C–4450	Sub. Code 11823

B.Sc. (Aeronautical Science) DEGREE EXAMINATION, APRIL 2025.

Second Semester

AIRCRAFT BASICS ELECTRICITY AND ELECTRONICS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. Which among the following is a current controlled device?

   (a) MOSFET (b) BJT

   (c) JFET (d) IGBT

2. Amongst which of the following is the unit for electrical resistance?

   (a) Joule (b) Coulomb

   (c) Ohms (d) Watt

3. The capacity of a lead acid cell depends on.

   (a) Amperes (b) Ampere-hours

   (c) Watts (d) Watt-hours

4. Which electrolyte is used in Lead-Acid cells?

   (a) Concentrated H_2SO_4

   (b) Diluted H_2SO_4

   (c) NaOH

   (d) All the above

5. D.C generator works on the principle of.

(a) Lenz's law

(b) Ohm's law

(c) Faraday's law of electromagnetic inducation

(d) None of the above

6. If the speed of a D.C. shunt, motor is increased, the back e.m.f of the motor will

(a) Increase (b) decrease

(c) remain same (d) become zero

7. Voltage regulators keep a constant _____output voltage when the input or load varies within limits.

(a) DC (b) AC

(c) Ripple (d) Zero

8. A line which connects a distributor to substation is called _____.

(a) Distributor (b) Feeder

(c) Line (d) Service main

9. Where is the red position light mounted?

(a) On the right wing tip

(b) On top of the vertical stabilizer

(c) On the left wing tip

(d) On the fuselage tail cone

10. When are taxi lights used?

(a) White taxiing

(b) While landing

(c) During towing

(d) Both (a) and (c) are correct

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

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

11. (a) Write the operation of transistor and configuration.

Or

(b) Why are circuit protection devices incorporated in aircraft electrical system?

12. (a) Describe the working of the lead acid battery.

Or

(b) Write a short note on battery charging.

13. (a) Write a short note on AC generator.

Or

(b) Explain starter generator.

14. (a) Explain briefly about split parallel system.

Or

(b) Write a short note on SMPS.

15. (a) What are the different light that present in aircraft? List their uses.

Or

(b) Explain the Starter circuit.

Section C (5 × 8 = 40)

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

16. (a) Write in detail about CRO and its function.

Or

(b) What is FET describe its construction and characteristics with neat diagram?

17. (a) Describe the theory of nickel cadmium battery.

Or

(b) Write about Maintenance of batteries.

18. (a) Write in detail different types of DC motor with block diagram.

Or

(b) Explain high power brushless alternators.

19. (a) How the half wave and full wave rectifier works? Explain with neat diagrams.

Or

(b) Explain the operation of voltage regulator.

20. (a) Explain about turbine engine auto ignition circuit.

Or

(b) Explain the landing gear actuation and indicating circuit with neat diagram.

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C–4451

Sub. Code
11825

B.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Aeronautical Science

APPLIED MECHANICS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. A framed structure is perfect, if the number of members are . . . . $(2j - 3)$, where j is the number of joints.

   (a) Less Than

   (b) Equal To

   (c) Greater Than

   (d) Either (a) or (c)

2. The velocity ratio of a single purchase crab winch can be increased by

   (a) Increasing the length of the handle

   (b) Increasing the radius of the load drum

   (c) Increasing the number of teeth on the pinion

   (d) All of the above

3. In order to determine the effects of a force acting on a body, we must know

   (a) Its magnitude and direction of the line along which it acts.

   (b) Its nature (whether push or pull).

   (c) Point through which it acts on the body.

   (d) All of the above

4. A couple consists of

   (a) Two like parallel forces of same magnitude.

   (b) Two like parallel forces of different magnitudes.

   (c) Two unlike parallel forces of same magnitude.

   (d) Two unlike parallel forces of different magnitudes.

5. The centre of gravity of the section lies at

   (a) Centre of a disc

   (b) Centre of the hole

   (c) Somewhere in the disc

   (d) Somewhere in the hole

6. The moment of inertia of a triangular section of base (b) and height (h) about an axis passing through its vertex and parallel to the base is ... as that passing through its C.G. and parallel to the base.

   (a) Twelve times (b) Nine times

   (c) Six times (d) Four times

7. The force of friction always acts in a direction opposite to that

   (a) In which the body tenth to move

   (b) In which the body is moving

   (c) Both (a) and (b)

   (d) None of the two

8. If a force acts on a body, it sets up some resistance to the deformation. This resistance known as

(a) Stress (b) Strain

(c) Elasticity (d) Modulus of elasticity

9. The ratio of lateral strain to the linear strain is called

(a) Modulus of elasticity

(b) Modulus of rigidity

(c) Bulk modulus

(d) Poisson's ratio

10. When a solid shaft is subjected to torsion, the shear stress induced in the shaft at it centre is

(a) Zero (b) Minimum

(c) Maximum (d) Average

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

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

11. (a) Write a short note on parallelogram law of forces.

Or

(b) Explain the principle of virtual work.

12. (a) Explain about D'Alembert's Principle and momentum impulse.

Or

(b) Five forces are acting on a particle. The magnitude of the forces are 300N, 600N. 700N, 900N and P and their respective angles with the horizontal are 0°, 60°, 135°, 210°, 270°. If the vertical component of all the forces is 1000N. Find the value of P. Also calculate the magnitude and direction of the resultant assuming that the first force acts towards the point, while all the remaining forces act away from the point.

13. (a) A body of weight 50 N is hauled along a rough horizontal plane by a pull of 18 N acting at an angle of 14° with the horizontal. Find the coefficient of friction.

Or

(b) How will you distinguish between static friction and dynamic friction?

14. (a) The truss ABC has a span of 5 metres. It is carrying a load of 10 kN at its apex. Find the forces in the members AB. AC and BC.

Or

(b) Write short notes on Assumption of force in a perfect frame.

15. (a) In an experiment, a steel specimen of 13mm diameter was found to elongate 0.2 mm in a 200 mm gauge length when it was subjected to a tensile force of 26.8 kN. If the specimen was tested within the elastic range, what is the value of Young's modulus for the steel specimen?

Or

(b) Draw Stress - Strain curve and explain salient points.

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

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

16. (a) A horizontal line PQRS is 12 m long, where PQ = QR = RS = 4m. Forces of 1000 N 1500 N, 1000 N and 500 N act at P, Q, R and S respectively with downward direction. The lines of action of these forces make angle of 90°, 60°, 45° and 30° respectively with PS. Find the magnitude, direction and position of the resultant force.

Or

(b) (i) Explain system of Fundamental units and derived units.

(ii) Explain the method of classification of forces

17. (a) Find the moment of inertia of a T-section with flange as 150 mm 50 mm and web as 150 mm × 50mm about X-X and Y-Y axes through the centre of gravity of the section.

Or

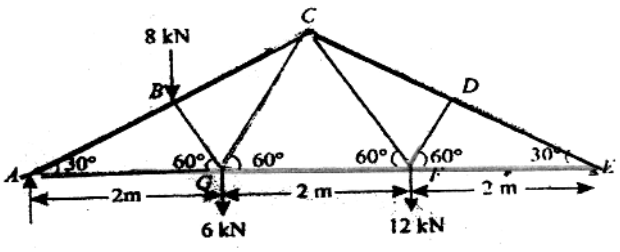
(b) Explain the method of resolution of forces.

18. (a) A pull of 25 N at 30° to the horizontal is necessary to move a block of wood on a horizontal table. If the co-efficient of friction between the bodies in contact is 0.2, what is the weight of the block?

Or

(b) Derive the equation for efficiency of screw jack.

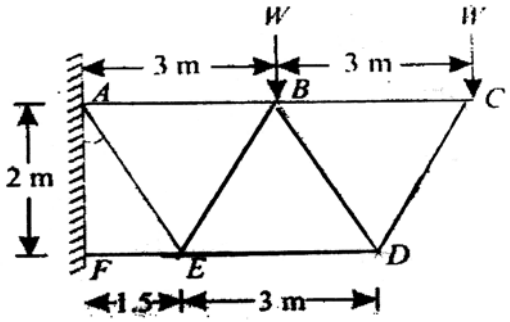
19. (a) An inclined truss is loaded as shown.



Determine the nature and magnitude of the forces in the members BC. GC and GF of the truss

Or

(b) A cantilever truss is loaded as shown in the value W. which would produce the force of magnitude 15 kN in the member AR.



20. (a) Define principal planes and principal stresses and explain their uses.

Or

(b) A steel bar 2 m long, 40 mm wide and 20 mm thick is subjected to an axial pull of 160 kN in the direction of its length. Find the changes in length, width and thickness of the bar. Take E = 200 GPa and Poisson's ratio 0.3.

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C–4452	Sub. Code 11833

B.Sc. DEGREE EXAMINATION, APRIL 2025

Third Semester

Aeronautical Science

BASIC AERODYNAMICS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. What is the main reason for the decrease in air density with altitude?

   (a) Increase in temperature

   (b) Decrease in pressure

   (c) Increase in humidity

   (d) Decrease in gravitational force

2. What is the sea-level standard atmospheric pressure in the International standard atmosphere?

   (a) 1013.25 hpa

   (b) 1000 hpa

   (c) 980 hpa

   (d) 1100 hpa

3. What is the term for the point on an airfoil where the lift is considered to act?

(a) Center of gravity

(b) Center of pressure

(c) Aerodynamic center

(d) Leading edge

4. Which aerodynamic phenomenon cause a loss of lift and a sudden increase in drag?

(a) Turbulence

(b) Stall

(c) Vortex shedding

(d) Downwash

5. Which Flight control surface is primarily used to control the pitch of an aircraft?

(a) Ailerons (b) Elevators

(c) Rudder (d) Flaps

6. During a steady climb, which of the following statement is true about the forces acting on an aircraft?

(a) Thrust equals drag, and lift equals weight

(b) Thrust equals weight, and lift equals drag

(c) Thrust is greater than drag, and lift is grater than weight

(d) Thrust is greater than drag, and lift equals weight.

7. Which of the following factors primarily affects the static stability of an aircraft?

(a) Thrust to weight ration

(b) Center of gravity location

(c) Wing aspect ratio

(d) Fuel consumption rate.

8. Which model of aircraft motion is characterized by a combined yawing and rolling motion?

(a) Dutch roll

(b) Phugoid motion

(c) Spiral divergence

(d) Short-period oscillation

9. Which device is often used to control the adverse affects of shock waves on aircraft surfaces?

(a) Spoilers

(b) Winglets

(c) Vortex generators

(d) Flaps

10. In supersonic flight, what is a primary characteristic of the flow?

(a) Flow is always subsonic everywhere

(b) Flow is entirely supersonic over the wing

(c) Flow changes direction smoothly without shock waves

(d) Flow velocity is less than the speed of sound over the entire wing.

Part B (5 × 5 = 25)

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

11. (a) Explain the terms,

(i) Absolute humidity

(ii) Relative humidity

Or

(b) Write short notes about density

12. (a) Describe about aerofoil with neat diagram.

Or

(b) Explain the terms,

(i) Aerodynamic Resultant

(ii) Lift and drag coefficient

13. (a) What are spoilers, and how it differ from other control surfaces?

Or

(b) Explain the fundamental principles behind the gliding of aircraft.

14. (a) Write short notes on static and dynamic stability.

Or

(b) Explain-Dutch roll stability.

15. (a) Describe the effects of compressibility on high speed aerodynamics.

Or

(b) Explain the classification of Mach Number.

Part C (5 × 8 = 40)

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

16. (a) Explain the structure of atmosphere by dividing into different layers.

Or

(b) Calculate the pressure ratio at 7KM and 0KM.

17. (a) Explain about the different types of drag?

Or

(b) Discuss the effect of aspect ratio of a wing on aircraft performance.

18. (a) Explain the function of primary control surfaces.

Or

(b) Explain the terms

(i) Climbing

(ii) Turning

19. (a) Explain in detail about longitudinal stability.

Or

(b) Explain the criteria for directional stability.

20. (a) Derive an expression for speed of sound.

Or

(b) Explain the role of shock waves in the formation of shock drag.

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C–4454	Sub. Code
	11836

B.Sc. DEGREE EXAMINATION,
APRIL 2025.

Third Semester

Aeronautical Science

FLUID MECHANICS AND HYDRAULIC MACHINES

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. The ratio of specific weight of a liquid to the specific weight of pure water is known as.

   (a) Density of pure water

   (b) Density of liquid

   (c) Specific gravity of water

   (d) Specific gravity of liquid

2. The absolute pressure is equal to.

   (a) Gauge pressure - Atmospheric pressure

   (b) Gauge pressure + Vacuum pressure

   (c) Atmospheric pressure + Gauge pressure

   (d) Atmospheric pressure - Gauge pressure

3. When a body floating in a liquid is given a small angular displacement it starts oscillating about a point. This point is known as.

(a) Centre of pressure

(b) Centre of gravity

(c) Centre of buoyancy

(d) Metacentre

4. A flow in which the velocities of liquid particles at all sections of the pipe are equal is called.

(a) Uniform flow (b) Steady flow

(c) Streamline flow (d) Compressible flow

5. The capacity of a hydraulic accumulator is specified as the.

(a) Minimum energy it can store

(b) Maximum energy it can store

(c) Average of maximum and minimum energy it can store

(d) Product of maximum and minimum energy it can store

6. A venturimeter is used to measure.

(a) Velocity of a flowing liquid

(b) Pressure of a flowing Liquid

(c) Discharge of a flowing liquid

(d) All of these

7. Which of the following pump is successfully used for lifting water to the turbines?

   (a) Centrifugal pump

   (b) Reciprocating pump

   (c) Jet pump

   (d) Air lift pump

8. If the net positive suction head (NPSH) requirement for the pump is not satisfied, the.

   (a) No flow will take place

   (b) Efficiency will be low

   (c) Cavitation will be formed

   (d) All of these

9. In the casing of a centrifugal pump, the kinetic energy of the water is converted into.

   (a) Potential energy

   (b) Pressure energy

   (c) Heat energy

   (d) All of these

10. An impulse turbine is used for.

   (a) Low head of water

   (b) High head of water

   (c) Medium head of water

   (d) Any one of these

Section B (5 × 5 = 25)

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

11. (a) Calculate the density, specific weight and weight of one litre of petrol of specific gravity = 0.7.

Or

(b) Define: Density, weight density, specific volume and specific gravity of a fluid.

12. (a) Define: (i) Buoyancy (ii) Center of buoyancy (iii) Meta center (iv) Mew centric height.

Or

(b) What do you understand by 'Total Pressure' and 'Centre of Pressure'?

13. (a) What do you mean by "equivalent pipe" and "flow through parallel pipes"?

Or

(b) Write in detail about the equations of motions.

14. (a) Define the terms: (i) Impact of jets, and (ii) Jet propulsion.

Or

(b) Define the terms Hydraulic machines, Turbines and Pumps.

15. (a) Write short notes on hydraulic accumulator. With suitable diagram.

Or

(b) What are the different types of pressure control valve? Explain any one in detail.

Section C (5 × 8 = 40)

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

16. (a) A hydraulic press has a ram of 30cm diameter and a plunger of 5 cm diameter. Find the weight lifted by the hydraulic press when the force applied at the plunger is 400 N.

Or

(b) Distinguish between manometers and mechanical gauges. What are the different types of mechanical pressure gauges?

17. (a) A pipe line which is 4 m in diameter contains a gate valve. The pressure at the centre of the pipe is 19.6 N/cm^2. If the pipe is tilled with oil of sp. gr. 0.87. find the force exerted by the oil upon the gate and position of centre of pressure.

Or

(b) Explain the following:

(i) Steady flow (ii) Non-uniform flow (iii) Laminar flow and (iv) Two-dimensional flow.

18. (a) A pipe of diameter 400 mm carries water at a velocity of 25 m/s. The pressures at the points A and B are given as 29.43 N/cm^2 and 22.563 N/cm^2 respectively while the datum head at A and B are 28 m and 30 in. Find the loss of head between A and B.

Or

(b) Explain the terms:

(i) Pipes in parallel (ii) Equivalent pipe and (iii) Power transmission through pipes

19. (a) Derive an expression for Force exerted by a jet on flat vertical plate moving in the direction of jet.

Or

(b) Explain in details about Hydraulic power plant with neat sketch.

20. (a) Explain about with sketch

(i) Hydraulic Ram

(ii) Hydraulic crane

Or

(b) Explain with neat sketch different types of hydraulic cylinder.

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C–4455

Sub. Code
11843

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fourth Semester

Aeronautical Science

AIRCRAFT INSTRUMENTS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Pitot head used to measure _____.

   (a) Dynamic minus static pressure

   (b) Static plus dynamic pressure

   (c) Static pressure

   (d) Dynamic pressure

2. What is lapse rate?

   (a) Change of temperature with respect to altitude

   (b) Change of temperature with respect to pressure

   (c) Change of pressure with respect to altitude

   (d) Change of temperature with respect to density

3. Air speed indicator requires to operate

(a) Static pressure

(b) The difference between total pressure and static pressure

(c) Total pressure

(d) All

4. What is the purpose of vertical speed indicator

(a) Speed of the sound

(b) Height of aircraft

(c) Rate of climb and decent

(d) Weight of aircraft

5. The turn indicator indicates relation about the _____.

(a) Horizontal axis

(b) Vertical axis

(c) Longitudinal axis

(d) Diagonal axis

6. Which equipment having only two degrees of freedom

(a) Heading indicator

(b) Artificial Horizon

(c) Turn and sleep indicator

(d) Mach meter

7. What is the most common unit of measurement used for pressure gauge

(a) PSI (b) Bar

(c) Pascal (d) Atmosphere

8. Few single engine aircraft uses _____ props in fuel tanks.

(a) Capacitive (b) Inductive

(c) Resistive (d) Radiative

9. In direct reading compass there is a _____.

(a) Non pendulously mounted magnet system

(b) Single pendulously mounted bar magnet

(c) Circular magnet or pair of bar magnet pendulously mounted

(d) Low magnetic Mount system either or circular or bar configuration

10. A freely suspended magnet Alliance in which direction?

(a) South west

(b) East west

(c) North south

(d) North west

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

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

11. (a) Explain the following: LCD Displays, Electronic Displays.

Or

(b) Explain International standard Atmosphere.

12. (a) What is position error in Pitot static tube and how is it corrected?

Or

(b) Write a short note on Q code setting in Altimeter also explain different q codes.

13. (a) Explain the working principle of Directional Gyroscopes.

Or

(b) What do you understand by the terms 'gimbal lock' and 'gimbal error'?

14. (a) Explain the working of EPR indicator.

Or

(b) Explain the operation of Bourdon tube.

15. (a) What are the errors in DR compass and its causes?

Or

(b) Write about the following.

(i) Laws Of Magnetism

(ii) Magnetic Declination

(iii) Magnetic DIP

Part C (5 × 8 = 40)

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

16. (a) Briefly explain different types of displays used in Aircraft.

Or

(b) Draw and describe the operation of VSI when aircraft changes from level to a climb.

17. (a) Explain the construction and working principle of Mach meter.

Or

(b) Explain the construction and working principle of Altimeter.

18. (a) List out and explain the error of accelerating and turning of gyroscope.

Or

(b) With the help of simple sketch, explain the construction and working of Gyro Horizon.

19. (a) Describe the construction and explain the operation of instruments used for measuring manifold pressure.

Or

(b) Explain the principle and operation of Torque Pressure Indicator.

20. (a) Explain the operating principles of Direct Reading Compass.

Or

(b) Explain the principle and operation of Directional Indicator.

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C–4456	Sub. Code 11844

B.Sc. DEGREE EXAMINATION, APRIL 2025.

Fourth Semester

Aeronautical Science

AIRCRAFT RULES AND AIRWORTHINESS REGULATIONS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Section A (10 × 1 = 10)

Answer **all** questions.

1. Civil aviation requirement (CAR) is issued under the provision of _____.

   (a) 133 A aircraft rule 1937

   (b) Section 5(B) of Aircraft Act 1934

   (c) Both (a) and (b) are correct

   (d) None of the above

2. Minimum equipment list (MEL) is approved by _____ where the aircraft is mainly based for approval.

   (a) DGCA

   (b) Regional Airworthiness Office (RAO)

   (c) Operator

   (d) None of the above

3. The unit of current is.

   (a) Watt (b) Volt

   (c) Ohm (d) Ampere

4. Repetitive defect means.

(a) Defect which recurs in the same aircraft

(b) Defect which recurs in different aircraft

(c) (a) and (b) are correct

(d) None of the above

5. Registration of an aircraft will be canceled by DGCA if _____.

(a) Registration was done by furnishing false information

(b) The lease period has expired

(c) As in (a) and (b)

(d) None of the above

6. The report which shall detail the result of the flight test and record all defects is called.

(a) Aircraft report (b) Flight document

(c) Flight test report (d) None of the above

7. How many aircraft can constitute a fleet?

(a) Minimum two particular types of aircraft

(b) Minimum three particular types of aircraft

(c) Minimum four of a particular type of aircraft

(d) None of the above

8. Aircraft shall not be fuelled within _____of radar equipment under test or in use in aircraft or ground installation.

(a) 300 Meters (b) 300 feet

(c) 3 meter (d) 30 meters

9. Mark the correct statement

(a) The aircraft, fueller, hose nozzle, filters, funnels, or any other appliance through which fuel passes shall be electrically bonded throughout the fuelling operation.

(b) The aircraft, fueller, nose nozzle, filters funnels or any other appliances need not be electrically bonded

(c) Both (a) and (b) are not correct

(d) None of the above

10. A kit containing such life-saving drugs intended to be administered only by a qualified medical practitioner if and when available is called _____.

(a) First aid kit (b) Universal precaution kit

(c) Medical kit (d) None of the above

Section B (5 × 5 = 25)

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

11. (a) Define: (i) Defect (ii) Maintenance (iii) Aircraft fleet (iv) Operator (v) Repair

Or

(b) Write the procedure for issuing taxi permit by the quality manager to facilitate taxing of the aircraft.

12. (a) Explain the process of getting a duplicate certificate of registration.

Or

(b) Under what are the circumstances a registration of aircraft can be cancelled?

13. (a) Write short notes on conditions for using MEL.

Or

(b) What are the different types of aircraft logbooks? Explain any two.

14. (a) What is the flight crew requirement for private category aircraft to carry out test flights?

Or

(b) When and why flight testing is required?

15. (a) What are the safeties to be observed against fire hazards while fuelling the aircraft?

Or

(b) Explain about the fuelling place for aircraft.

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

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

16. (a) Write down the functions of DGCA.

Or

(b) Explain the procedure for registration of aircraft.

17. (a) Under which conditions certificate of airworthiness (C of A) is likely to be suspended or canceled.

Or

(b) What are the basic facility and general requirements for approval of an organization?

18. (a) Write down the general requirements of the logbook of an aircraft.

Or

(b) Describe the form of the weight schedule and the persons preparing and the Contents of the weight schedule.

19. (a) What are the documents to be carried on board the aircraft?

Or

(b) Name the instruments and equipment that shall be installed when the aircraft is operated during the night.

20. (a) What are the special precautions to be taken in the fueling zone of an aircraft?

Or

(b) Explain the procedures to be followed for servicing and maintenance of aircraft during fueling.

C–4457	Sub. Code
	11846

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fourth Semester

Aeronautical Science

AERO ENGINEERING THERMODYNAMICS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. The name "System of Thermodynamics" refers to _____

   (a) A Space region where thermodynamics occurs in a propulsive body

   (b) Function

   (c) Components or parts

   (d) All of these

2. "Enthalpy" means

   (a) $\Delta H = \Delta E + P\Delta V$

   (b) $\Delta H = T.DS$

   (c) $\Delta H = MCP(T_2 - T_1)$

   (d) None of the above

3. The quantity-specific heat of constant pressure (CP) is always greater than specific heat of constant volume (CV) (CP>CV)

(a) False (b) True

(c) Both (a) and (b) (d) None of these

4. Gas equation corresponds to

(a) PV=MRT (b) $\Delta H = \Delta E + P\Delta V$

(c) $d\Phi = ds$ (d) None of the above

5. Internal energy refers to

(a) The energy possessed by the body

(b) Temperature increase

(c) The amount of work done

(d) All of these

6. "Enthalpy" means _____

(a) The amount of heat added or rejected to and from the system

(b) Pressure rise

(c) Volume rise

(d) None of these

7. A reciprocating air compressor is a device used to increase the

(a) Pressure of air (b) The volume of air

(c) Both (a) and (b) (d) None of these

8. "Multistage compression" is done to _____

(a) Increase the power output of the system

(b) Isothermal efficiency

(c) Volumetric efficiency

(d) All of these

9. The function of the shaft in the engine is to _____

(a) Compress the air

(b) The volume of intake air

(c) Transmit the power generated

(d) All of these

10. "Rocket propulsion" works on the principle of _____

(a) Newton's first law

(b) Newton's third law

(c) Both (a) and (b)

(d) Joule's law

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

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

11. (a) Explain the concept of "work" and various types of work.

Or

(b) Write short notes on the second law of thermodynamics.

12. (a) Explain :

(i) Boyle's law

(ii) Charle's law

(iii) Gas equation.

Or

(b) Explain the working of the "OTTO CYCLE" of I.C engines.

13. (a) Explain :

(i) Internal energy

(ii) Enthalpy

(iii) Gas Compression.

Or

(b) Explain the combustion of fuels and its application in propulsion.

14. (a) Explain the working of reciprocating air compressor with a sketch.

Or

(b) Explain the multistage compression.

15. (a) Explain the classification of piston engines.

Or

(b) Explain the various functional parts of the piston engine.

Section C (5 × 8 = 40)

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

16. (a) Explain :

(i) The law of conservation of moss

(ii) The law of conservation of momentum.

Or

(b) Explain the various modes of "Heat transfer".

17. (a) Explain the working of the "Vapour compression refrigeration system" with a sketch.

Or

(b) Explain the working of "DUAL CYCLE" with P-V and $h - \Phi$.

18. (a) Write short notes on the types of fuels.

Or

(b) Write short notes on the coloristic value of fuels and the entropy principle.

19. (a) Explain :

(i) Isothermal efficiency

(ii) Purpose of the intercooler in a multistage compressor

(iii) Rotary compressor.

Or

(b) Explain the working of the Axial flow compressor.

20. (a) Explain the working principle of the "Gas turbine engine".

Or

(b) Explain jet propulsion in detail.

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C–4458	Sub. Code 11842

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fourth Semester

Aeronautical Science

AIRCRAFT SYSTEM

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. State the principal of Pascal's law.

2. What is the main purpose of pressurized reservoir in a hydraulic system.

3. What is the purpose of a relief valve in a pneumatic system?

4. How do you control pressure in a pneumatic system?

5. State the function of the pressurization system.

6. What cooling system used in aircraft.

7. Mention the aircraft deicing system components.

8. How the chemical rain repellent system works.

9. Define pressure fueling procedure.

10. What is fuel jettisoning system?

Part B (5 × 5 = 25)

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

11. (a) Mention the causes of hydraulic fluids contamination.

Or

(b) Explain the types of hydraulic fluids used in aircraft.

12. (a) Explain the basic function of pressure regulators in pneumatic system.

Or

(b) Draw a general layout of pneumatic system.

13. (a) What are the heat sources of aircraft? Explain.

Or

(b) Explain the components of the cabin pressurization system with a neat diagram.

14. (a) Write the difference between anti icing and deicing.

Or

(b) Explain the function of wind shield wiper in aircraft.

15. (a) Draw a neat layout of twin engine and multi engine fuel system.

Or

(b) Write the maintenance process of aircraft fuel system.

Part C (3 × 10 = 30)

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

16. (a) Explain in detail about types of seals used in hydraulic system and it's functions.

Or

(b) Explain in detail the main components of the pneumatic system with a neat sketch.

17. (a) Discuss in detail about the design and evaluation of the aircraft heat source system.

Or

(b) Discuss in detail about aircraft ice and rain protection system with a neat sketch.

18. (a) Explain with neat sketch pressure feed fuel system and gravity feed fuel system.

Or

(b) Briefly explain the operation of pressurization system used in aircraft with neat sketch.

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C–4459	Sub. Code 11843

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fourth Semester

Aeronautical Science

AIRCRAFT INSTRUMENTS

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. What are the instruments panel in aircraft.
2. What is the display used in aircraft?
3. What is pitot tube.
4. Define Mach meter
5. What is gyroscope principle?
6. What is direction indicator.
7. What are primary engine instruments.
8. What is the limitation of pressure gauges.
9. Define compass.
10. Write the advantages of RR campus

Part B (5 × 5 = 25)

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

11. (a) Write a short note on circular scales and Straight scales.

Or

(b) Discuss the advantages and disadvantages of barometer.

12. (a) Explain basic air data systems.

Or

(b) Write the function of pitot static tube.

13. (a) What is the application of gyroscope.

Or

(b) Discuss the function of Artificial horizon.

14. (a) Discuss the function of manifold pressure gauges.

Or

(b) What are the difference types of torque indicator used in aircraft.

15. (a) Explain the laws of magnetism.

Or

(b) Write the difference between RR and DR compass.

Part C (3 × 10 = 30)

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

16. (a) Explain aircraft multifunction display and control systems.

Or

(b) Briefly discuss the international standard Atmosphere and mention it's significance.

17. (a) Briefly explain with neat sketch components and operation of Vertical speed indicator.

Or

(b) Why gyroscopes used in airplane and explain its types

18. (a) Briefly discuss the temperature indicating system used in aircraft engine.

Or

(b) Explain in detail about various compass terminologies used in aircraft

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C–4460	Sub. Code
	11844

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fourth Semester

Aeronautical Science

AIRCRAFT MATERIALS, HARDWARE AND NDT

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. Which metal used aircraft construction?

2. What are some examples of ferrous metals?

3. What are the benefits of heat treatment?

4. Define Annealing Process.

5. What is the best wood for gluing a plane?

6. What type of plywood used in aircraft?

7. Define sandwich construction.

8. List out the manufacturing process of composite materials.

9. What is ultrasonic inspection?

10. What is tensile testing?

Part B (5 × 5 = 25)

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

11. (a) Explain the application nickel steel in aircraft industry.

Or

(b) Materials currently used in aircraft construction are classified as what type of materials.

12. (a) How does heat treatment affect the mechanics properties?

Or

(b) Discuss the causes of corrosion.

13. (a) What are types wood usually used in aircraft?

Or

(b) List out the application of plastics materials.

14. (a) Discuss the properties of glass fiber and carbon fiber.

Or

(b) Explain the composite components used in aircraft construction.

15. (a) What is the relationship between creep and fatigue in stainless steel?

Or

(b) Explain visual inspection.

Part C

$(3 \times 10 = 30)$

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

16. (a) Explain the production process for aluminum and a heat treatment process that may be used to return the aluminum to a malleable state after cold working.

Or

(b) Identify the type of an alloy using a given sample and the alloy group series method, and give two aircraft structural applications for this material.

17. (a) Explain describe the action of a corrosion cell that occurs between rivets and the aircraft skin.

Or

(b) Write the importance of bolts and rivets used aircraft, explain in detail with suitable sketch.

18. (a) Discuss polymer matrix composites and explain their use and effectiveness for aircraft construction.

Or

(b) Explain

(i) Radiography

(ii) Dye penetrant inspection.

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C–4461	Sub. Code
	11851

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fifth Semester

Aeronautical Science

AIRCRAFT RULES AND AIRWORTHINESS REGULATIONS

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define airworthiness.
2. Define Type certificate.
3. What are the categories of aircraft registration?
4. What is RTR License?
5. What is category A in MMEL?
6. What is meant by major and minor repair?
7. Define glider?
8. What are the certification before flight test?
9. Write operation procedure of RADAR?
10. What are the precautions in case of fuel mixture.

Part B (5 × 5 = 25)

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

11. (a) Write short note on procedure for issuing type certificate.

Or

(b) What is meant AIC?

12. (a) Write short note on aero mobile license.

Or

(b) Write the eligibility criteria for AME Examination.

13. (a) Write briefly about safety policies and objectives.

Or

(b) How review of defects is reported?

14. (a) Write about the periodic inspect of first aid kit.

Or

(b) What are the contents in universal precaution kit?

15. (a) Write short note on supervision of fueling.

Or

(b) What is meant by manning of fueling vehicle?

Part C (3 × 10 = 30)

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

16. (a) Explain the following:

(i) Aircraft logbooks.

(ii) Type certificate

(iii) AAC.

Or

(b) Briefly explain the license of personnel.

17. (a) Explain briefly about the categories of MEL.

Or

(b) Explain the procedure during test flight.

18. (a) Explain in detail about the safety precautions against static electricity discharge bonding and earthing.

Or

(b) Explain about the documents relating to continued airworthiness of aircraft.

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C–4462

Sub. Code
11852

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fifth Semester

Aeronautical Science

PISTON ENGINE AND PROPELLOR

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define otto cycle.
2. Define Compression ratio.
3. State the function of propellor shaft.
4. What is turbo charger?
5. What is carburetor?
6. State the importance of lubricating system.
7. What is ignition?
8. What type magneto does an aircraft engine use?
9. What is propellor theory?
10. What factors affect the operation of a propellor?

Part B (5 × 5 = 25)

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

11. (a) What are the basic components of piston engine?

Or

(b) What is a four-stroke cycle?

12. (a) What are the different types of crankshafts?

Or

(b) How does a connecting work. Explain?

13. (a) Write a short note on fuel injection system.

Or

(b) Explain the performance characteristics of aviation gasoline.

14. (a) How does an ignition switch work? Explain.

Or

(b) Write a short note on engine starter motor.

15. (a) What are the forces acting on propellor in flight?

Or

(b) Explain the benefits of composite propeller.

Part C (3 × 10 = 30)

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

16. (a) Explain in detail about otto cycle and Carnot cycle with neat sketch.

Or

(b) Define engine efficiencies and explain factors that affecting the engine performance.

17. (a) Explain the types of engine valves and its function in detail.

Or

(b) Explain the working principle and operation of float type carburetor.

18. (a) Briefly discuss the magneto operation, types and its characteristics with neat sketch.

Or

(b) Explain in detail variable pitch propellor and fixed pitch propellor.

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C–4463

Sub. Code
11853

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fifth Semester

Aeronautical Science

GAS TURBINE ENGINE

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is jet propulsion?
2. Define Thrust.
3. What is the function of compressor?
4. Define Thrust reversal.
5. How do you calculate the propeller horse power?
6. State the working principle of turboprop engine.
7. What are the types of jet fuel?
8. What is FADEC system?
9. What is the need starter in engine?
10. Define APU.

Part B (5 × 5 = 25)

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

11. (a) What are the different types of propulsion system?

Or

(b) Discuss the factor that affecting the thrust.

12. (a) Discuss the function of turbine.

Or

(b) Write a short note on subsonic and supersonic inlets.

13. (a) How do you calculate shaft horsepower?

Or

(b) What are the forces acting on a propellor.

14. (a) What are the performance parameters of jet fuel?

Or

(b) Discuss the function and operation of fuel control unit.

15. (a) Explain about lubrication system.

Or

(b) Write a short note on combustion strater.

Part C (3 × 10 = 30)

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

16. (a) Explain the working principles of jet propulsion system with neat sketch.

Or

(b) Explain the working principle of ram jet engine with neat sketch.

17. (a) Explain the working principle and construction of turbine engine.

Or

(b) Explain the working principle and construction of turbo prop engine.

18. (a) Explain Full Authority Digital Electronic Controller for Control of an Aero Engine.

Or

(b) Explain the following: (i) APU (ii) GPU.

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C–4464

Sub. Code
11854

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fifth Semester

Aeronautical Science

AIRCRAFT ELECTRICAL SYSTEM

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is the main purpose of aircraft electrical system?
2. What is ohm's law?
3. What is the need of storage batteries?
4. State the importance of battery maintenance.
5. Describe the characteristics of generator.
6. What is inverters?
7. What is power distribution system in aircraft?
8. What is the wire identification code?
9. What are the electric circuits in aircraft?
10. Which type of circuit is the most common aircraft circuit?

Part B (5 × 5 = 25)

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

11. (a) Elaborate the circuit breakers.

Or

(b) Which aircraft electrical system component controls the flow of current in electrical circuits?

12. (a) Why lead is used in storage batteries? Explain.

Or

(b) Discuss the types of storage batteries in electrical system in aircraft.

13. (a) Explain the working principle of alternator.

Or

(b) Explain the function of the voltage regulator.

14. (a) Explain the characteristics of aircraft electric wire.

Or

(b) What are the pros and cons of soldering and crimped wire?

15. (a) What are the taxi lights and landing lights?

Or

(b) Explain turbine engine auto ignition system.

Part C (3 × 10 = 30)

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

16. (a) Discuss the difference between fuse and circuit breakers.

Or

(b) Explain how relays and solenoids work and save aircraft power.

17. (a) Explain in detail aircraft battery maintenance, inspection and troubleshooting.

Or

(b) Explain the working principle, construction and operation of aircraft generator.

18. (a) Explain the general procedure for inspection and maintenance of electrical installation.

Or

(b) Explain in detail about antiskid brake function and types.

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C–4465

Sub. Code
11855

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fifth Semester

Aeronautical Science

INDUSTRIAL MANAGEMENT

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. State the objective of management.
2. What is the function of management?
3. Why coordination is important in an organization?
4. What is the role of organization?
5. List out role of supervisor.
6. What is the principle of decision making?
7. What are the ways to manage your time?
8. What is the importance of office correspondence?
9. What is meant by inventory management?
10. What is the purpose of the work study?

Part B (5 × 5 = 25)

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

11. (a) Discuss management by objective.

Or

(b) What is strategic planning?

12. (a) Discuss the steps in selection process.

Or

(b) Write the difference between authority and power.

13. (a) Discuss the levels of managerial communication.

Or

(b) Discuss the types of barriers to effective communication.

14. (a) Discuss the time management techniques to improve productivity.

Or

(b) What is record management and why it is important?

15. (a) What are the different inventory records?

Or

(b) What is the concept of man-machine system in ergonomics?

Part C

$(3 \times 10 = 30)$

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

16. (a) Discuss in detail organizational change and current trends in management.

Or

(b) Briefly discuss the operational planning process, types and its examples.

17. (a) Explain Organizational Structure for Companies with Examples and Benefits.

Or

(b) Explain in detail about types and importance of managerial communication.

18. (a) Explain the structure and function of production planning and control in manufacturing firm.

Or

(b) Discuss in detail about work study techniques and study procedure with suitable example.

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C–4466	Sub. Code
	11861

B.Sc. DEGREE EXAMINATION, APRIL 2025

Sixth Semester

Aeronautical Science

AIRCRAFT MAINTENANCE, GROUND HANDLING AND SUPPORT EQUIPMENTS

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Maintenance.
2. What is the requirements Inspection?
3. Why landing gear maintenance is important?
4. What causes lightning strike?
5. What is the need of repair?
6. Define strength.
7. What is class B fire?
8. State the importance fire safety in Aircraft.
9. What is the need of ground equipment?
10. Write a short note on Air start unit.

Part B (5 × 5 = 25)

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

11. (a) What happens in a 100-hour inspection?

Or

(b) Discuss flight and post flight inspection.

12. (a) State the importance of landing gear wheel assembly maintenance.

Or

(b) What is landing gear retraction test.

13. (a) State the importance of repair and mention its types.

Or

(b) How to repair a damaged aircraft structural component?

14. (a) What is the normal tie down procedure for heavy aircraft?

Or

(b) Explain the aircraft fueling operation procedure.

15. (a) Write the advantages of hydraulic ground power units.

Or

(b) Explain Airconditioning and heating unit in the aircraft ground support equipment.

Part C (3 × 10 = 30)

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

16. (a) Briefly explain the continuous airworthiness maintenance.

Or

(b) Explain the different types of aircraft inspection in detail.

17. (a) Discuss the effect of turbulence on aircraft during landing.

Or

(b) Explain in detail about repair procedure and types for repairing the aircraft structural wing components.

18. (a) Explain the procedure and precautions to be followed during jacking of aircraft.

Or

(b) Explain briefly requirement and maintenance of aircraft ground support equipment.

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C–4467	Sub. Code
	11862

B.Sc. DEGREE EXAMINATION, APRIL 2025

Sixth Semester

Aeronautical Science

AERO ENGINE MAINTENANCE

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is visual and magnetic inspection?
2. Write the function of piston.
3. Discuss the function of propeller.
4. What is static balancing in propeller.
5. Describe about ground run test.
6. Write importance of acceleration check.
7. Write the inspection procedure of turbine.
8. What is the need of turbine blade replacement.
9. What is initial warm up in engine.
10. Define EGT.

Part B (5 × 5 = 25)

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

11. (a) Describe the components of reciprocating engine and its function.

Or

(b) What are things to be checked in a reciprocating engine common check on parts.

12. (a) Write the procedure for static balancing of propellers.

Or

(b) Discuss the procedure for propeller track and run out check.

13. (a) Elaborate engine post stopping procedure.

Or

(b) How does an ignition system work.

14. (a) What are the section of a gas turbine engine?

Or

(b) Discuss the importance of combustion section inspection.

15. (a) What is the difference between EPR and EGT?

Or

(b) Explain turbine engine fuel flow RPM.

Part C (3 × 10 = 30)

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

16. (a) Briefly discuss about reciprocating engine crankcase assembly and its components.

Or

(b) Explain detail maintenance and overhauling Procedure of aircraft engine components.

17. (a) Explain briefly about dynamic propeller balancing.

Or

(b) Briefly discuss the acceleration and deceleration checks of reciprocating engine.

18. (a) Discuss the procedure of inspection and repair of turbine blade.

Or

(b) Explain aircraft turbine engine troubleshooting of throttle check.

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C–4468

Sub. Code
11863

B.Sc. DEGREE EXAMINATION, APRIL 2025

Sixth Semester

Aeronautical Science

AIRCRAFT COMMUNICATION AND NAVIGATION SYSTEM

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. What are the functions of receiver?
2. Mention some types of antennas?
3. What is the purpose of Selcal Decoder?
4. What are the procedures for testing communication radio?
5. Define Course Deviation Indicator.
6. What are the advantages of MLS?
7. What is the purpose of ground proximity warning system?
8. What are the frequencies of ELT?
9. What is meant by Radome?
10. What are the functions of weather Radar?

Part B (5 × 5 = 25)

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

11. (a) Describe the characteristics of carrier wave ground wave.

Or

(b) Explain amplifiers and its types.

12. (a) Write the theory of operation of VHF communication system.

Or

(b) Explain satellite communication with an example.

13. (a) Explain the working of ILS with a neat sketch.

Or

(b) Explain the principle of Doppler navigation system.

14. (a) Explain about the operation of ATC transponder.

Or

(b) Describe the cockpit voice recorder.

15. (a) Describe the principal units of analog radar system.

Or

(b) Describe the safety precautions while handling aircraft weather RADAR.

Part C (3 × 10 = 30)

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

16. (a) Explain about Microphones and its types.

Or

(b) Explain the functions of radio transmitter with a block diagram.

17. (a) Explain Global positioning system.

Or

(b) Describe the operation of VOR transmitter with the help of block diagram.

18. (a) Describe Traffic Alert and Collision Avoidance system.

Or

(b) Explain the operation of PPI.

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C–4469

Sub. Code
11864

B.Sc. DEGREE EXAMINATION, APRIL 2025

Sixth Semester

Aeronautical Science

AIRPORT AND AIR TRAFFIC SERVICES

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is airport?
2. What is the service quality delivery in airport operation?
3. What do you understand the runway marking?
4. What are the factors of controlling exit runway?
5. Write the significance of apron layout?
6. How to calculate airport capacity?
7. What is the airport lighting?
8. What is the use of X-ray machine in airport?
9. What are the objectives of air traffic services?
10. What is VFR and IFR and its Main Difference?

Part B (5 × 5 = 25)

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

11. (a) List out airport design standard considerations.

Or

(b) Write short note on aerodrome reference point.

12. (a) What do you understand the stop bar lights?

Or

(b) Write short note on clearway.

13. (a) What are the basic planning criteria for passenger's terminal?

Or

(b) What are the advantages of linear type terminals?

14. (a) Write the significance of PAPI lights.

Or

(b) List out the types of approach lighting system are defined by ICAO?

15. (a) What are the main ATS services?

Or

(b) Write the role of meteorology in aviation?

Part C (3 × 10 = 30)

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

16. (a) Briefly describe the airport functional layout.

Or

(b) Write the functions of ICAO?

17. (a) Discuss about the taxiway markings.

Or

(b) Describe the apron design characteristics.

18. (a) Do you know how the x-ray device at airport security screening works?

Or

(b) Briefly explain about ATS airspace classifications.

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C–4470	Sub. Code
	11865

B.Sc. DEGREE EXAMINATION, APRIL 2025

Sixth Semester

Aeronautical Science

TRAVEL AND TOUR MANAGEMENT

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is the function of Retail Travel Agency?
2. What are the types of tour operator?
3. Explain about Health documents.
4. What is the importance of the passport.
5. What should be included in the Itinerary?
6. What are the types of tour packages?
7. What is MICE?
8. Write a short note about cargo.
9. What is the role of IAAI?
10. Define UNWTO.

Part B (5 × 5 = 25)

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

11. (a) Explain Wholesale an retail Travel Agency business.

Or

(b) Explain about American Express company and its growth.

12. (a) Describe in brief about the "PASSPORT and VISA" rules for air travel.

Or

(b) Explain the sales distribution system.

13. (a) Explain the types of Tour packages.

Or

(b) Write any ten countries with their codes.

14. (a) Explain the sources of income of Travel agency.

Or

(b) Explain the functions Travel Agency.

15. (a) Explain the roles and functions of WTTC and IAPA.

Or

(b) Explain the roles and functions of TAAI and PATA.

Part C (3 × 10 = 30)

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

16. (a) Explain the various formalities involved in travel.

Or

(b) Explain the accreditation Procedures and why is it important.

17. (a) Write an essay about setting up a full-fledged Travel agency.

Or

(b) Write in detail about Itinerary-Types, planning and development.

18. (a) Write an essay about resources and steps for itinerary planning.

Or

(b) Explain the roles and functions of about the following:

(i) UFTAA

(ii) ICCA

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