instrument needles

3. What is the main function of the Altimeter?

(a) Shows the pitch of the aircraft

(b) Indicates vertical speed

(c) Detects horizontal direction

(d) Measures altitude from sea level

4. The Match meter indicates:

(a) Rate of descent

(b) Temperature

(c) Aircraft speed relative to the speed of Sound

(d) Fuel flow

5. Which instrument gives pitch and roll information to the pilot?

(a) Turn and Slip Indicator

(b) Artificial Horizon

(c) Direction at Gyroscope

(d) Altimeter

6. Turn and Slip Indicator shows

(a) Angle of attack

(b) Roll and pitch

(c) Rate of turn and coordination of turn

(d) Bank angle only

7. The function of a manifold pressure gauge is to:

(a) Measure exhaust pressure

(b) Measure fuel flow

(c) Measure cabin pressure

(d) Measure pressure in the engine intake manifold

8. Which engine instrument uses the Wheatstone Bridge principle?

(a) Resistance thermometer

(b) Thermocouple-based temperature gauge

(c) RPM indicator

(d) Torque pressure indicator

9. What does magnetic variation refer to in compass terminology?

(a) Deviation caused by local magnetic fields

(b) Difference between true north and magnetic north

(c) Angle between heading and track

(d) Dip angle caused by altitude

10. Which of the following describes terrestrial magnetism?

(a) Weather-based Changes in direction

(b) Earth's magnetic field resembling a giant magnet

(c) The sun's influence on Earth's rotation

(d) Electrical currents flowing in the compass

Part B $(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Write a detailed note on LED and LCD digital displays in aircraft systems.

Or

(b) Explain the need and concept of International Standard Atmosphere (ISA) and its assumptions.

12. (a) Describe the construction and working of the Mach Meter in detail.

Or

(b) Write a detailed note on the Altitude Alerting System and its operational importance.

13. (a) Differentiate between rate gyros and displacement gyros used in aircraft.

Or

(b) Write in detail about the gyroscopic errors and how they are corrected in instruments.

14. (a) Explain the principle and working of the Fuel Flow indicator with a neat sketch.

Or

(b) Discuss various temperature measuring instruments used in engines (CHT, EGT, Oil temp).

15. (a) Explain the calibration process of the DR compass and why it is necessary.

Or

(b) Describe the Remote Reading (RR) Compass — its construction advantages, and applications.

Part C

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Compare analog and digital aircraft instruments with suitable examples.

Or

(b) Describe director displays with examples and discuss their role in flight control.

17. (a) Explain the installation and function of static vents and pitot tubes on aircraft.

Or

(b) Discuss the constructional features and working of the Static Pressure System.

18. (a) Describe the driving mechanism of gyroscopes (pneumatic and electric).

Or

(b) Explain the importance of gyroscopic instruments during instrument flight conditions.

19. (a) Compare resistance type and thermocouple type thermometers with applications.

Or

(b) Describe the working and significance of the quantity indicating system (capacitance type).

20. (a) Compare DR and RR compasses in terms of structure, function, and advantages.

Or

(b) Write short notes on compass swinging and compass correction procedures.

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C–8004

Sub. Code
97263A

B.Sc. DEGREE EXAMINATION, APRIL 2026

Sixth Semester

Aviation

TOTAL QUALITY MANAGEMENT

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Who is not one of the three major contributors to TQM?
   (a) Deming
   (b) Crosby
   (c) Juran
   (d) Fayol
2. The "Plan-Do-Study-Act" cycle is also called
   (a) Kaizen
   (b) PDCA cycle
   (c) Six Sigma
   (d) TPM
3. Customer retention is related to
   (a) Short-term goals
   (b) Repeat customers
   (c) Supplier partnerships
   (d) Employee motivation

4. Which of the following is a traditional tool of quality?

(a) QFD

(b) Benchmarking

(c) Histogram

(d) Six Sigma

5. Taguchi method focuses on

(a) Quality design

(b) Cost estimation

(c) Market share

(d) ISO certification

6. 5S stands for all except

(a) Sort

(b) Set in order

(c) Supply

(d) Shine

7. The ISO 9000 standard is primarily related to

(a) Financial reporting

(b) Environmental safety

(c) Quality management systems

(d) Legal compliance

8. QFD stands for

(a) Quality Failure Detection

(b) Quality Function Deployment

(c) Quality Focused Design

(d) Quality Final Document

9. The concept of Zero Defects was introduced by

(a) Juran

(b) Deming

(c) Crosby

(d) Ishikawa

10. Which of the following relates to the cost of quality?

(a) Cost of raw materials

(b) Cost of poor quality

(c) Capital cost

(d) Marketing cost

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the need for quality.

Or

(b) Describe the basic concepts of TQM.

12. (a) Write a short note on customer retention.

Or

(b) Explain motivation and empowerment.

13. (a) Describe the traditional tools of quality.

Or

(b) What is benchmarking? Describe the process.

14. (a) What are the improvement needs in TPM?

Or

(b) Explain the concept of cost of quality.

15. (a) State the benefits of ISO 9000.

Or

(b) Explain the need for quality auditing.

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Define TQM and explain its framework.

Or

(b) Discuss the contributions of Deming, Juran and Crosby.

17. (a) Describe the elements of strategic quality planning.

Or

(b) Explain continuous process improvement with an example.

18. (a) Elaborate on the seven traditional tools of quality.

Or

(b) Explain the stages and types of FMEA.

19. (a) Write detailed notes on QFD.

Or

(b) Explain Taguchi loss function and its significance.

20. (a) What are the key elements of ISO 9000:2000?

Or

(b) Write a case study on TQM implementation in service sector.

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C–8005

Sub. Code
97263B

B.Sc. DEGREE EXAMINATION, APRIL 2026

Sixth Semester

Aviation

PROFESSIONAL ETHICS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Ethics is derived from the Greek word "ethos", which means
   (a) Duty
   (b) Habit or custom
   (c) Law
   (d) Justice
2. Emotional Intelligence includes the following except
   (a) Self-awareness
   (b) Empathy
   (c) Technical skill
   (d) Motivation
3. Utilitarianism is also known as
   (a) Duty-based ethics
   (b) Rights theory
   (c) Consequentialism
   (d) Moral absolutism

4. Deontology is associated with which philosopher?
   (a) John Stuart Mill
   (b) Aristotle
   (c) Immanuel Kant
   (d) John Rawls
5. The DC-10 crash is an example of
   (a) Moral autonomy
   (b) Research misconduct
   (c) Professional failure in engineering ethics
   (d) Legal rights violation
6. Professional codes of ethics serve to
   (a) Enforce rules legally
   (b) Guide ethical behavior
   (c) Replace company policy
   (d) Train engineers technically
7. Research misconduct includes all except
   (a) Fabrication
   (b) Plagiarism
   (c) Typing error
   (d) Falsification
8. The Nuclear Regulatory Commission is abbreviated as
   (a) NRC
   (b) NRT
   (c) NRE
   (d) NCR
9. Intellectual Property Rights do not include
   (a) Patents
   (b) Copyrights
   (c) Trade Secrets
   (d) Job descriptions

10. Ethics in marketing is concerned with

(a) Environmental impact

(b) Misleading advertisements

(c) Brand positioning

(d) Packaging design

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the dimensions of ethics.

Or

(b) Define professional success and relate it with ethics.

12. (a) Compare deontology and utilitarianism.

Or

(b) Write short notes on ethical egoism and virtue theory.

13. (a) Discuss the central responsibilities of engineers.

Or

(b) Explain the 1979 Kansas City Hyatt Regency Walkway Collapse.

14. (a) Explain the US Government's definition of research misconduct.

Or

(b) Differentiate between mistake and misconduct in research.

15. (a) Explain corporate governance and its ethical aspects.

Or

(b) Write a short note on ethics in media.

Part C

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Define professional ethics and explain its scope and significance.

Or

(b) Explain the roles of emotional intelligence and value education in ethics.

17. (a) Write an essay on moral dilemmas and moral autonomy.

Or

(b) Explain feminist consequentialism and moral pluralism.

18. (a) Discuss codes of ethics in the engineering profession.

Or

(b) Describe professional responsibilities with suitable examples.

19. (a) Discuss ethics in research and the importance of responsible authorship.

Or

(b) Explain the procedure to handle organizational complaints.

20. (a) Write an essay on environmental concerns and business ethics.

Or

(b) Explain the role of technology and globalization in professional ethics.

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C–8006

Sub. Code
97263C

B.Sc. DEGREE EXAMINATION, APRIL 2026

Sixth Semester

Aviation

PRINCIPLES OF MANAGEMENT

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Management is a

   (a) Science (b) Art

   (c) Both (a) and (b) (d) None of the above

2. Who is considered both risk taker and innovator?

   (a) Manager (b) Supervisor

   (c) Entrepreneur (d) Leader

3. Which of the following is the first step in the planning process?

   (a) Developing premises

   (b) Evaluating alternatives

   (c) Setting objectives

   (d) Implementing plan

4. Strategic management is mainly concerned with

(a) Day-to-day operations

(b) Short-term targets

(c) Long-term goals and competition

(d) Routine budgeting

5. Formal organization is based on

(a) Personal relationships

(b) Informal interactions

(c) Defined authority structure

(d) Gossip network

6. Delegation of authority means

(a) Sharing responsibility

(b) Avoiding accountability

(c) Handing over entire power

(d) None of the above

7. Which theory explains motivation based on hierarchy of needs?

(a) Herzberg's Theory

(b) McClelland's Theory

(c) Maslow's Theory

(d) Equity Theory

8. Job enrichment aims at

(a) Reducing pay

(b) Adding more tasks

(c) Enhancing job satisfaction

(d) Increasing hierarchy

9. Budgetary control is a type of

(a) Planning (b) Organising

(c) Directing (d) Controlling

10. Direct control is also known as

(a) Preventive control

(b) Corrective control

(c) Feedback control

(d) Real-time control

Part B ($5 \times 5 = 25$)

Answer **all** questions, choosing either (a) or (b).

11. (a) Define management. Explain if it is a science or an art.

Or

(b) Distinguish between Manager and Entrepreneur.

12. (a) Describe the types of planning.

Or

(b) Explain the steps involved in the planning process.

13. (a) What is decentralization? Mention its advantages.

Or

(b) Write a note on HR Planning and its importance.

14. (a) Explain any two motivation theories.

Or

(b) What are the barriers to effective communication?

15. (a) Describe the steps involved in the control process.

Or

(b) Write short notes on direct and preventive control.

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain the evolution of management thought.

Or

(b) Discuss types of business organization in detail.

17. (a) Explain strategic management and its relevance.

Or

(b) Discuss the various planning tools and techniques.

18. (a) Explain departmentalization. Describe its types.

Or

(b) Discuss the structure and significance of formal and informal organizations.

19. (a) What is leadership? Explain different leadership styles.

Or

(b) Define communication. Describe the process and importance of communication in organizations.

20. (a) Describe the role of computers and IT in management control.

Or

(b) Explain budgetary and non-budgetary control techniques.

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