C–4766	Sub. Code
	11813

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021

First Semester

Aeronautical Science

MATHEMATICS – I

(2016 – Onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Singular Matrix.

2. Find the sum of the eigen values of 2A, if $A = \begin{bmatrix} 8 & -6 & 2 \\ -6 & 7 & -4 \\ 2 & -4 & 3 \end{bmatrix}$.

3. Define Center of sphere.

4. Define direction ratios.

5. Write down the formula for radius of curvature.

6. Define evolute.

7. Find dy/dx, when $x^3 + y^3 = 3ax^2y$.

8. If $u = 2xy,\ v = x^2 - y^2,\ x = r\cos\theta$ and $y = r\ \sin\theta$ compute $\frac{\partial(u,v)}{\partial(r,\theta)}$.

9. Solve $\left(x^2D^2 + 4xD + 2\right)y = 0.$

10. Find particular integral $\left(D^2 + 5D + 4\right)y = \sin x.$

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

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

11. (a) Verify the Cayley-Hamilton theorem for the matrix $A = \begin{bmatrix} 1 & 3 & 7 \\ 4 & 2 & 3 \\ 1 & 2 & 1 \end{bmatrix}$.

Or

(b) Verify that the eigen vectors of the real symmetric matrix $A = \begin{bmatrix} 2 & 1 & -1 \\ 1 & 1 & -2 \\ -1 & -2 & 1 \end{bmatrix}$ are orthogonal in pairs.

12. (a) Find the angle between the lines whose Direction cosines are given by the equations $l + 3m + 5n = 0$ and $\frac{2}{l} - \frac{6}{m} - \frac{5}{n} = 0$.

Or

(b) Find the equation of the plane that contains the parallel lines $\frac{x-1}{1} = \frac{y-2}{2} = \frac{z-3}{3}$ and $\frac{x-3}{1} = \frac{y+2}{2} = \frac{z+4}{3}$.

13. (a) Find the radius of curvature at the point $\left(\frac{3a}{2}, \frac{3a}{2}\right)$ on the curve $x^3 + y^3 = 3axy$.

Or

(b) Find the equation of the circle of curvature of the curve $\sqrt{x} + \sqrt{y} = \sqrt{a}$ at $\left(a/4, a/4\right)$.

14. (a) Find the Taylor's series expansion of x^y near the point $(1,1)$ upto the second degree terms.

Or

(b) If $u = 2xy$, $v = x^2 - y^2$, $x = r\cos\theta$ and $y = r\sin\theta$, compute $\frac{\partial(u,v)}{\partial(r,\theta)}$.

15. (a) Solve $\left(D^2 + a^2\right)y = \sec ax$.

Or

(b) Solve $\left(x^2D^2 + 4xD + 2\right)y = x^2 + 1/x^2$.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Verify that the matrix $A = \begin{bmatrix} 2 & -1 & 2 \\ -2 & 2 & -1 \\ 1 & -1 & 2 \end{bmatrix}$ satisfies its characteristics equation and hence find A^4.

Or

(b) Reduce the Quadratic form $6x_1^2 + 3x_2^2 + 3x_3^2 - 4x_1x_2 - 2x_2x_3 + 4x_3x_1$, to canonical form by an orthogonal transformation.

17. (a) Find the length of the shortest distance between the $\frac{x-2}{2} = \frac{y+1}{3} = \frac{z}{4}$; $2x + 3y - 5z - 6 = 0 = 3x - 2y = z + 3$

Or

(b) Find the envelop of the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ treating it as the envelope of its normals.

18. (a) A rectangular box open at the top, is to have a volume of 32CC. Find the dimensions of the box, the requires the least material for its construction.

Or

(b) Solve $\left(x^2D^2 + 4xD + 2\right)y = \sin x$.

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C–4767	Sub. Code 11814

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

First Semester

Aeronautical Science

WORKSHOP PRACTICES

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is fire extinguisher?

2. List out the classes of supplement agents.

3. What is Mallet?

4. What are the purposes of Punches?

5. What is the significance of vernier calliper?

6. What are the uses of depth gauge?

7. Define Tolerance.

8. Define Eyebolt.

9. Write the main functions of lathe.

10. List out the special types of Milling Machines.

Part B (5 × 5 = 25)

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

11. (a) Discuss about the wet chemical extinguishers.

Or

(b) List out the services for workshop structure.

12. (a) Write short notes on Scriber.

Or

(b) Discuss about the Special Wrenches.

13. (a) What are the different parts of dial test indicator?

Or

(b) How an optical flat works?

14. (a) Write short notes on aircraft Bolts.

Or

(b) Discuss about the Go and No-Go gauge method of inspection.

15. (a) What is cheek and its types?

Or

(b) Write short notes on Filing of lathe.

Part C (3 × 10 = 30)

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

16. (a) Discuss about the Foam Type Fire extinguishing agent.

Or

(b) List out and discuss about the methods are recommended for using files.

17. (a) List out the components of Micrometer.

Or

(b) Briefly explain the different between Plain and Universal Milling.

18. (a) Describe about the Arc Welding machine.

Or

(b) Write the classification and explain the Lock Bolts.

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C–4768	Sub. Code 11815

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

First Semester

Aeronautical Science

BASIC ELECTRICITY AND ELECTRONICS

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. State "Ohms" law.

2. Write the average EMF equation of a transformer and its significance.

3. What are the limitations of field control method?

4. Write the significance of voltage Regulator in DC generator.

5. Define Slip.

6. What is known as Breakdown Torque?

7. Define CRO.

8. Write the importance of Voltmeter.

9. List out the application of chopper.

10. Where is voltage regulator located?

Part B (5 × 5 = 25)

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

11. (a) Discuss about the core type transformer.

Or

(b) What are the conditions for maximum efficiency of a transformer?

12. (a) Write short notes on "Series Motor Starter".

Or

(b) List out merits and demerits of Rheostatic Control Method.

13. (a) Discuss about the advantages of Induction Motor.

Or

(b) Discuss about the No Load Test of a Induction Motor.

14. (a) Write short notes on Carbon Composition Resistor.

Or

(b) What do you understand about P-Channel JFET?

15. (a) Write short notes on uncontrolled rectifier.

Or

(b) Discuss about the working principle of Shockley Diode.

Part C (3 × 10 = 30)

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

16. (a) Write the summary of Auto Transformer.

Or

(b) Describe about the Electronic Speed control method of DC motor.

17. (a) List out the Internal and External Characteristics of DC Generator.

Or

(b) Discuss about the Speed control of Induction Motor.

18. (a) How does the resistor Colour Code working?

Or

(b) Write short notes on

(i) Shunt Voltage Regulator

(ii) Transistor Voltage Regulator

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C–1704

Sub. Code
11824

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021

Second Semester

Aeronautical Science

ENGINEERING MECHANICS AND STRENGTH OF MATERIALS

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define visual work bodies.
2. Define Equivalent force.
3. Define statics and dynamics.
4. State Newton's Laws of motion.
5. Define simple Harmonic Motion.
6. Define simple machine.
7. Define velocity ration.
8. Define mohrs circle.
9. Define cantileve trues.
10. Define slenderness ratio.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain resolution of forces on a system.

Or

(b) Explain moment of Inertia with Q diagram.

12. (a) Write short notes on External and internal forces.

Or

(b) Explain the inertia forces in rotation with a diagram.

13. (a) Explain friction on Journal bearing.

Or

(b) Explain Friction on Rollers.

14. (a) Explain stress and strain with their types.

Or

(b) Explain various types of frames.

15. (a) Explain curvilinear motion and linear momentum.

Or

(b) Explain resultant of forces.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Explain system of Fundamental units and derived units.

Or

(b) Explain the method of classification of forces.

17. (a) Explain the theory of Friction on wedges.

Or

(b) Explain the Friction on Inclined plane, when force is pulling upwards.

18. (a) Explain various Elastic constants.

Or

(b) Explain the method of drawing mohr's circle of principal stresses and strains.

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C–4769	Sub. Code 11832

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

Third Semester

Aeronautical Science

THERMODYNAMICS

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define system.

2. What is heat?

3. What is called an ideal cycle?

4. What is joules law?

5. What is known as Dalton's law?

6. What is Avogadro's Law?

7. What is air compressor?

8. Write the basic concept of Centrifugal flow compressor.

9. What is the type of thermodynamic cycle applied for turbojet engine?

10. What is the difference between the turbojet and turbo fan engine?

Part B (5 × 5 = 25)

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

11. (a) Write notes on thermodynamic equilibrium.

Or

(b) List out the types of work transfer.

12. (a) Derive specific heat at constant volume equation.

Or

(b) Derive the theoretical C.O.P of an absorption system.

13. (a) Write the significance of Gibb's function.

Or

(b) Write short notes on calorific value of fuel.

14. (a) Write the advantages of Multistage Compressor.

Or

(b) Derive the adiabatic compressor efficiency.

15. (a) Write the importance of Axial flow compressor used in GT engine.

Or

(b) Write short notes on Crankshaft.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) What is the difference between reversibility and irreversibility and its causes?

Or

(b) Derive the steady flow energy equation and its applications.

17. (a) Prove that the efficiency of the air standard cycle is a function of compressor ratio.

Or

(b) (i) List out the assumption to be followed for air standard cycle.

(ii) Minimum air required for combustion.

18. (a) Briefly discuss about the single stage reciprocating compressor.

Or

(b) Write the classification of rocket and its application.

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C–4770	Sub. Code 11833

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

Third Semester

Aeronautical Science

FLUID MECHANICS AND HYDRAULICS MACHINES

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is the difference Between dynamic viscosity and kinematic viscosity? State their units of measurement.

2. State the Newtons law of viscosity.

3. When will be the shear stress equals to zero in fluids?

4. What is stream lines?

5. Write Bernoulli's equation.

6. Draw the diagram for venturi meter and mention its parts.

7. Draw the centrifugal pump and name their parts.

8. What is turbine?

9. What is hydraulic press?

10. Write short notes on hydraulic coupling.

Part B (5 × 5 = 25)

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

11. (a) A plate 0.025mm distant from a fixed plate moves at 60cm/s and requires a force of 2N per unit area i.e 2N/m^2 to maintain this speed. Determine the fluid viscosity between the plates.

Or

(b) Explain about Pascal's law.

12. (a) A wooden log of 0.6m diameter and 5m length is floating in river water. Find the depth of the wooden log in water when the sp. gravity of the log is 0.7.

Or

(b) Define:

(i) Uniform and non-uniform flow

(ii) Compressible and incompressible flow.

(iii) Rotational and irrotational flow.

13. (a) An oil of specific gravity 0.9 and viscosity 0.06 poise is flowing through a pipe of diameter 200mm at the rate of 60 liters/sec. Find the head lost due to friction for a 500 mm length of pipe. Find the power required to maintain this flow.

Or

(b) Write in detail about various losses in pipe.

14. (a) Write about the centrifugal pump with suitable diagrams.

Or

(b) Write the classification of the turbine. Explain about the impulse turbine.

15. (a) Write about hydraulic crane.

Or

(b) Write about the gear pump with suitable diagrams.

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

Answer **all** questions.

16. (a) Derive the expression for stream function and relationship between stream function and velocity potential function.

Or

(b) Write in detail about the pitot tube and derive the expression for measurement of velocity.

17. (a) Write about the nozzle and derive the expression for discharge through nozzle and power transmitted through nozzle.

Or

(b) Derive the Euler's equation.

18. (a) Explain:

(i) Hydraulic press

(ii) Hydraulic accumulator.

Or

(b) Inlet and throat diameter of horizontal venturimeter are 30cm and 10cm respectively. The liquid flowing through the meter is water. The pressure intensity at inlet is 13.734 N/cm^2 while the vacuum pressure head at throat is 37cm of mercury. Find the ratio of flow. Assume that 4% of the differential head is lost between the inlet and throat. Find also the value of C_d.

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C–4771	Sub. Code 11834

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021

Third Semester

Aeronautical Sciences

AERODYNAMICS AND HELICOPTER THEORY

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is Bernoulli's principle?

2. What is an angle of attack?

3. What is parasite drag?

4. What is the function of flaps?

5. Define blade stall.

6. What is conning?

7. Write some rotor blade tracking methods.

8. What is stabilizer bar?

9. What is the purpose of tail rotor?

10. What is the purpose of free wheeling unit?

Part B (5 × 5 = 25)

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

11. (a) What are the factors contributing towards lift generation?

Or

(b) Describe an airfoil and explain its nomenclature.

12. (a) Explain the primary control surfaces in an aircraft.

Or

(b) Show that lift is equal to weight of the aircraft at level and unaccelerated flight.

13. (a) Write short notes on ground effect and autorotation.

Or

(b) Describe about the Dissymmetry of lift.

14. (a) Explain the procedures in Rotor head maintenance.

Or

(b) Write short notes on Swash plate.

15. (a) Explain in detail about tail rotor gearbox.

Or

(b) Explain about clutch mechanism used in the helicopters.

Part C (3 × 10 = 30)

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

16. (a) Explain the various physical properties of air.

Or

(b) Write short notes on Lateral and directional stability.

17. (a) Explain the functions of various secondary control surfaces.

Or

(b) Explain the various blade tracking methods assembly.

18. (a) Explain the construction of Rotor mast assembly.

Or

(b) Explain the following.

(i) Tail Rotor drive shaft

(ii) Pitch changing mechanism.

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C–4772	Sub. Code 11835

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021

Third Semester

Aeronautical Sciences

AIRCRAFT CONSTRUCTION

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is zoning of an aircraft?

2. Explain safe life design.

3. Name the primary control surfaces.

4. What is the function of spoilers?

5. What is a landing gear?

6. What is antiskid system?

7. Define centre of gravity.

8. Name some weighing equipments?

9. What is dihedral angle?

10. Explain aircraft leveling.

Part B (5 × 5 = 25)

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

11. (a) Explain the various types of aircraft fuselage construction.

Or

(b) Explain in detail about honey comb construction.

12. (a) Explain in detail about the balancing of control systems.

Or

(b) Describe about the various primary flight control surfaces.

13. (a) Explain about the nose wheel steering system.

Or

(b) Explain the retractable landing gear system.

14. (a) How will you compute the centre of gravity location for various aircraft?

Or

(b) Discuss about the various weighing equipments used in aircraft weighing process.

15. (a) Explain the rigging changes after flight check.

Or

(b) Describe about the incidence angle of aircraft and how can you check it during aircraft rigging.

Part C (3 × 10 = 30)

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

16. (a) What is the purpose of aircraft zoning. Explain with suitable examples.

Or

(b) Explain the conventional flight control system with neat sketch.

17. (a) With neat sketch explain in detail about the fly by wire system.

Or

(b) Explain the operation of aircraft brake system.

18. (a) List out the weighing procedure of an aircraft.

Or

(b) Explain the procedure for leveling of an aircraft in detail.

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C–4773	Sub. Code 11851

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

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 type certificate.

2. Write the types of log books.

3. Define registration of aircraft and its importance.

4. Write the validity of Certificate of Airworthiness.

5. What is special flight?

6. Define Minimum Equipment List.

7. Define Flight Test and its purpose.

8. What are the different between VFR and IFR?

9. What are the types of fuel used in aircraft?

10. What is meant by defueling?

Part B (5 × 5 = 25)

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

11. (a) Write the importance of Type Certificate?

Or

(b) Write the importance of Quality Control Procedure Manual.

12. (a) Write short notes on Change of ownership of aircraft.

Or

(b) List out the Experience requirements for Category "A" AME.

13. (a) Explain the defect recording and rectification analysis.

Or

(b) List out the requirements for weight and Balance control of aircraft.

14. (a) What are the circumstances for Test Flight for scheduled airlines?

Or

(b) How will you carry out the evaluation of climb performance?

15. (a) List out the types of fire extinguishers used in aircraft.

Or

(b) List out the precautions against electricity.

Part C (3 × 10 = 30)

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

16. (a) Describe the Procedure of issue and revision of CAR.

Or

(b) Describe about the requirements for Certificate of Airworthiness.

17. (a) List out the quality control manual requirements for Approval of Organisation.

Or

(b) List out the conditions for issue/renewal of AME Licence.

18. (a) Write the detailed procedure to be followed during test flight.

Or

(b) Write short notes on

(i) Defect Recording procedure

(ii) Aircraft Weight Schedule.

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C–4774	Sub. Code 11852

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021

Fifth Semester

Aeronautical Science

BASIC PISTON ENGINE AND PROPELLER

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define compression ratio and its importance?

2. What are the purposes of piston rings?

3. Write the role of exhaust valve?

4. What are the uses of exhaust manifold?

5. What is fuel?

6. What is the purpose lubrication system?

7. Write the types of magnetos used in piston engine?

8. Write the role of starter motor?

9. List out the types of propellers?

10. Define Propeller Pitch.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Discuss the principle of valve timing?

Or

(b) List out the factors affecting engine performance.

12. (a) Write the short notes on "Turbo Charger"

Or

(b) With neat sketch explain components of major piston engine components?

13. (a) Describe the Principle of Float Type Carburettor?

Or

(b) List out the Characteristics of Lubricating oil?

14. (a) Write the procedure of Magneto Timing Procedure?

Or

(b) How will you carry out the spark plug pressure testing?

15. (a) Write the general description of variable pitch propeller?

Or

(b) Write the features of composite blade propeller.

Part C (3 × 10 = 30)

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

16. (a) How will you calculate the piston engine power and factors affecting engine performance?

Or

(b) Briefly describe about the crankcase construction?

17. (a) Write short notes on

(i) Turbo Charger

(ii) Super Charger.

Or

(b) Explain the principle and operation of fuel injection system?

18. (a) Discuss about the components of lubrication system and their functions with neat sketch.

Or

(b) Describe about the troubleshooting and maintenance of clutch mechanism?

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C–4775	Sub. Code 11853

B.Sc.(Aero) DEGREE EXAMINATION, NOVEMBER 2021

Fifth Semester

Aeronautical Science

GAS TURBINE ENGINE

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. State Boyle's Law and Charles Law.

2. State the first Law and Second Law of Thermodynamics.

3. Describe propulsive Efficiency.

4. What is net Thrust?

5. Describe 'Cold section' and 'Hot section' of the engine.

6. What you understand by compressor stall?

7. What is function of the compressor in a Gas Turbine engine'?

8. List out the parts of the centrifugal compressor with its function.

9. State the different types of turbine with its function

10. Describe fuel cooled oil cooler.

Part B (5 × 5 = 25)

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

11. (a) Describe the Pulse Jet engine.

Or

(b) Describe Airflow through Gas Turbine engine.

12. (a) Write short notes on centrifugal compressor and state its advantages and disadvantages.

Or

(b) Write short note on after burner system and variable area exhaust nozzle of Gas Turbine engine.

13. (a) Briefly explain the various types of forces acting on a propeller.

Or

(b) Briefly explain the operation of Turbo Fan engine.

14. (a) Briefly explain the various types Fuel spray nozzles.

Or

(b) Briefly explain Fuel Control Unit.

15. (a) Describe pressure and scavenge oil system.

Or

(b) Briefly explain ignition system of engine.

Part C

(3 × 10 = 30)

Answer **all** questions.

16. (a) Describe the effects of Thrust on:

(i) Altitude

(ii) Humidity

(iii) Ram effect

(iv) Engine speed (RPM)

Or

(b) Briefly explain the Turbine nozzle Diaphragm (Turbine inlet Guide Vanes)

17. (a) Describe various types of jet fuel and explain the characteristics in detail.

Or

(b) Briefly explain the oil analysis system

18. (a) Describe the large aircraft Turbofan engine fuel system.

Or

(b) Briefly explain Air starter system.

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C–4776	Sub. Code 11854

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021

Fifth Semester

Aeronautical Science

AIRCRAFT ELECTRICAL SYSTEMS

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What are the major parts of dc generators?

2. What is a proximity sensor?

3. Where the micro switches are used?

4. What is Crimping?

5. What are the disadvantages of Lead Acid Battery?

6. Write the purpose of anti-collision lights.

7. What is the purpose of expander?

8. What is dc alternator?

9. What are the principles of voltage generation?

10. What is circular mil?

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain battery load test.

Or

(b) Explain thermal runaway.

12. (a) Explain operation of current limiter of generator.

Or

(b) Explain constant voltage charging.

13. (a) Discuss the classifications of dc generator.

Or

(b) Discuss routing of electrical wire bundles.

14. (a) Discuss about bonding and shielding.

Or

(b) Draw a diagram of solenoid and explain.

15. (a) Explain the starter circuit.

Or

(b) Explain starter generator.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Explain theory of Nickel Cadmium battery.

Or

(b) Explain operation of turbine engine auto ignition system.

17. (a) Explain armature reaction.

Or

(b) Explain high power brushless alternators

18. (a) Explain constant speed drive system.

Or

(b) Explain the operation of carbon pile voltage regulator.

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C–4777	Sub. Code 11855

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

Fifth Semester

Aeronautical Sciences

INDUSTRIAL MANAGEMENT

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. List down the scope of Management.

2. State any four limitations of planning.

3. Define organizing.

4. What is Line Authority?

5. Define Decision Making.

6. What are the rules for effective communication?

7. What is office Management?

8. Define production Management.

9. What is the need for work study?

10. Define Inventory.

Part B (5 × 5 = 25)

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

11. (a) What are the steps involved in MBO process?

Or

(b) Briefly discuss about strategic planning and operational planning.

12. (a) Explain the nature and purpose of organization.

Or

(b) Define Recruitment and their process.

13. (a) Describe theory X and theory Y.

Or

(b) Explain the various types of communication with its relative merits and demerits.

14. (a) Define Time Management and explain the various techniques of it.

Or

(b) Explain in detail about the management of Records.

15. (a) What are the steps involved in Inventory Management process?

Or

(b) Explain the Ergonomics principles in the design of work study system.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Define Management. Explain the levels of Management and Managerial functions.

Or

(b) Define Training and write its importance of training in an organization.

17. (a) Explain the process of decision making.

Or

(b) What is power? Explain the concepts of power and sources of organisational pwoer?

18. (a) What is office correspondence? Explain its importance.

Or

(b) What is work study? Explain the two techniques used in work study.

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C–4778	Sub. Code 11861

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021

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 the term Airworthiness

2. What is Maintenance?

3. Define special inspection

4. What is the function of nose wheel?

5. What is rivet layout?

6. What is the functions of ribs?

7. What is difference between taxing and towing?

8. What is meant by FACTOR?

9. What is the purpose of air starter?

10. What is pre oiling?

Part B (5 × 5 = 25)

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

11. (a) Explain about the continuous airworthiness inspection.

Or

(b) Write a short note on pre flight inspection.

12. (a) Explain the inspection of landing gear.

Or

(b) Write short notes on Metal working machines.

13. (a) Write short notes on safety tools.

Or

(b) Briefly describe about the classification of structural damage.

14. (a) Explain taxing signals.

Or

(b) Explain about classification of fire extinguishing agents.

15. (a) Write note on various aircraft jacks.

Or

(b) Explain about the Electrical power unit.

Part C (3 × 10 = 30)

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

16. (a) Explain Annual inspection procedure in detail.

Or

(b) Explain rivet repair carried out in sheet metal in detail.

17. (a) Explain inspection and maintenance of landing gear in detail.

Or

(b) Explain Aircraft jacking procedure in detail.

18. (a) Describe Aircraft mooring procedure in detail.

Or

(b) Discuss Maintenance of Air conditioning and heating unit.

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C–2741	Sub. Code 11862

B.Sc DEGREE EXAMINATION, NOVEMBER 2021

Sixth Semester

Aero Nautical Science

AERO ENGINE MAINTENANCE

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define heavy maintenance?

2. What is the difference between rebuilt engine and overhaul engine?

3. Why propeller balancing is required?

4. Enumerate the checks/inspections carried out on wooden propeller?

5. List out the precautions that have to be carried out before the ground run of piston engine.

6. Why compressor wash is required?

7. What do you mean by hot start and hung start in a GTE?

8. Define FOD.

9. What is fuel control unit and its importance?

10. What do you mean by engine trimming?

Part B (5 × 5 = 25)

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

11. (a) What are the different types of cleaning methods for Piston Engine maintenance?

Or

(b) What are the maintenance practices done in valves and valve seat?

12. (a) Explain about aluminium blade propeller inspection and repair procedure.

Or

(b) What are the inspection procedures for propeller mount?

13. (a) Explain in detail about the acceleration and deceleration cheeks in PE.

Or

(b) Explain about the adjustment of reciprocating engine controls.

14. (a) Explain about the inspection and repairs carried out in combustion section.

Or

(b) Explain about the non-routine inspection of Gas Turbine Engine.

15. (a) Write short notes on

(i) Fuel Flow Indicator.

(ii) RPM Indicator.

Or

(b) Describe in detail about dry motoring check and wet motoring check.

Part C (3 × 10 = 30)

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

16. (a) Explain about the inspection and maintenance done in cylinder head, piston head and crank case.

Or

(b) Elaborately discuss about the static and dynamic balancing of propellers.

17. (a) Explain about the procedure involved in reciprocating engine start up and warm up checks for assessing engine.

Or

(b) Briefly explain about the procedure involved in compressor wash and turbine wash.

18. (a) Explain about the full throttle operational checks and assessment of engine performance.

Or

(b) Define the following terms.

(i) Hard time maintenance.

(ii) Condition monitoring.

(iii) On condition maintenance.

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C–4779	Sub. Code 11863

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021

Sixth Semester

Aeronautical Science

AIRCRAFT COMMUNICATIONS AND NAVIGATION SYSTEM

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is the function of weather radar?

2. Define Navigation.

3. Define RADAR.

4. What is INS?

5. What are the major drivers in avionic systems?

6. What is the purpose of CVR?

7. What are the mission phases of Civil and military aircrafts?

8. Define Course Deviation Indicator.

9. What are the advantages of ILS?

10. What is the function of Audio control panel?

Part B (5 × 5 = 25)

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

11. (a) Explain amplifiers and its types.

Or

(b) Explain various modulation techniques in aircraft communication.

12. (a) Explain Selcal Decoder.

Or

(b) Explain testing procedure of a communication system.

13. (a) Explain INS in detail with necessary diagrams.

Or

(b) Explain the working of ADF with a neat sketch.

14. (a) Explain TCAS.

Or

(b) Explain the functions of ELT.

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

Or

(b) Explain aircraft weather radar system.

Part C (3 × 10 = 30)

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

16. (a) Explain Navigation and its types.

Or

(b) Describe the theory and operations of MLS.

17. (a) Explain about radio receiver and heterodyne receiver with a block diagram.

Or

(b) What is the purpose of ELT? Explain its basic principle.

18. (a) Describe the operation of Instrument Landing System.

Or

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

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C–2743	Sub. Code 11864

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021

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 Runway Orientation?
2. What is Aerodrome Reference Point?
3. Define Airspace.
4. What is Stop way?
5. What is the function of Briefing centre?
6. What is Marker Beacon?
7. What is Airport Slot?
8. Define Holding Apron.
9. What is Long haul and Short haul operations?
10. What is Flight plan?

Part B (5 × 5 = 25)

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

11. (a) Narrate the principles of Airport Layout.

Or

(b) Write short notes on Airport congestion and Delay.

12. (a) Write short notes on Taxiway markings with neat diagram.

Or

(b) Write short notes on Taxiway Lighting system.

13. (a) Explain the sources of Airport Revenue.

Or

(b) Write short notes on Aircraft Characteristics.

14. (a) Write short notes on AAI and its functions.

Or

(b) Explain – VFR and IFR.

15. (a) Explain – Controlled and Uncontrolled Airspace.

Or

(b) Write short notes on Airport Security System.

Part C (3 × 10 = 30)

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

16. (a) Describe the role of Meteorology.

Or

(b) Briefly explain the Airport operations.

17. (a) Explain the functions of ICAO and DGCA.

Or

(b) Explain – Air Freedom rights.

18. (a) Describe the History and Development of Airport.

Or

(b) Explain VASI and PAPI with neat sketch.

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C–2744	Sub. Code 11865

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021

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. Define Travel Trade.

2. Explain Retail Travel Agency.

3. Explain about Health documents.

4. What is called Ancillary services?

5. What is called Tour packages?

6. Define Travel Planning.

7. What do you understand by the term 'Recration' and 'tourism'?

8. Explain about cargo.

9. What is called tourism trends?

10. Define ITDC.

Part B (5 × 5 = 25)

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

11. (a) Write the roles and characteristics of Tour operators.

Or

(b) Write about marketing mix.

12. (a) Write the historical perspective of Tourism.

Or

(b) Describe in brief about the "PASSPORT" ruler for air travel.

13. (a) Explain the resources and steps for Itinerary planning.

Or

(b) Explain the special Interest Tours.

14. (a) Short notes on

(i) Health club and Recreation.

(ii) Food and Beverage.

Or

(b) Write the function of Modern Travel Agency.

15. (a) Explain about the role and responsibility of Travel Trade Association.

Or

(b) Explain about

(i) PATA

(ii) ICCA and its functions.

Part C (3 × 10 = 30)

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

16. (a) Explain about Thomos cook Travel agency.

Or

(b) Write the functions and types of travel agency.

17. (a) Write in detail

(i) VISA and its types

(ii) Travel Insurance.

Or

(b) Write the diversification of business

(i) MICE

(ii) Cargo

(iii) Fonex

18. (a) Explain about currencies of the 20 top tourism destination.

Or

(b) Explain about three letter city codes and write 20 country city code.

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