C–5041	Sub. Code 97213

B.Sc. DEGREE EXAMINATION, APRIL 2025

First Semester

Aviation

INTRODUCTION TO AVIATION INDUSTRY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Wind that is blowing perpendicular to the aircraft course.

   (a) Head Wind (b) Tail Wind

   (c) Cross Wind (d) Seasonal Wind

2. Expand ALT

   (a) Airport Layout

   (b) Arrival Time

   (c) Airport Landing Time

   (d) Altitude

3. Factors which NOT affects the aviation industry

   (a) Political Factor (b) Economical Factor

   (c) Population Factor (d) Environmental Factor

4. ———— is NOT an aviation Organisation

   (a) SAARC (b) IATA

   (c) DGCA (d) ICAO

5. Who is the father of Indian Civil Aviation?

(a) Sir C.V. Raman (b) J.R.D. TATA

(c) Dr. Abdul Kalam (d) Aryabhata

6. The first commercial aviation flight in India took place

(a) Mumbai to Karachi

(b) Karachi to Madras

(c) Allahabad to Naini

(d) Kolkata to Naini

7. Airports are mainly divided into ———— and ————

(a) Runway and Taxiway

(b) Landside and Airside

(c) RAMP and Parking

(d) Terminal and Parking

8. The term tarmac refers to the area of an airport where airplanes taxi, or pull up to a gate, or head out to the runway.

(a) TARMAC (b) RUNWAY

(c) RAMP (d) TAXIWAY

9. First airline in India

(a) Air India (b) TATA

(c) Indian Airlines (d) J.R.D

10. According to aviation phonetics U stands for?

(a) Uniform (b) United

(c) Unit (d) Union

Part B (5 × 5 = 25)

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

11. (a) Explain the Competition in Airline Industry.

Or

(b) Furnish the information's about Market potential on Indian Airline Industry in 2024.

12. (a) Describe briefly about the airport operations in detail.

Or

(b) Write short notes about the Airport Planning.

13. (a) Explain the following Terminology in Aviation.

(i) ETA

(ii) RAMP

(iii) UMNR

(iv) BOW

Or

(b) Explain briefly about importance of TC area.

14. (a) Write a brief note on BCAS.

Or

(b) Write a brief note on MoCA.

15. (a) Discuss shortly about FAA.

Or

(b) Write briefly about the Bilateral Agreement.

Part C (5 × 8 = 40)

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

16. (a) Discuss briefly about Global and Ethical environment of aviation.

Or

(b) Describe in detail about the major players in Aviation Industry.

17. (a) Differentiate about the Global scenario and Indian scenario of Airport management.

Or

(b) Narrate the organisation structure of an airport.

18. (a) Define the following terms.

(i) IFR

(ii) RNAV

(iii) Controlled Airspace

(iv) Slot

Or

(b) Explain briefly about the TACT reference.

19. (a) Explain DGCA and its functions.

Or

(b) Describe briefly about the scope of LCC in India.

20. (a) Discuss about the History of India Aviation.

Or

(b) Narrate the Freedom of Air with examples.

———————

C–5042	Sub. Code
	97215

B.Sc. DEGREE EXAMINATION, APRIL 2025

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. If the resistance 3Ω, 5Ω, 7Ω, 9Ω are in series, then their equivalent resistance (Ω) is?
   (a) 9 (b) 20
   (c) 24 (d) 32

2. Ohm's Law formula is ————
   (a) I = V/R (b) V = IR
   (c) R = V/I (d) All are correct

3. Direction of rotation of motor is determined by ————
   (a) Faraday's law (b) Lenz's law
   (c) Coulomb's law (d) Fleming's left-hand rule

4. The commutator in a dc machine can convert
   (a) Dc to ac (b) Ac to dc
   (c) Both (A) and (B) (d) None of these.

5. A semiconductor in its purest form is called
   (a) Insulator
   (b) Superconductor
   (c) Intrinsic semiconductor
   (d) Extrinsic semiconductor

6. A P-type semiconductor results when

(a) Pentavalent impurity is added to an intrinsic semiconductor

(b) Trivalent impurity is added to an intrinsic semiconductor

(c) Either a pentavalent or trivalent impurity is added to an intrinsic semiconductor

(d) None of the above

7. Which of these sets of logic gates are known as universal gates?

(a) XOR, NAND, OR

(b) OR, NOT, XOR

(c) NOR, NAND, XNOR

(d) NOR, NAND

8. What is the addition of the binary number 101001+010011 = ?

(a) 010100 (b) 111100

(c) 000111 (d) 101110

9. The operating principle of a moving iron instrument is based on ————

(a) Electrostatic forces

(b) Electromagnetic induction

(c) Piezoelectric effect

(d) Photoelectric effect

10. Moving iron instruments are commonly used for measuring ————

(a) Power factor (b) Resistance

(c) Capacitance (d) Current

Part B (5 × 5 = 25)

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

11. (a) Explain Ohm's law with neat diagram.

Or

(b) Write short notes about Steady State solution of DC circuits.

12. (a) Explain Single phase Transformer with neat diagrams.

Or

(b) Explain Single phase induction motor with neat diagrams.

13. (a) Explain various characteristics of PN Junction diode.

Or

(b) Explain Zener diode and its characteristics with diagrams.

14. (a) Write notes on full adder circuit.

Or

(b) Explain Various Logic gates with suitable diagrams.

15. (a) Explain briefly about data acquisition.

Or

(b) Explain about energy meter and its applications.

Part C (5 × 8 = 40)

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

16. (a) Define Kirchoff's Voltage Law. With suitable circuit, explain about Mesh analysis with independent source.

Or

(b) Explain in detail about Star connection with neat diagram.

17. (a) Explain in brief about applications of electrical machines in aircraft.

Or

(b) Explain DC Generators and its principle, Diagram, Operation, and Basic Equations.

18. (a) Explain Transistors and its Configurations, BJT and its characteristic are with neat diagrams.

Or

(b) Explain with neat circuit, Full wave rectifier and Half wave rectifier.

19. (a) Describe the reason for NAND and NOR gates are called as Universal gates.

Or

(b) Explain Binary Number systems, Boolean algebra, half and Full adders.

20. (a) Explain any two instrument meters using for measurements with neat diagram.

Or

(b) Explain briefly about Calibration of meters and reason out why it is very important in industries?

———————

C–5043	Sub. Code
	97223

B.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Aviation

BASICS OF AIRCRAFT

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. The advanced aerodynamic will address _____.
   (a) Advanced vehicle concepts
   (b) Flow as noise control
   (c) Advanced design
   (d) All

2. Significant challenges remain in future electric aviation _____.
   (a) Electric motion
   (b) Batteries
   (c) Airframe integration
   (d) All

3. Lighter than air aircraft are _____.
   (a) Balloon (b) Airships
   (c) Blimps (d) All

4. Flight control surfaces are _____.

(a) Aileron (b) Rudder

(c) Elevator (d) All

5. The lowermost layer of the atmosphere is _____.

(a) Troposphere (b) Stratosphere

(c) Ionosphere (d) All

6. The ratio of flow velocity to the speed of sound is called _____.

(a) Altimeter (b) Mach meter

(c) Accelerometer (d) All

7. Piston in reciprocating engine types are _____.

(a) Flat standard (b) Semi spherical

(c) Multi spherical (d) All

8. TSFC is a _____ reverse of

(a) Specific impulse (b) Specific thrust

(c) Specific volume (d) All

9. Aircraft structure important because _____.

(a) Provide strength (b) Rigidity

(c) Performance (d) All

10. Aluminium makeups between _____ of the structure weight of most modern commercial aircraft.

(a) 50-60% (b) 80-90%

(c) 40-50% (d) All

Part B (5 × 5 = 25)

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

11. (a) What is difference between biplane and monoplane?

Or

(b) What are the research topics focus on NASA's effort in aerodynamics?

12. (a) What are the major components of aircraft?

Or

(b) What are aircraft instruments and its significance?

13. (a) Write the significance of troposphere.

Or

(b) Write short note on aerofoil.

14. (a) What are the basic types of jet engine?

Or

(b) Write the working principle of rocket engine.

15. (a) What is empennage and its important?

Or

(b) What are the properties of aluminium alloy?

Part C (5 × 8 = 40)

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

16. (a) What is biplane and its advantages and disadvantages?

Or

(b) List out the benefits of research and technical development in aerodynamics.

17. (a) Discuss about the flight vehicle classification based on the main source of lifting force.

Or

(b) Discuss about the principles and construction details of altimeter.

18. (a) Explain the role of Mach Number in aeronautics.

Or

(b) Discuss about the air foil terminology and how it works.

19. (a) How jet engine works and its five basics of jet engine?

Or

(b) Discuss about the types of rocket engine.

20. (a) Discuss about the role of composites in the aviation.

Or

(b) List out and explain the kinds of material are used to make aircraft.

———————

C–5044

Sub. Code
97225

B.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Aviation

AVIATION PHYSICS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which of the following is a characteristic of matter?

   (a) It has mass and takes up space

   (b) It is weightless and invisible

   (c) It does not interact with energy

   (d) It only exists in solid form

2. What is the unit of power in the International System of Units (SI)?

   (a) Joule

   (b) Watt

   (c) Newton

   (d) Pascal

3. How does a screw convert rotational motion into linear motion?

(a) By using a pulley system

(b) Through its helical threads

(c) By leveraging gears

(d) Through a series of inclined planes

4. What type of gear is used to change the direction of rotational motion by 90 degrees?

(a) Spur gear

(b) Bevel gear

(c) Worm gear

(d) Helical gear

5. What is the acceleration experienced by an object moving in a circular path at constant speed called?

(a) Linear acceleration

(b) Centripetal acceleration

(c) Angular acceleration

(d) Tangential acceleration

6. What is acceleration?

(a) The rate of change of velocity

(b) The rate of change of distance

(c) The rate of change of speed

(d) The rate of change of time

7. Which of the following methods of heat transfer does not require a medium

(a) Conduction

(b) Convection

(c) Radiation

(d) Convection and conduction

8. A material with high thermal conductivity:

(a) Allows heat to pass through easily

(b) Is a poor conductor of heat

(c) Absorbs heat quickly

(d) Does not allow heat transfer

9. What principle explains why objects float or sink in a fluid?

(a) Archimedes' Principle

(b) Bernoulli's Principle

(c) Pascal's Law

(d) Boyle's Law

10. Bernoulli's Principle is used to explain:

(a) How sound waves propagate

(b) How gases behave under pressure

(c) The relationship between temperature and volume of gas

(d) The speed of a fluid affects its pressure

Part B (5 × 5 = 25)

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

11. (a) Discuss the various physical and chemical properties of matter and provide examples.

Or

(b) Explain the relationship between stress and strain.

12. (a) Define mechanical advantage and explain its significance in the operation of simple machines.

Or

(b) Explain the three classes of levers with examples for each type.

13. (a) Define uniform motion and discuss its characteristics and examples.

Or

(b) Define velocity and discuss its significance, including how it differs from speed.

14. (a) Define heat energy and explain its significance in thermodynamics and practical applications. Discuss how it is transferred between objects and the units used to measure it.

Or

(b) Define thermal conductivity and its role in materials science.

15. (a) Explain Buoyancy principle with it's application.

Or

(b) Explain about the doppler effect with it's application.

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

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

16. (a) A steel wire 2 meters long is stretched to 2.005 meters when a load is applied. Calculate the strain in the wire.

Or

(b) Provide an in-depth discussion on power, including its definition, measurement, significance, and examples in practical scenarios.

17. (a) Discuss in detail the mechanics of an inclined plane, including its historical use, mechanical advantage, and modern applications.

Or

(b) Explain about the following

(i) Pulley (4)

(ii) Gear (4)

18. (a) A car starts from rest and accelerates uniformly to a speed of 30 m/s 10 seconds. Calculate the acceleration of the car and the total distance travelled during this time.

Or

(b) Explain about any two newton's law of motion with suitable example.

19. (a) Explain about the types of heat transfer with suitable examples.

Or

(b) A metal rod with a length of 2 meters and a cross-sectional area of 0.01 square meters conducts heat from one end to the other. The temperature difference between the ends of the rod is 50°C, and the thermal conductivity of the metal is 200 W/(m.K). Calculate the rate of heat transfer through the rod.

20. (a) Explain the following:

(i) Boyle's law (4)

(ii) Charle's law (4)

Or

(b) Provide an in-depth analysis of sound as a mechanical wave.

———————

C–5045

Sub. Code
97233

B.Sc. DEGREE EXAMINATION, APRIL 2025

Third Semester

Aviation

AVIATION WEATHER AND METEOROLOGY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Section A (10 × 1 = 10)

Answer **all** questions.

1. Mother of pearl clouds occur in
   (a) Mesosphere
   (b) Thermosphere
   (c) Stratosphere
2. In ICAO-ISA the atmosphere is assumed to be isothermal at
   (a) In stratosphere (b) 11 to 16 km
   (c) 11 to 20 km (d) 11 to 32 km
3. Negative lapse rate of temperature is called
   (a) Isothermal (b) Advection
   (c) Inversion (d) thermocline
4. 200 hPa in ISA corresponds to the height of
   (a) 20,000 ft
   (b) 30,000 ft
   (c) 40,000 ft

5. Sea breeze sets in by ———————— and dies off at ————————

(a) Night; Day

(b) Day; Night

(c) Both Day and Night

6. Warm and moist air moving over a cold surface causes a) Radiation Fog

(a) Radiation Fog

(b) Advection Fog

(c) Frontal Fog

7. Western Disturbance (WDs) approach India as

(a) Cols

(b) Occluded Fronts

(c) Highs

8. The wind speed in a Cyclonic Storm is

(a) < 17 kt

(b) 34 – 47 kt

(c) 17 – 27 kt

9. SIGMET is a notice of severe weather for

(a) actual

(b) expected

(c) actual and expected

10. The number of Regional Met offices of IMD are

(a) 28

(b) 12

(c) 6

Section B (5 × 5 = 25)

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

11. (a) Explain about the Mesosphere.

Or

(b) Explain about the Stratosphere.

12. (a) Explain the characteristics of low-pressure systems, high-pressure systems, troughs, and ridges in the atmosphere.

Or

(b) Explain in detail about Coriolis Effect.

13. (a) Explain the levels of clouds.

Or

(b) Explain about Gusts and Squalls.

14. (a) Describe an Air Mass and its type.

Or

(b) What factors influence the path or track of a typhoon?

15. (a) Write Short notes on

(i) METAR

(ii) TAP

Or

(b) Explain about Synoptic charts.

Section C (5 × 8 = 40)

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

16. (a) Explain about objectives of aviation weather.

Or

(b) Explain about ISOBARS and ISOTACHS with a process.

17. (a) What is the ISA, and how does it model changes in pressure, temperature, density, and viscosity with altitude?

Or

(b) Describe the relationship between pressure gradients, and surface winds. How do they affect wind patterns near the Earth's surface?

18. (a) Explain about turbulence in Weather hazards.

Or

(b) Briefly explain about the Jetstream and micro Burst its operation.

19. (a) Describe the typical movement of Western Disturbances.

Or

(b) Briefly List out the different seasons in India according to the Indian Meteorological Department.

20. (a) Discuss on the meteorology satellite and satellite cloud imageries.

Or

(b) Briefly notes on flight planning in meteorology.

———————

C–5049	Sub. Code 97235

B.Sc. DEGREE EXAMINATION, APRIL 2025

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. The Mooring device consist of ————————

   (a) Mooring unit (b) Anchor

   (c) Connector (d) All

2. Aircraft marshalling signals are ————————

   (a) Fixed wing aircraft hand signals

   (b) FAA hand signal

   (c) Helicopter signals

   (d) All

3. Taxiway is a path for aircraft at an airport connecting runway with ————————

   (a) Aprons (b) Hanger

   (c) Terminals (d) All

4. A clean zone is ————————

(a) An unstructured

(b) Unauthorised

(c) Travelling road side area

(d) All

5. GSE generally involves ————————

(a) Ground power operation

(b) Aircraft mobility

(c) Loading operator

(d) All

6. What pressure is an air start unit ————————

(a) 50 psi (b) 60 psi

(c) 42 psi (d) all

7. Rigging checks are carried out after ————————

(a) Heavy landing (b) Bird strike

(c) Lightning strike (d) All

8. For rigging specification, we require ————————

(a) Type certificate data sheet

(b) Structural repair manual

(c) Manufacturer service information

(d) All

9. Function of landing gear is ————————

(a) Safe take-off and landing

(b) To support the weight of the aircraft

(c) Steering/taxing

(d) All

10. Aircraft tubes not be reused, they can grow as much as ———— in service

(a) 25% (b) 40%

(c) 50% (d) All

Part B (5 × 5 = 25)

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

11. (a) What is jacking in an aircraft and its most important considerations?

Or

(b) List out the most recurrent factors landing to aircraft damage during towing.

12. (a) List out the content of the flight plan and its importance.

Or

(b) Write short note on aircraft rescue and fire fighting.

13. (a) List out the challenges that could arise EGPS units in airport.

Or

(b) Write short note on lavatory service vehicle.

14. (a) List out the types of control cable terminologies and the significance.

Or

(b) Write short note on cable material, construction and its designations.

15. (a) How do you conduct brake system preventive maintenance?

Or

(b) List out the affecting factors of tyre performance.

Part C (5 × 8 = 40)

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

16. (a) List out the important safety procedure for using aircraft jacks.

Or

(b) List out aircraft cleaning checklists.

17. (a) Discuss about the approach/clear zone layout.

Or

(b) List out and explain the services on the aprons.

18. (a) Explain the operation of cranes and lifting devices.

Or

(b) List out and explain the powered equipment used in GSE.

19. (a) Discuss about the checking the rigging of an aircraft.

Or

(b) Discuss about the duplicate inspection of control system.

20. (a) Write the description of aircraft wheel brake dragging.

Or

(b) Discuss about the tire handling and preparation for service of mounting tubeless tyre and mounting tube type tire.

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C–5050

Sub. Code
97236

B.Sc. DEGREE EXAMINATION, APRIL 2025

Third Semester

Aviation

BASIC MATHEMATICS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A $(10 \times 1 = 10)$

Answer **all** questions.

1. For the expansion of $(2x-3)^4$ using the binomial theorem, the coefficient of x^2 is:

   (a) 36 (b) 48

   (c) 72 (d) 24

2. Which method is used to decompose the rational function $\frac{(2x+3)}{(x-1)(x+2)}$ into partial fractions?

   (a) Direct substitution

   (b) Polynomial long division

   (c) Partial fraction decomposition

   (d) Matrix inversion

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

   (a) 5 (b) 7

   (c) $\sqrt{7}$ (d) 1

4. What is the expansion of $\cos(2\theta)$ in terms of $\cos(\theta)$ and $\sin(\theta)$.

(a) $Cos^2(\theta) - \sin^2(\theta)$ (b) $2\cos^2(\theta) - 1$

(c) $1 - 2\sin^2(\theta)$ (d) All of the above

5. The second derivative of the function $f(x) = 3x^2 + 2x + 1$ is:

(a) $6x + 2$ (b) 6

(c) $3x$ (d) 2

6. The partial derivative of $f(x, y) = x^2 y + y^3$ with respect to x is:

(a) $2xy + 3y^2$ (b) $x^2 + 3y^2$

(c) $2xy$ (d) $3y^2$

7. Which substitution method is commonly used to simplify the integral $\int \frac{1}{x^2 + 4} dx$?

(a) $x = \tan(u)$ (b) $x = 2\tan(u)$

(c) $x = 2\sin(u)$ (d) $x = \frac{1}{u}$

8. The integral $\int x\sqrt{x^2 + 1}\, dx$ can be solved by which method?

(a) Substitution $u = x^2 + 1$

(b) Integration by parts

(c) Trigonometric substitution

(d) Partial fractions

9. For the differential equation $dy/dx = y/x$, which method can be used to solve it?

(a) Exact method

(b) Separation of variables

(c) Integration factor

(d) Homogeneous function

10. What is the general form of Clairaut's equation?

(a) $\frac{dy}{dx} = f(x, y)$ (b) $y = px + f(p)$

(c) $\frac{dy}{dx} = x + y$ (d) $\frac{d^2y}{dx} = f(x, y)$

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

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

11. (a) How do you resolve $\frac{2x + 3}{(x - 1)(x + 2)}$ into partial fractions?

Or

(b) Write the binomial series expansion for $(1 + x)^{\frac{1}{2}}$.

12. (a) Find the real and imaginary parts of $\cot(x+iy)$.

Or

(b) Prove that $\tan^{-1} y = \frac{1}{2}\log\left(\frac{1+y}{1-y}\right)$.

13. (a) Find the n^{th} derivative of $x^2 \log x$.

Or

(b) If $x^y + y^x = c$. Find $\frac{dy}{dx}$.

14. (a) Evaluate $\int e^{2x} \cos 2x \, dx$.

Or

(b) Evaluate the integral $\int \frac{x^2+2x+1}{x^3+2x^2} \, dx$.

15. (a) What is Clairaut's equation? Provide its general form.

Or

(b) How can you determine if a differential equation is of higher degree? Give an example of a higher-degree differential equation.

Part C (5 × 8 = 40)

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

16. (a) Expand $(2x-3)^4$ using the Binomial Theorem.

Or

(b) Resolve the following rational function into partial fractions: $\frac{x^3+2x^2+3x+4}{(x^2+1)(x-1)}$.

17. (a) State De Moivre's theorem and explain its significance.

Or

(b) Prove that

$$\frac{\sin 7\theta}{\sin\theta} = 64\cos^6\theta - 80\cos^4\theta + 24\cos^2\theta - 1 .$$

18. (a) Finding the first four derivatives of the function $f(x) = e^{2x}$.

Or

(b) Explain what a homogeneous function is. Determine if the function $f(x,y) = x^3 + 2xy^2$ is homogeneous and, if so, find its degree.

19. (a) Explain the method of substitution in integration. Use it to evaluate the integral $\int (3x^2+2x)e^{x^2+x^2}\,dx$.

Or

(b) Evaluate $\int_0^a \int_{\frac{x^2}{a}}^{2a-x} xy\,dx dy$.

20. (a) Solve the differential equation $\frac{dy}{dx} = \frac{x^2 + y^2}{xy}$.

Or

(b) Discuss the method for solving a first-order differential equation of the form $dx/dy = p(x, y)$, and solve the differential equation $\frac{dy}{dx} = \frac{x + y}{x - y}$.

———————

C–5051

Sub. Code
97243

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fourth Semester

Aviation

INDUSTRIAL DRAWING PRACTICES

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Section A $(10 \times 1 = 10)$

Answer **all** questions.

1. How is a straight line that is inclined to both reference planes represented in orthographic projection?

   (a) By projecting the line onto the horizontal and vertical planes

   (b) By drawing it in a perspective view

   (c) By using an isometric projection

   (d) By showing it in a sectional view

2. What is a key feature of orthographic projection when depicting points?

   (a) Each point is projected onto principal planes to show its true position

   (b) Each point is shown in perspective view

   (c) Each point is represented in an exploded view

   (d) Each point is drawn with hidden lines only

3. A square pyramid has its axis inclined to both the HP and VP. What is the shape of its base in the top view?

(a) Square (b) Trapezoid

(c) Parallelogram (d) Rectangle

4. In the top view, what shape is observed when a cylinder is placed with its base on the HP?

(a) Rectangle (b) Circle

(c) Ellipse (d) Square

5. What shape is obtained when a cone with a vertical axis is cut by a plane parallel to its base?

(a) Circle (b) Ellipse

(c) Parabola (d) Hyperbola

6. The true shape of the section of a hexagonal prism cut by a plane parallel to its base is:

(a) Rectangle (b) Hexagon

(c) Trapezoid (d) Parallelogram

7. In an isometric view, how does a hemisphere appear?

(a) Half-sphere

(b) Semi-ellipse

(c) Semi-circle and an ellipse

(d) Semi-circle and a rectangle

8. How does a combination of a sphere placed on top of a frustum of a cone appear in an isometric projection?

(a) Circle and Ellipse

(b) Ellipse and Rectangle

(c) Ellipse and Ellipse

(d) Circle and Parallelogram

9. In a perspective projection of a pentagonal prism with its axis perpendicular to the ground plane, how does the top face appear?

(a) Pentagon (b) Rectangle

(c) Trapezoid (d) Hexagon

10. In a perspective projection of a hexagonal pyramid with its axis perpendicular to the picture plane, what shape does the front face appear as?

(a) Hexagon (b) Rectangle

(c) Trapezoid (d) Triangle

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

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

11. (a) Draw the projection of the following points:

(i) A point P is 20 mm above HP and 25 mm Infront of VP. (1)

(ii) A point Q is 20 mm below HP and 15 mm behind VP. (2)

(iii) A point R is 30 mm below HP and 20 mm behind the VP. (2)

Or

(b) One end S of a line SR 70 mm long is in both the HP and VP. The line is inclined at 40° to HP and at 35° to VP. Draw its projections.

12. (a) Draw the projection of a cube of base side 40 mm resting on the HP with one of its base edges and 10 mm Infront of VP.

Or

(b) A cube of 50 mm long edges is so placed on HP on one corner that a body diagonal is Parallel to HP and perpendicular to VP. Draw it's projections.

13. (a) How will you draw the true shape of the section of square pyramid with axis in vertical position and cut by a section plane above base?

Or

(b) How will you draw the true shape of the section of Cylinder with axis in vertical position and cut by a section plane above base.

14. (a) What procedure will you follow to draw the isometric projection of a rectangular prism?

Or

(b) What procedure will you follow draw the isometric projection of a cone?

15. (a) How will you convert the pictorial view into orthographic view.

Or

(b) What procedure will follow for drawing of perspective projection of triangular pyramid prism with axis perpendicular to the ground plane?

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

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

16. (a) A straight-line EF has its end E 30 mm above the HP and 40 mm behind the VP. The other end F is 70 mm below the HP and 60 mm in front of the VP. Find the true length and mark its traces.

Or

(b) How will you find the true length of the line which is inclined to HP and VP?

17. (a) Draw the projections of a cylinder 75 mm diameter and 100 mm long, lying on the HP with its axis inclined at 30° to the VP and Parallel to the HP.

Or

(b) What procedure will you follow to draw the triangular prism with its axis resting on HP and base edge perpendicular to VP?

18. (a) A pentagonal prism, base 28 mm side and height 65 mm has an edge of its base on the H.P. and the axis parallel to the V.P. and inclined at 60° to the H.P. A section plane, having its H. T. perpendicular to *xy*, and the V. T. inclined at 60° to *xy* and passing through the highest corner, cuts the prism. Draw the sectional top view and true shape of the section

Or

(b) How will you draw the top view of a pentagonal pyramid base horizontal and edge of the base parallel to the VP and horizontal section plane cuts it above the base.

19. (a) A cone of base Dia 40 mm and axis length 50 mm is mounted centrally on the top of square slab of side 60 mm and thickness 15 mm. Explain the procedure to draw the isometric projection of solids.

Or

(b) Draw the isometric view of a cylinder of base 50 mm dia and 70 mm height when its rests with its base on HP.

20. (a) A square pyramid of the base 20 mm and altitude 40 mm rests on its base on the ground such that one of its base sides is parallel to the picture and 10 mm in front of it. The station is 50 mm in front of the picture plane, 25 mm to the left of the axis of the pyramid and 55 mm above the ground. Draw the perspective view of the pyramid.

Or

(b) A cube of side 25 mm rests one end of its faces on the ground the nearest vertical edge being 20 mm behind the picture plane and 40 mm to the left of the station point. A face containing the nearest vertical edge is inclined at 60° to the PP. The station point is 40 mm above the ground and 60 mm in front of the PP. Draw the perspective view of the cube.

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C–5052	Sub. Code
	97245

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fourth Semester

Aviation

AVIATION COMMUNICATION AND RADIO AIDS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A $(10 \times 1 = 10)$

Answer **all** questions.

1. What is the relationship between frequency and wavelength in radio wave?

   (a) They are inversely proportional

   (b) They are directly proportional

   (c) They are not related

   (d) They are equal

2. What type of radio transmission involves varying the frequency of the carrier wave?

   (a) Amplitude Modulation (AM)

   (b) Frequency Modulation (FM)

   (c) Phase Modulation (PM)

   (d) Continuous Wave (CW)

3. Which radio aid measures the distance between the aircraft and the ground?

   (a) ADF (b) VHF

   (c) Radio altimeter (d) GPS

4. What is fading in radio communication?

(a) The complete loss of signal

(b) Variation in signal strength due to atmospheric conditions

(c) Increase in signal strength

(d) Constant signal strength

5. How does the frequency of radio waves affect their range?

(a) Higher frequencies generally have longer ranges

(b) Higher frequencies generally have shorter ranges

(c) Frequency does not affect the range

(d) Lower frequencies have shorter ranges

6. What is the purpose of SELCAL (selective Calling)?

(a) To automatically notify aircraft of incoming radio communications.

(b) To manually select communication channels

(c) To enhance the quality of voice communications

(d) To provide real-time weather updates

7. When a pilot receives the instruction “Line up and wait" what should they do?

(a) Begin takeoff roll immediately

(b) Stop at the holding point

(c) Taxi onto the runway and wait for further clearance

(d) Contact ground control for further instructions.

8. Which transponder code indicates a communication failure?

(a) 7500 (b) 7600

(c) 7700 (d) 7000

9. Which bearing type is measured clockwise from true north?

(a) True bearing (b) Magnetic bearing

(c) Relative bearing (d) Grid bearing

10. What is a primary advantage of INS?

(a) It requires external signals for navigation

(b) It provides continuous navigation data with out external inputs

(c) It relies on ground-based navigational aids

(d) It is only used for landing procedures

Part B (5 × 5 = 25)

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

11. (a) Explain about general Properties of Radio Waves.

Or

(b) Explain about Polarization.

12. (a) write an uses and limitation of OMEGA and GPS?

Or

(b) Explain in detail about Multi-Hope refraction.

13. (a) Explain about HF Radio Waves.

Or

(b) Describe the factors affecting Range of Communication.

14. (a) Write short notes on take-off procedure of ATC.

Or

(b) Explain the Distress Communication Procedure during Emergency.

15. (a) Explain the working operation GDF.

Or

(b) Discuss about the TCAS.

Part C (5 × 8 = 40)

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

16. (a) Explain the types of radio transmission.

Or

(b) Explain about

(i) Polar diagram

(ii) Polarization.

17. (a) Explain about Attenuation of Radio Waves.

Or

(b) Explain in detail about critical angle.

18. (a) Write short note on UNICOM and SATCOM.

Or

(b) Explain the general principle of VSI and Machmeter.

19. (a) Explain about the communication procedure between en-route aircraft and ATC.

Or

(b) Explain briefly procedure of when the aircraft lost.

20. (a) Explain the working of DME system.

Or

(b) Explain the classification of bearings.

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C–5053	Sub. Code 97246

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fourth Semester

Aviation

PHYSICAL AND HEALTH EDUCATION

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. How do state-level health organizations contribute to health education?

   (a) Setting global health standards

   (b) Tailoring health education programs to local needs and condition

   (c) Conducting international health conferences

   (d) Managing global health crises

2. What is a major aim of health education?

   (a) To increase healthcare costs

   (b) To improve public health and prevent disease through education

   (c) To limit access to health information

   (d) To focus solely on individual treatments

3. What is a key component of performance-related fitness?

(a) Speed

(b) Muscular endurance

(c) Flexibility

(d) Cardiovascular endurance

4. Which of the following is a basic type of emotion?

(a) Endurance (b) Agility

(c) Flexibility (d) Happiness

5. What is a common cause of communicable diseases?

(a) Pathogens such as bacteria, viruses and parasites

(b) Environmental pollutants

(c) Genetic mutations

(d) Physical injuries

6. Which types of cancer are commonly associated with tobacco use?

(a) Lung cancer and oral cancers

(b) Skin cancer and breast cancer

(c) Prostate cancer and ovarian cancer

(d) Liver cancer and pancreatic cancer

7. Which food group is known for its high protein content?

(a) Vegetables

(b) Fruits

(c) Legumes and lean meats

(d) Dairy products

8. What type of fat is considered the healthiest?

(a) Unsaturated fats

(b) Trans fats

(c) Saturated fats

(d) Hydrogenated fats

9. Which type of burn affects only the outer layer of skin?

(a) First-degree burn

(b) Second-degree burn

(c) Third-degree burn

(d) Electrical burn

10. What is an appropriate first aid measure for dry burns and scalds?

(a) Break any blisters that form

(b) Apply ice directly to the burn

(c) Cover the burn with cotton wool

(d) Cool the burn with running water

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

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

11. (a) Analyze the role of the World Health Organization (WHO) in global health education efforts.

Or

(b) Examine the impact of health education on public health in developing countries.

12. (a) Describe different types of emotions and their impact on behavior and health.

Or

(b) Explain the role of exercise in weight control and the factors that contribute to successful weight management.

13. (a) Explain the different modes of spread for communicable diseases and provide examples of how they are transmitted.

Or

(b) Discuss the prevention strategies for AIDS, including safe practices, education, and public health initiatives.

14. (a) Explain why water is essential for health and the functions it supports in the body.

Or

(b) Explain the importance of dietary fats and their functions in the body.

15. (a) Discuss the symptoms of heatstroke and the essential first aid steps to treat it.

Or

(b) Outline the key principles of first aid and their significance in emergency situations.

Part C (5 × 8 = 40)

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

16. (a) Analyse various strategies employed in health education, including community-based approaches, public campaigns, and educational programs, and their effectiveness.

Or

(b) Discuss the broad scope of health education including its various dimensions such as disease prevention, health promotion, and lifestyle modification.

17. (a) Discuss the components of performance-related fitness and how they differ from health-related fitness components.

Or

(b) Explore the concept of physical health in detail, including its definition, importance, and impact on overall well-being.

18. (a) Discuss the prevention of chickenpox, including vaccination programs, public health policies, and the impact on disease prevalence.

Or

(b) Analyze the prevention methods for malaria.

19. (a) Explore the role of vitamins and minerals in health, their dietary sources, recommended intake and the effects of deficiencies and excesses.

Or

(b) Provide a detailed analysis of proteins, including their types, dietary sources, and their importance for growth, repair and overall health.

20. (a) Discuss the detailed process of CPR, including when and how to perform it and its role in saving lives during cardiac emergencies.

Or

(b) Discuss in detail the first aid treatment for dry burns and scalds, including cooling techniques, pain management and when to seek professional medical help.

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C–5062	Sub. Code
	97251

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fifth Semester

Aviation

PUBLIC RELATIONSHIP IN THE AVIATION INDUSTRY

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define market segmentation.
2. Define strategy.
3. What is product positioning?
4. What do you mean by the term 'Hospitality'?
5. What is Audio - Visual Media?
6. Define public relationship.
7. What is crisis management?
8. Write down the four steps in public relation process.
9. Define prioritization.
10. What is persuasion?

Part B (5 × 5 = 25)

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

11. (a) What do you mean by relationship marketing? Discuss.

Or

(b) What is pricing? How a service company set their prices?

12. (a) Write brief note on passenger and goods travel.

Or

(b) What do you mean by dimension of service quality?

13. (a) What are the essentials of public relation in aviation?

Or

(b) Discuss the Do's and Don'ts in media handling.

14. (a) Explain the role of PR during crisis.

Or

(b) What do you mean by scenario planning?

15. (a) What are the six steps for a successful PR?

Or

(b) Describe the objectives of public relations.

Part C (3 × 10 = 30)

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

16. (a) Describe the procedure for developing and overall marketing plan.

Or

(b) Discuss the steps required to be taken to reach a decision about positioning.

17. (a) Explain the issues in public relation.

Or

(b) Discuss the smart ways to approach to crisis situation.

18. (a) What do you mean by hospitality? Discuss the scope of the hospitality industry?

Or

(b) Explain choices of communication used in PR.

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C–5063	Sub. Code
	97252

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fifth Semester

Aviation

AIRCRAFT SYSTEMS AND INSTRUMENTS

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** the questions.

1. What is the purpose of booster cylinder in brake system?

2. What is the function of silica gel in pneumatic system?

3. Write the basic components of auto pilot system?

4. State the basic principle of fly-by-wire system?

5. State the venturi principle?

6. How does the air starter work?

7. Define ACM.

8. List out the types of fires in aircraft.

9. What are the applications of pitot-static tube in aircraft instruments?

10. Write the basic principles of electrical tachometer.

Part B (5 × 5 = 25)

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

11. (a) Write short note on Low pressure brake system.

Or

(b) What is the purpose of accumulators and its types?

12. (a) What do you understand the engine control system?

Or

(b) Explain the typical push pull rod system with neat sketch.

13. (a) Write short note on Wet sump lubrication system in piston engine.

Or

(b) Write the basic properties of aviation fuel.

14. (a) Explain the vapour cycle air cycle machine.

Or

(b) Write the note on diluter demand oxygen system.

15. (a) What is altimeter and its various types?

Or

(b) Write short note on colour markings on air speed indicator.

Part C (3 × 10 = 30)

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

16. (a) List out and explain the flow controlling devices used in hydraulic system.

Or

(b) Briefly explain the typical pneumatic system of small executive aircraft.

17. (a) Explain the autopilot system with block diagram.

Or

(b) Briefly explain the Simple fuel system used in charter aircraft.

18. (a) List out and explain the thermal de-icing system employed in aircraft.

Or

(b) List out gyroscopic instruments and explain any one of the instrument in detail.

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C–5064

Sub. Code
97253

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fifth Semester

Aviation

AVIATION SECURITY AND SAFETY

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Section A $(10 \times 2 = 20)$

Answer **all** questions.

1. What do you mean by Aviation Security?
2. Expand CISF.
3. What is a Sterile Area?
4. What is the limit on hold baggage?
5. What are the security measures taken during Boarding?
6. Mention about International Law issues in aviation.
7. What is Passenger Screening?
8. What is Baggage Screening?
9. What are the contingency plans for Bomb Threats?
10. What are the types of Airport Emergencies?

Section B (5 × 5 = 25)

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

11. (a) What is the difference of security measures followed by FAA and Ministry of Civil Aviation?

Or

(b) What is the organizational structure of the Indian Aviation Security?

12. (a) What are the security measures for Air Cargo? Explain.

Or

(b) What is process involved in managing Bomb Threats?

13. (a) Explain about IED and IBD in detail.

Or

(b) Detail on the airport enforcement authority.

14. (a) Explain about the hostage negotiation.

Or

(b) Detail on the security equipment in aviation.

15. (a) Explain about Bomb Threat Assessment Committee.

Or

(b) Explain about Hijacking situation Management.

Section C (3 × 10 = 30)

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

16. (a) Explain about the difference of security measures followed by FAA and Ministry of Civil Aviation in detail.

Or

(b) Explain in detail about the bomb threat analysis.

17. (a) Explain about various Security Handling Methods.

Or

(b) Explain about the different explosive devices which act as threats at Airports.

18. (a) Write short notes on

(i) Response time for Bomb Threats.

(ii) Evaluation of call for Bomb Threats.

Or

(b) Explain about Weapon and Prisoner Handling procedures at Airports before boarding.

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C–5065	Sub. Code
	97254

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fifth Semester

Aviation

RADIO AIDS AND INSTRUMENTS

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is radio wave?

2. Define modulation.

3. Define Dead Space.

4. What are Surface Waves?

5. What frequency range is utilized for VHF communication system?

6. Of what value is the ionosphere in radio communication?

7. What function does a radar altimeter perform?

8. What is the purpose of marker beacon system?

9. What device serves as the indicator for a radar system?

10. Why a waveguide system is required in a radar R-T unit?

Part B (5 × 5 = 25)

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

11. (a) Explain the various types of modulation.

Or

(b) Explain the electromagnetic waves with radiation diagram.

12. (a) Describe about the Fading.

Or

(b) Discuss about the Refraction.

13. (a) Explain the operation of Very Low Frequency.

Or

(b) Describe a typical UHF communication transceiver used in light aircraft.

14. (a) Explain the MLS with necessary diagram.

Or

(b) Describe a course deviation indicator.

15. (a) Describe the principle of analog radar system.

Or

(b) Explain the weather radar.

Part C (3 × 10 = 30)

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

16. (a) Explain with block diagram of super heterodyne receiver.

Or

(b) Explain in details about Distance Measuring Equipment.

17. (a) Explain the theory of operation of ADF.

Or

(b) Describe the clear function of the weather mapping system display with example.

18. (a) Describe the procedure for testing a communication radio for light aircraft.

Or

(b) Explain the airport surveillance radar.

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C–5066	Sub. Code 97255

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fifth Semester

Aviation

TOTAL QUALITY MANAGEMENT

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define TQM.

2. Draw the Juran's three-role model

3. What do you mean by the term Strategic Planning?

4. What are the objectives of 5S housekeeping?

5. When do you use the check sheets?

6. What are the five phases in six sigma process?

7. List out the potential benefits of implementing Quality circles.

8. Difference between Taguchi's approach and traditional approach.

9. Name the ISO 9000 series of standards.

10. What are the benefits of EMS?

Part B (5 × 5 = 25)

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

11. (a) Write a note on the evolution of TQM from inspection to business excellence.

Or

(b) Why is Deming known as the quality guru who never gave up? Explain his contributions.

12. (a) Explain the concept of Customer process improvement and the various techniques to sustain continuous improvement.

Or

(b) Enumerate the various stages in supplier selection and evaluation.

13. (a) Explain with an example how is a Matrix diagram used.

Or

(b) Write the step by step procedure for implementing FMEA of a product.

14. (a) Discuss in detail how the voice of customer is transformed into technical and functional requirements by QFD.

Or

(b) What are the goals of TPM and the six losses in TPM.

15. (a) Discuss ISO 14000 requirements and its benefits.

Or

(b) Discuss the various element of ISO 9000:2000 quality system.

Part C (3 × 10 = 30)

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

16. (a) What is service quality? Discuss any eight dimension in detail.

Or

(b) Explain the issues related to customer's complaints and retention.

17. (a) Discuss the reason for benchmarking and state the advantages and limitations.

Or

(b) List and explain the various measures performance in evaluating the success of an organisation.

18. (a) Explain the contribution of Philip Crossby.

Or

(b) Explain the key challenges faced during the implementation of Total Quality Management (TQM) in the service sector.

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C–5067

Sub. Code
97261

B.Sc. DEGREE EXAMINATION, APRIL 2025

Sixth Semester

Aviation

FLIGHT OPERATION

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is the object of flight planning?
2. What is meant by break?
3. What is cabin data?
4. What is RNAV?
5. What is the role of flight dispatches in flight operations?
6. Explain about consecutive night flying.
7. What is competency check?
8. What are flight crew standards?
9. What is the length and wingspan of B737-800?
10. What is meant by split duty?

Part B (5 × 5 = 25)

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

11. (a) Write short notes on performance characteristics of an aircraft.

Or

(b) Explain in detail about consecutive night flying.

12. (a) Explain about Fuel Plan and its calculations.

Or

(b) What are the Aircraft Operational Procedure followed in Indian Civil Aviation?

13. (a) Explain aircraft operational procedure in Indian Civil Aviation.

Or

(b) Explain about Landing Permissions.

14. (a) Brief about the crew salary structure.

Or

(b) Explain about Operational Limitations.

15. (a) Discuss about coded ICAO flight plan.

Or

(b) What are alternate code Flight Paths?

Part C (3 × 10 = 30)

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

16. (a) Explain about Consecutive Night Flying and what are the permissions needed for over fly in detail.

Or

(b) Explain advanced flight operation knowledge.

17. (a) Explain revenue and yield management in flight operations.

Or

(b) Explain about the role and functions of a Flight Dispatcher in detail.

18. (a) Explain the flight crew standards in flight operations.

Or

(b) Discuss about Cessna aircraft various specifications.

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C–5068	Sub. Code 97262

B.Sc. DEGREE EXAMINATION, APRIL 2025.

Sixth Semester

Aviation

PRINCIPLES OF ROTORCRAFT

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What distinguishes a helicopter from fixed-wing aircraft?

2. What is the purpose of the tail rotor on a helicopter?

3. What is the Vortex Ring State in helicopter flight?

4. Define Blade Stall in helicopter aerodynamics.

5. What are the different types of power plants used in helicopters?

6. Discuss the concept of Gross Weight in relation to a jet helicopter.

7. Explain the difference between stability and control in airplane and helicopter flight.

8. Describe stick-fixed longitudinal dynamic stability in helicopter flight.

9. Explain the phenomenon of vibrations in helicopter rotors.

10. Discuss the properties of vibrating systems in helicopter rotors.

Part B (5 × 5 = 25)

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

11. (a) Explain the basic features of a helicopter as an aircraft.

Or

(b) Describe the layout of a typical helicopter and the function of each major component.

12. (a) Describe the aerodynamic characteristics of an airfoil in forward flight and how they differ from those in hovering.

Or

(b) Explain the concept of the Vortex Ring State (VRS) and its impact on helicopter flight.

13. (a) Compare and contrast piston engines and gas turbines as powerplants for helicopters.

Or

(b) Explain the ramjet principle and its application in helicopter engines.

14. (a) Describe the physical effects of disturbances on helicopter stability and control.

Or

(b) Explain stick-fixed longitudinal dynamic stability in helicopters and factors that influence it.

15. (a) Explain the motion of rigid blades in a helicopter rotor and how it contributes to vibration.

Or

(b) Discuss the flapping motion of rotor blades and its effects on vibration.

Part C (3 × 10 = 30)

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

16. (a) Discuss the basic features of a helicopter as an aircraft and how they differ from fixed-wing aircraft.

Or

(b) Explain the concept of the Vortex Ring State (VRS) and its impact on helicopter light, including methods to avoid or recover from it.

17. (a) Explain the ramjet principle and its application in helicopter engines, including how it affects the performance and efficiency of the aircraft.

Or

(b) Explain stick-fixed longitudinal dynamic stability in helicopters and factors that influence it, including how it affects overall flight stability.

18. (a) Explain the motion of rigid blades in a helicopter rotor and how it contributes to vibration, including methods to reduce blade vibration.

Or

(b) Discuss the calculation of horsepower required for helicopter flight and how it varies with different flight conditions, including methods to optimize power requirements.

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C–5069

Sub. Code
97263

B.Sc. DEGREE EXAMINATION, APRIL 2025

Sixth Semester

Aviation

PERSONALITY DEVELOPMENT

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** questions.

1. Briefly discuss how a positive outlook can influence one's mental health.

2. Explain the importance of self-awareness in emotional intelligence.

3. Describe the importance of emotional competency in interpersonal relationships.

4. List any two basic methods to improve creativity.

5. Define the term 'time management' and discuss its importance in personal productivity and achievement.

6. What are time wasters and how do they impact personal productivity?

7. Explain the importance of Thank you letters after an interview.

8. Give example of an illegal questions during an interview.

9. What is the purpose of a group discussion?

10. How does personal appearance impact one's ability to make a positive impression during a job interview and influence hiring decisions?

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

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

11. (a) Explain role of listening in communication with the help of an example.

Or

(b) Write short notes on various communication skills.

12. (a) Explain the importance of personal goal setting in achieving success and fulfillment in life.

Or

(b) Explain the methods used for measuring emotional competency in individuals.

13. (a) Write short notes on types of leadership styles.

Or

(b) Explain how the seven rules of motivation can be applied to enhance performance and productivity in both individual and organizational contexts, providing examples to illustrate each rule's practical implementation.

14. (a) How do the five steps to effective interview preparation contribute to enhancing candidates' performance and success in job interviews, providing specific examples of each step's implementation?

Or

(b) Explain about the three steps for effective follow up after an interview.

15. (a) Explain about attire and professionalism required for landing the job.

Or

(b) Write short notes on soft skills required for a job.

Part C $(3 \times 10 = 30)$

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

16. (a) Explain about the various stages of listening process.

Or

(b) Discuss about the various barriers of communication.

17. (a) Describe about the ten blocks that affects creativity.

Or

(b) Discuss about top ten Leadership Qualities.

18. (a) Explain about the seven steps to success at the interview.

Or

(b) Describe about ten rules of Interviewing.

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