C–0558

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

First Semester

Aviation

BASIC ELECTRICITY AND ELECTRONICS

(2019 onwards)

Duration: 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1.   Define Ohms law.

2.   What is RMS value?

3.   What is a commutator?

4.   Classify DC generators.

5.   What is avalanche breakdown?

6.   Draw the VI characteristics of a BJT.

7.   Give the logic diagram and truth table for AND gate.

8.   Find out the binary number for 128?

9.   How does amplitude and frequency modulation differ from each other?

10. List out the different modulation types.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Derive the expression for single phase balanced circuit.

Or

(b) Derive the equivalent resistance for resistors in series and parallel.

12. (a) Elucidate the types of cores used in a transformer with its significance.

Or

(b) Explain the various starting methods for a single phase induction motor.

13. (a) Illustrate and explain the VI characteristics of a PN junction diode.

Or

(b) Explain the construction and working of bipolar junction transistor.

14. (a) Write in detail about analog to digital converter.

Or

(b) What are SR flip flops and its related concepts?

15. (a) Discuss in detail the applications of amplitude modulation.

Or

(b) Explain the optical fiber communication systems with the block diagram.

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Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Write the construction and working of dynamometer type wattmeter and energy meter.

Or

(b) Explain in detail the construction and working of a DC generator.

17. (a) What is a half wave and full wave rectifier? Explain their working in detail.

Or

(b) Explain the CB configuration of a transistor.

18. (a) Explain the various modulation techniques in detail.

Or

(b) Write in detail the construction and working of a single phase induction motor.

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C–0559	Sub. Code 97223

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Second Semester

Aviation

AIR REGULATIONS

(2019 onwards)

Duration : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1. Expand IATA.

2. What is Bilateral Agreement?

3. What is a Waypoint?

4. What is an Infectious Disease?

5. What is a Flight Information Services?

6. Define Airspace.

7. What is a Cockpit Management?

8. What is Work Related Stress?

9. What is Fatigue?

10. What is Human Error?

Answer **all** questions

11. (a) Explain in brief about

    (i) Multi–lateral Agreement

    (ii) Open Sky Policy

Or

    (b) Explain in brief about Chicago Convention.

12. (a) Explain about the Area Control Services.

Or

    (b) Explain about Clearances.

13. (a) Explain about powers of the Aircraft Accident investigators.

Or

    (b) Explain about the Indian Aircraft rules 1953.

14. (a) What is Human Overload?

Or

    (b) Explain about Personality and Attitudes.

15. (a) What is the general requirement of Operational Procedures?

Or

    (b) What are the Safety Equipment Requirements?

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Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Explain in detail the important features of the Tokyo Convention.

Or

(b) Explain about the factors affecting Human Performance.

17. (a) Explain in detail about

(i) Flight Information Service

(ii) Alerting Service

Or

(b) Explain in detail about the Indian Aircraft Act, 1934.

18. (a) List the functions of the DGCA.

Or

(b) Explain in detail about

(i) Decision Making

(ii) Avoiding Errors

(iii) Managing Errors

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B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Second Semester

Aviation

AIRCRAFT AND ENGINE (General)

(2019 onwards)

Duration : 3 Hours   Maximum : 75 Marks

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

Answer **all** questions.

1.   Distinguish between biplane and mono plane aircraft.

2.   What is Empennage?

3.   What are the components of jet engines?

4.   What do you mean by profile drag?

5.   Define aspect ratio of wing.

6.   What is aerodynamic centre of an aerofoil?

7.   Define propeller pitch?

8.   What are all materials generally used for the leading edge of the metal wing?

9.   Define propeller efficiency.

10.   Define Shear stress.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) What are the advantages and disadvantages of monoplanes compared to biplanes?

Or

(b) Explain the types of wings.

12. (a) Enumerate the basic instruments used for flying and explain their purposes.

Or

(b) Explain Mach number and Reynolds number.

13. (a) Write Short notes on Monocoque construction.

Or

(b) Briefly explain about the nose wheel steering system.

14. (a) Thrust produced by an aircraft engine is best explained by Newton's third law of motion. True/False? Justify your answer.

Or

(b) Define: Datum, Arm, Moment, CG. Empty weight.

15. (a) What are the applications of a turbojet engine? How does thrust vary with altitude and flight velocity for turbojet?

Or

(b) Explain Asymmetric Thrust.

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Part C   (3 × 10 = 30)

Answer **all** questions.

16. (a) Briefly explain the parts of aircraft and their applications.

Or

(b) Describe the major components of an aeroplane with a neat sketch and explain their functions.

17. (a) Briefly Explain the Aerofoil shape and its types.

Or

(b) Sketch a schematic diagram of a turboprop engine mark all the subsystems and explain their functions, what are the limitations of turboprop engine?

18. (a) Explain the forces acting on an aircraft.

Or

(b) With a neat sketch explain the principle of operation of a turbo prop engine.

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B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Third Semester

Aviation

COMPUTER APPLICATIONS

(2019 onwards)

Duration : 3 Hours   Maximum : 75 Marks

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

Answer **all** questions.

1. How will you classify Computers?

2. What is an Operating System?

3. Name the four different ways to view your presentation in Power Point.

4. What is an e-mail?

5. Write down the ways to create static PDF's.

6. Write down the main components of Coral Draw.

7. Compare PROM, EPROM and EEPROM.

8. What is a Webcam?

9. What are bridges in networking?

10. What is a Wi-Fi router?

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

Answer **all** questions.

11. (a) Explain the classification of computer based on size.

    Or

    (b) What is bus arbitration? Explain its types.

12. (a) What is a word template? How to create, save and close a template in MS-Word.

    Or

    (b) Explain the operation of WWW.

13. (a) Explain in detail about cropping technique in Photo shop.

    Or

    (b) What are the different shape creating tools in Coral Draw? Explain each tool.

14. (a) Explain types of memories in detail.

    Or

    (b) How to set up and install a printer and perform a test print out?

15. (a) Write about the guided transmission mediums in detail.

    Or

    (b) How to create a straight cable using standard color-coding (RJ–45)?

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Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Differentiate LINUX and UNIX.

Or

(b) Explain how to add content to a slide and the four ways to view your presentation.

17. (a) What is Web surfing and the key terms of web surfing? Explain each part of an URL.

Or

(b) How to use Adobe Reader/Writer?

18. (a) Explain the different types of data cables in detail.

Or

(b) Write about straight through and cross over cable and when to use these cables.

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B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Third Semester

Aviation

AVIATION WEATHER AND METEOROLOGY

(2019 onwards)

Duration : 3 Hours   Maximum : 75 Marks

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

Answer **all** questions.

1.   What is atmosphere?

2.   What is the significance of the equator?

3.   What is Super Cooled Large Droplets?

4.   What is wake turbulence?

5.   What is diurnal variation of temperature?

6.   What is an isothermal layer?

7.   What is Squall?

8.   What is Backing?

9.   What is a TAF?

10.   What are prognostic charts?

Answer **all** questions

11. (a) Explain in brief about the Troposphere.

Or

(b) Explain in brief about the Mesosphere.

12. (a) What is Rime ice? Explain the formation of Rime Ice on the Aircraft.

Or

(b) Explain in brief the various levels of turbulence.

13. (a) Explain the variation of density with altitude with the help of a diagram.

Or

(b) Explain about the different instruments used to Measure Temperature.

14. (a) Explain about Jet Streams.

Or

(b) Explain in brief about low level clouds.

15. (a) What is Satellite Meteorology?

Or

(b) Short notes on satellite weather image for the flight in meteorology.

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

Answer **all** questions.

16. (a) Explain in detail

(i) Stratosphere.

(ii) Thermosphere.

Or

(b) Briefly explain about the types of air temperature in aviation.

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C–0562

17. (a) What is a Thunderstorm? Explain the various stages of thunderstorm formation,

Or

(b) Explain in detail about

    (i) High Level Clouds.

    (ii) Mid-level Clouds.

18. (a) Explain about

    (i) Land Breeze.

    (ii) Sea Breeze.

Or

(b) Briefly explain importance and involvement of Meteorology on flight planning.

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B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Third Semester

Aviation

FLIGHT SAFETY AND SUPPORT SYSTEMS

(2019 onwards)

Duration : 3 Hours   Maximum : 75 Marks

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

Answer **all** questions.

1.   What is leveling?

2.   What is Hoisting?

3.   Describe Fire. What are its elements?

4.   Describe about Taxi Tracks

5.   What are compressors?

6.   What are ground service equipments?

7.   What is angular alignment in rigging?

8.   Why are protractors used in rigging?

9.   What is grabbing and dragging?

10.   Describe the Tire inflating precautions.

Part B (5 × 5 = 25)

Answer **all** questions

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

    Or

    (b) Explain about Mooring of Aircrafts.

12. (a) Explain Runway markings and Configurations.

    Or

    (b) Write short notes on the handling and maintenance of Ground Service Equipment.

13. (a) Explain about Air-conditioning and heating units in aircrafts.

    Or

    (b) Describe about Pressure Oil Unit.

14. (a) Explain the use of Tensiometers and Protractors.

    Or

    (b) Explain about rigging checks. What are the alignment and symmetrical checks involved?

15. (a) Describe in detail about Landing Gear Strut assembly inspection.

    Or

    (b) Describe about bleeding in Shock Struts.

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

Answer **all** questions.

16. (a) Explain about mooring of aircrafts in detail.

Or

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

17. (a) Explain about runway layouts and its markings in detail.

Or

(b) Briefly explain class of fire vs Fire extinguishing agents.

18. (a) Explain in detail about Maintenance of Wheel, Tires and Tubes of an Aircraft.

Or

(b) Describe about brake system inspection of aircrafts in detail.

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C–0564	Sub. Code
	97235

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Third Semester

Aviation

YOGA FOR HUMAN EXCELLENCE

(2019 onwards)

Duration : 3 Hours　　　　　　　Maximum : 75 Marks

Part A　　　　　　　$(10 \times 2 = 20)$

Answer **all** questions.

1. Define Misconceptions.

2. Define Thirumoolar thirumanthiram.

3. What is meant by Raja Yoga?

4. Define Niyama.

5. Define Physical Education.

6. Write any two techniques of teaching Yogasanas.

7. Define Suryanamaskar.

8. Define Bandhas.

9. Define Siddha.

10. Define Brahma Kumaris.

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

Answer **all** questions.

11. (a) Narrate the need of Yoga in Modern Era.

Or

(b) Write in detail about the Scope of Yoga.

12. (a) Narrate the Paths of Yoga.

Or

(b) Briefly explain about the Pratyhara, Dharana and Dhyana.

13. (a) Briefly explain about the application of Yoga in Physical Education.

Or

(b) Narrate the Techniques of Teaching Yogasanas for Diabetes Patience.

14. (a) Write in detail about the Precautions of doing Kriyas.

Or

(b) Write in detail about the Types, Methods and uses of doing Kriyas.

15. (a) Narrate

(i) Vipasana Meditation

(ii) Vedathiri Maharishi Meditation

Or

(b) Narrate

(i) Tamil Siddha Meditation

(ii) Transcendental Meditation

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Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Write in detail about the Misconceptions of Yoga.

Or

(b) Briefly explain about the Paths of Yoga.

17. (a) Narrate the techniques and benefits of any Five advanced Asanas.

Or

(b) Write about the methods of doing Suryanamaskar with diagram and examples.

18. (a) Briefly explain about the Concept and Benefits of Meditation.

Or

(b) Role of Yoga in Sports- Explain.

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B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Fourth Semester

Aviation

AIR NAVIGATION (GENERAL)

(2019 onwards)

Duration : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1. Write about Latitude and Longitude.

2. What is operating frequency of ELT?

3. What is the difference between True North and Magnetic North?

4. What is drift angle?

5. What are the four components of Dead Reckoning Navigation?

6. Expand the following:

    (a) GNSS

    (b) ADF

    (c) NDB

    (d) DME

7. Describe about Tropical maps.

8. Write about General chart properties.

9. What is solar system?

10. What are the planetary objects?

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Write short notes on Emergency Locator Transmitter.

Or

(b) Write short note on great circle course on a spherical earth.

12. (a) How the bearing and homing are understand in terms of navigation?

Or

(b) Briefly explain about Pilotage in terms of air navigation principle.

13. (a) Explain about Dead Reckoning system.

Or

(b) Briefly explain about Magnetic compass and Magnetic heading.

14. (a) Write short notes on Map reading and their importance in Navigation.

Or

(b) Write short notes on Convergence and Great Circle Track.

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15. (a) Write short notes on Zone time and Local Time.

Or

(b) How do days and years are measured in connection with Navigation?

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) What is 1 in 60 Rule? Explain about their application in Navigation?

Or

(b) Write briefly about ELT and its operation.

17. (a) Briefly explain about Wind correction angle.

Or

(b) Write the difference and relationship between course and heading. Explain with example.

18. (a) Explain Briefly about Inertial Sensors used for navigation.

Or

(b) Briefly explain about Flight Navigation System.

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B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Fourth Semester

Aviation

AVIATION COMMUNICATION

(2019 onwards)

Duration : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1. How radio is tested before establishing communication?

2. Write about the conditional clearances.

3. Write about Area Control Services.

4. When and why the search and rescue operation is carried out?

5. How the override facility is utilized in distress communication?

6. What is the purpose of service telephone?

7. What is Flight Plan?

8. How the airspace is classified?

9. What do you mean by communication failure?

10. What is meant by distress communication?

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Describe about General operating procedures of aviation radio communication.

Or

(b) Write short notes on ATC communication.

12. (a) Write short notes on Coordination between ATS units.

Or

(b) Explain about Radar in approach control service.

13. (a) Explain in detail about VHF transceiver with suitable diagram.

Or

(b) Write the application of airborne intercoms in Fighter and commercial aircraft.

14. (a) Write short notes on Holding procedure.

Or

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

15. (a) Explain the term "Aircraft lost".

Or

(b) Write short notes on Radar Assistance.

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Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Elaborate on evolution and development of technologies in aeronautical telecommunication.

Or

(b) Explain about Radio test procedure and Transfer of communication read back.

17. (a) Explain in detail about aeronautical fixed telecommunication network.

Or

(b) Explain briefly about VHF transceivers with neat diagram.

18. (a) Describe about aeronautical message handling system.

Or

(b) What is meant emergency in aviation? What are the different types of emergency? Explain in detail.

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B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Fourth Semester

Aviation

LOGISTICS AND AIR CARGO MANAGEMENT

(2019 onwards)

Duration: 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1.   What is MRP?

2.   What is JIT?

3.   What is product packaging?

4.   What are the regulations in logistics?

5.   What is supply chain management?

6.   What is inland bill of landing?

7.   What is combat aircraft?

8.   What are the types of air cargo carriers?

9.   What are the importance of air cargo activity?

10.   How to handle value cargo?

Part B   (5 × 5 = 25)

Answer **all** questions.

11. (a) Write briefly about logistics channel.

    Or

    (b) Write briefly about environmental and marketing issue in logistics.

12. (a) Difference between inbound and outbound logistics.

    Or

    (b) Explain briefly about product packaging.

13. (a) Explain about strategy formulation in logistics.

    Or

    (b) Exp]ain about the categories of TQM.

14. (a) What are the steps involved in air cargo logistics?

    Or

    (b) Explain briefly about rate classification in cargo.

15. (a) Enumerate the cargo terminal activity.

    Or

    (b) Explain briefly about airport cargo activity.

Part C   (3 × 10 = 30)

Answer **all** questions.

16. (a) Explain in detail about components of logistics.

    Or

    (b) Explain in detail about alternative warehousing.

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17. (a) Explain in detail about how to improve logistics performance.

Or

(b) Enumerate cargo concepts and industry regulations.

18. (a) Explain in detail about aircraft handling with cargo.

Or

(b) Explain in detail about handling of perishable, valuable and special cargo.

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C–0568		Sub. Code
		97251

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

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.   What is air operator?

2.   List out the features of service.

3.   What are the different types of transport service?

4.   Define Positioning.

5.   What is intangibility?

6.   What is Customer service?

7.   What are the reasons for crisis in Management?

8.   What is sustainability?

9.   What is prioritization?

10.   Define Public relation.

Part B   (5 × 5 = 25)

Answer **all** questions.

11. (a) Write about the importance of communication in Public relation.

Or

(b) Enumerate the scope of Relationship Marketing.

12. (a) List out the role of hotel industry in tourism.

Or

(b) Write about the role and importance of Transport in business.

13. (a) Elaborate the challenges that are faced in public relation.

Or

(b) Explain the role of good PR professionals.

14. (a) Explain the four steps of PR process.

Or

(b) List out dos and don'ts of media handling.

15. (a) Explain the key characteristics of low cost carriers.

Or

(b) What are the strategies of PR personnel?

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Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) What is public relation? Explain the duties and responsibilities of PR.

Or

(b) Communication is the successful key indicator for the business – Justify

17. (a) What are the 7c's in travel service marketing and how it has an impact in business.

Or

(b) Define Market Positioning. Write in brief about the strategies and tactics to position your business.

18. (a) What are the steps in Public relation process and smart ways to approach crisis situations?

Or

(b) Write short notes on

(i) Airport operators

(ii) Accessibility

(iii) Hospitality

(iv) Empathy

(v) Persuasion

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C–0568

C–0569	Sub. Code 97252

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Fifth Semester

Aviation

AIRCRAFT SYSTEMS AND INSTRUMENTS

(2019 onwards)

Duration : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1. What is meant by pneumatic system and state some of the devices that are operated by pneumatic systems in aircraft.

2. What are the types of landing gear that are used in aircraft?

3. List down the primary and secondary control surfaces of a modern airplane. State their functions.

4. Give any three differences between analog and digital FBW.

5. Why do you use fuel heater in gas turbine engine fuel system?

6. Write a short note on fuel jettisoning.

7. What is the function of cabin air pressure safety valve?

8. Write a short note on fire extinguishing system?

9. Classify Aircraft Instruments.

10. Define Rigidity in space and Precession.

<div align="center">

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

Answer **all** questions.

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11. (a) List down the major components of in aircraft pneumatic system. Also bring out the differences between hydraulic and pneumatic systems.

<div align="center">Or</div>

    (b) Explain the working of brake system.

12. (a) Explain various types of control systems with neat sketches.

<div align="center">Or</div>

    (b) Define Autopilot system and explain its principles of operation.

13. (a) Explain in detail the basic components of aircraft fuel systems and their types.

<div align="center">Or</div>

    (b) List out the various aircraft engine ignition system. Explain the working of battery ignition.

14. (a) What is the need for cabin air pressurization? Explain a typical air pressurization system with pressurization controller.

<div align="center">Or</div>

    (b) Explain in detail about the oxygen systems used in aircraft with its types.

<div align="center">

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15. (a) Write short notes on gyroscopic instruments

Or

(b) Explain in detail about the various engine instruments used in aircraft.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) With a neat sketch explain Boeing 757 centre and left hydraulic system.

Or

(b) Explain in detail about an aircraft landing gear and its components with neat sketches.

17. (a) Explain the fully powered flight control system.

Or

(b) With neat sketch explain about vapour cycle cooling systems used in aircraft.

18. (a) Brief about pitot-static system. And explain how it got integrated with aircraft'

Or

(b) Explain the purpose and operation of mach meter.

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3   C–0569

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Fifth Semester

Aviation

AVIATION SECURITY AND SAFETY

(2019 onwards)

Duration : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1.   List out the roles of CISF.

2.   What is BDDS?

3.   What is air cargo used for?

4.   What are the types of In-flight threats?

5.   What is the role of hostage negotiation team?

6.   Explain airport enforcement authority.

7.   What is baggage screening used for?

8.   Which machines are used at airport security?

9.   What is meant by aircraft hijacking?

10.   What are the facilities provided at the airport terminal?

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

Answer **all** questions.

11. (a) Write down the roles of BCAS in Indian aviation.

Or

(b) Explain bomb detection and disposal squad for airport.

12. (a) Write a short note on hold baggage security screening system.

Or

(b) Write a short note on security of air cargo shipments.

13. (a) Write down the guidelines on handling bomb threats at airport.

Or

(b) Explain the methods to combat hijacking.

14. (a) Write a short note on International aviation law and policy.

Or

(b) Explain the methods to carry out aircraft searches.

15. (a) Explain passenger screening technologies.

Or

(b) Explain how to determine the level of bomb threat call.

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Part C   (3 × 10 = 30)

Answer **all** questions.

16. (a) Explain briefly the different types of security screening checkpoints at the airport.

Or

(b) Explain in detail FAA and CAA.

17. (a) Explain briefly the ways to handle passengers of special categories.

Or

(b) Explain airport metal detectors and List out the specifications of hand held metal detectors.

18. (a) Explain briefly the ways to handle prisoners and weapons.

Or

(b) Explain briefly airport emergency plan.

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C–0570

C–0571

Sub. Code
97254

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Fifth Semester

Aviation

RADIO AIDS AND INSTRUMENTS

(2019 onwards)

Duration : 3 Hours　　　　　Maximum : 75 Marks

Part A　　　　　(10 × 2 = 20)

Answer **all** questions.

1.　Define Frequency.

2.　Define Amplitude.

3.　What are ground waves?

4.　What is Attenuation?

5.　What is HF?

6.　Expand VHF.

7.　What is cone of confusion?

8.　What are marker beacons?

9.　What is Localizer?

10.　What is RADAR?

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

Answer **all** questions.

11. (a) What are the general properties of radio waves?

Or

(b) Explain in brief about Modulation.

12. (a) Explain about Sky waves and Ground waves.

Or

(b) What is multi-hop refraction? Explain with the help of a diagram.

13. (a) What are LF radio waves? Explain in brief.

Or

(b) Explain about UHF radio waves.

14. (a) Explain the working of MLS system.

Or

(b) Explain in brief the working of VOR system.

15. (a) What is Primary Radar?

Or

(b) What is Precision Approach Radar?

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

Answer **all** questions.

16. (a) Explain in detail about Phase Modulation.

        Or

    (b) Explain about

        (i)   General properties of Radio waves.

        (ii) Polarization.

17. (a) Explain about the factors affecting Range of Communication.

        Or

    (b) Explain the operating principle of DME.

18. (a) Explain the working of Radio Altimeters in detail.

        Or

    (b) Explain in detail the working of ILS system.

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C–0572	Sub. Code
	97255

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Fifth Semester

Aviation

TOTAL QUALITY MANAGEMENT

(2019 onwards)

Duration : 3 Hours   Maximum : 75 Marks

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

Answer **all** questions.

1.   Define TQM.

2.   Define Cross by's 4 policies.

3.   Define Customer Complaints.

4.   What is called 5S?

5.   Define FMEA.

6.   What are the seven modern tools of Quality?

7.   What is called Cost of Quality?

8.   Define TPM.

9.   What is the use of implementing TQM?

10.   Mention the upgrades in ISO 14000.5.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Define Juran's Trilogy in detail.

Or

(b) Explain in detail about the Barriers in implementing TQM.

12. (a) Explain in detail about KAIZEN and KAIRO.

Or

(b) What are the qualities of a LEADER? Explain in detail.

13. (a) Explain any two Conventional Tools of Quality.

Or

(b) Explain the implementation of FMEA in manufacturing sector.

14. (a) Explain QFD in detail.

Or

(b) Define Quality Circle with better real-time examples.

15. (a) What is the requirement and benefits of ISO Certification?

Or

(b) Explain the Documentation and Auditing Procedures for ISO 9000-2000.

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

Answer **all** questions.

16. (a) Describe Dimensions of Quality in manufacturing and IT sectors.

Or

(b) Explain PDSA Cycle in detail.

17. (a) Explain in detail about Six Sigma.

Or

(b) Explain the improvements required in TPM in detail.

18. (a) Explain in detail about ISO 14000.

Or

(b) Explain any THREE Modern Tools of Quality?

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3   C–0572

C–0574		Sub. Code
		97262

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Sixth Semester

Aviation

PRINCIPLES OF ROTORCRAFT

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. Differentiate Main Rotor and Tail Rotor in helicopter.

2. Define Rotor Efficiency.

3. What is called Hovering?

4. Define Maximum Lift of helicopter.

5. What is called control response?

6. Differentiate static and dynamic stability.

7. Define rate of climb.

8. What is the purpose of sensors?

9. What are the stresses may form in helicopter rotor blades?

10. Define lagging motion of helicopter blades.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain the connection between Power plant, Gearbox, Main Rotor and Tail Rotor.

Or

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

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

Or

(b) What is the reason for blade stall in helicopter? How to rectify the problem?

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

Or

(b) Compare lateral stability & longitudinal stability in a helicopter.

14. (a) Explain in detail about the range and endurance of a helicopter.

Or

(b) Explain Autorotatiol of helicopter in detail.

15. (a) Explain feathering motion of blades in helicopter.

Or

(b) Explain in detail about the design conditions of the Rotor in helicopter.

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Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) How to calculate the number of blades for a helicopter? How come the blade area required will be helpful?

Or

(b) Explain Elementary Rotary Wing and airfoil characteristics of helicopter blades in detail.

17. (a) Explain Best Climbing Speed and Autorotation of Helicopter in detail.

Or

(b) Compare piston Engine. Gas Turbine engine and Ramjet Engine based on requirements.

18. (a) Explain in detail about AFCS for a helicopter.

Or

(b) Explain the factors affecting weight and cost of helicopter.

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3 C–0574

C–1279	Sub. Code 97213

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

First Semester

Aviation

INTRODUCTION TO AVIATION INDUSTRY

(2023 onwards)

Duration : 3 Hours   Maximum : 75 Marks

Part A   (10 × 1 = 10)

Answer **all** questions.

1. Which international organization sets global standards for aviation safety, security, efficiency and environmental protection?

   (a) FAA   (b) ICAO

   (c) IATA   (d) TSA

2. What is the purpose of an IATA airport code?

   (a) Identifying Airlines

   (b) Identifying Airport locations

   (c) Identifying Airport

   (d) Identifying Flight Routes

3. What is the primary role of BCAs in the Indian aviation industry?

   (a) Regulating Airline Operations

   (b) Ensuring Airport Security

   (c) Managing Air Traffic Control

   (d) Overseeing Aviation Regulations

4. Which ministry in India is responsible for the overall administration of civil aviation activities in the country?

   (a) Ministry of Defence

   (b) Ministry of Transport

   (c) Ministry of Civil Aviation

   (d) Ministry of Home Affairs

5. What does the term "ATC" stand for in commercial aviation?

   (a) Airline Ticket Counter

   (b) Aircraft Technical Check

   (c) Air Traffic Control

   (d) Aviation Training Center

6. What does the abbreviation "MRO" represent in commercial Aviation?

   (a) Maintenance, Repair and overhaul

   (b) Maximum Runway occupancy

   (c) Minimum Route optimization

   (d) Master Radio operator

7. In India, which organization, oversees airport operations, development and regulations?

   (a) DGCA   (b) CISF

   (c) AAI   (d) BCAS

8. What is the primary purpose of Terminal planning in airport management?

   (a) Aircraft maintenance

   (b) Ensuring Runway safety

   (c) Efficient passenger flow and convenience

   (d) Managing Air traffic control systems

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9. Which airline is the Flag carrier of the United Arab Emirates and one of the largest operators of wide body aircraft in world?

    (a) Qutar Airways   (b) Emirates

    (c) Lufthansa   (d) British Airways

10. What is the primary factor contributing to the growth of low cost carries in the India airline Industry?

    (a) Premium services

    (b) High Ticket prices

    (c) Competitive pricing and increased connecting

    (d) Limited passenger demand

Part B   (5 × 5 = 25)

Answer **all** questions.

11. (a) Discuss the various types of Aviation.

                Or

    (b) List down the "Six Freedoms of the air concept".

12. (a) Explain the role and responsibilities of CISF.

                Or

    (b) Discuss the significance of Low cost carriers in India.

13. (a) Explain the concept of special service requirement codes in the airline industry.

                Or

    (b) Explore the role of TACT in enhancing safety in Airports.

14. (a) Explain the functions of Domestic Airports.

                Or

    (b) Discuss the Indian Scenario of Airport Management.

3   C–1279

15. (a) Discuss the major players in Airline Industry.

Or

(b) Examine the current challenges facing in Airline Industry.

Part C (5 × 8 = 40)

Answer **all** questions.

16. (a) Discuss the role and significance of the IATA.

Or

(b) Explain the functions of FAA.

17. (a) Write a brief note on DGCA.

Or

(b) Discuss the future of India civil aviation.

18. (a) What are the key technologies used in commercial aviation?

Or

(b) What are TCAs, and how do they facilitate air traffic management with specific regions?

19. (a) Explain the organisational structural of an Airport.

Or

(b) Briefly explain the discuss about Airport Regulatory policies.

20. (a) Explain about the Global and Indian Scenario of Airport Management.

Or

(b) Explain the competition in Airline Industry.

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B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

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. An ohmmeter is a ————.

    (a) moving iron instrument

    (b) moving coil instrument

    (c) dynamometer instrument

    (d) none of the above

2. When electrical components such as RLC are complemented with lines of segment in a network the then the topology is called ————.

    (a) Graph   (b) Node

    (c) Loop   (d) Mesh

3. It is impossible to start a differential compounded dc motor.

    (a) True   (b) False

4. What is the basic difference between a three-phase and single-phase induction motor?

(a) Simple to Construct

(b) Reliable

(c) Economical

(d) All Mentioned Above

5. A rectifier has ————— directional flow of charge?

(a) Uni   (b) Bi

(c) Multi   (d) Zero

6. Which of the following is true about Zener diode?

(a) It is lightly doped

(b) It is mostly used in voltage regulator electronic circuits

(c) It is used in forward bias

(d) It has avalanche breakdown

7. Which of the following logic expressions represents the logic diagram shown?
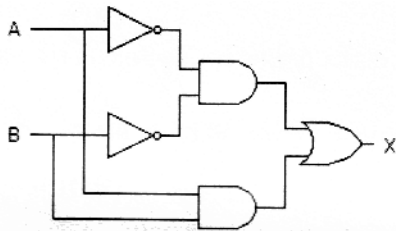
(a) X=AB'+A'B

(b) X=(AB)'+AB

(c) X=(AB)'+A'B'

(d) X=A'B'+AB

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8. What is the binary subtraction of 101001 – 010110 = ?

   (a) 010011   (b) 100110

   (c) 011001   (d) 010010

9. Based on Which principle does a moving coil meter work?

   (a) Faraday's Current law

   (b) Faraday's Voltage law

   (c) Ohm's law

   (d) Maxwell's law

10. ———— is a passive transducer.

   (a) Tachogenerator

   (b) Solar cell

   (c) LVCT

   (d) Thermocouple

Part B   (5 × 5 = 25)

Answer **all** questions.

11. (a) Distinguish between series and parallel circuits.

   Or

   (b) Explain the power and power factor measuring in the three phase by two wattmeter method.

12. (a) Derive the emf equation of DC generator.

   Or

   (b) List the advantages and disadvantages of an induction motor.

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13. (a) Show the construction and operation of MOSFET with neat diagram.

Or

(b) Describe the working principle of SCR and its VI characteristics.

14. (a) Show that how NAND gates can be used to implement the basic Boolean function?

Or

(b) Explain the working of full adder.

15. (a) Derive the torque equation for single phase induction type energy meter.

Or

(b) Explain different types of PF meters.

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

Answer **all** questions.

16. (a) A sinusoidal voltage of 10 sin $100t$ is connected in series with a switch and $R = 10\Omega$ and L = 0.1 H. If the switch is closed at t = 0, Determine the transient current $i(t)$.

Or

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(b) Calculate the value of

    (i)   Load Current and Current supplied by the Battery

    (ii) Voltage at the Load Current

    (iii) Power developed by the Load.
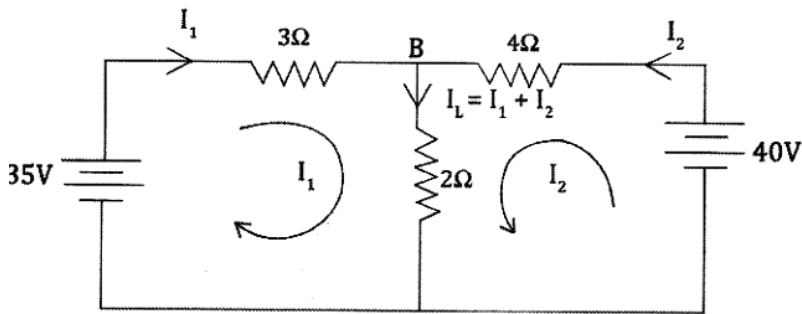
17. (a) Using step by step approach, develop a mathematical expression for torque developed in DC machine?

Or

(b) Draw a general schematic of a single phase transformer. Describe its working principle and deduce the expression for emf in secondary winding.

18. (a) Derive the expression for diffusion capacitance of PN junction diode.

Or

(b) Make use of a diagram, explain the working of Zener diode and its Characteristics.

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19. (a) What are codes? Explain the different codes with examples.

Or

(b) Draw and explain the working of 4 bit — subtractor circuit.

20. (a) A moving coil instrument whose resistance is $25\,\Omega$ gives a full scale deflection with a current of 1 mA. This instrument is to be used with a manganin shunt, to extent its range to 100 mA. Calculate the error caused by a 10°C rise in temperature when:

(i) Copper moving coil is connected directly across the manganin shunt.

(ii) A 75 ohm manganin resistance is used in series with the instrument moving coil.

The temperature co-efficient of copper is 0.004°C and that of manganin is 0.00015°C.

Or

(b) Explain in brief about MI instrument with neat sketch.

———————

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