GENERAL INURANCE CORPORATION OF INDIA

Syllabus for Insurance Stream
Recruitment of Scale 1 Officer (Assistant Manager) at GIC Re – Domain Knowledge

1. Introduction to General Insurance
2. Policy Documents and Forms
3. Fire and Marine Insurance
4. Motor Insurance and Personal Liability Insurance
5. Engineering and other insurance
6. Underwriting
7. Ratings and Premium
8. Claims
9. Insurance Reserves and Accounting

CANDIDATES ARE ADVISED TO REFER IC-11 – "PRACTICE OF GENERAL INSURANCE" PUBLISHED BY INSURANCE INSTITUTE OF INDIA

Disclaimer: The syllabus mentioned above is exhaustive in nature and not be considered restrictive. The candidate is expected to have in-depth knowledge of his/her domain.

Syllabus for Mechanical Engineering
Recruitment of Scale 1 Officer (Assistant Manager) at GIC Re – Domain Knowledge

APPLIED MECHANICS AND DESIGN

Engineering Mechanics: Free body diagrams and equilibrium; trusses and frames; virtual work; kinematics and dynamics of particles and of rigid bodies in plane motion, including impulse and momentum (linear and angular) and energy formulations; impact.

Strength of Materials: Stress and strain, stress-strain relationship and elastic constants, Mohr's circle for plane stress and plane strain, thin cylinders; shear force and bending moment diagrams; bending and shear stresses; deflection of beams; torsion of circular shafts; Euler's theory of columns; strain energy methods; thermal stresses.

Theory of Machines: Displacement, velocity and acceleration analysis of plane mechanisms; dynamic analysis of slider-crank mechanism; gear trains; flywheels.

Vibrations: Free and forced vibration of single degree of freedom systems; effect of damping; vibration isolation; resonance, critical speeds of shafts.

Design: Design for static and dynamic loading; failure theories; fatigue strength and the S-N diagram; principles of the design of machine elements such as bolted, riveted and welded joints, shafts, spur gears, rolling and sliding contact bearings, brakes and clutches.

FLUID MECHANICS AND THERMAL SCIENCES

Fluid Mechanics: Fluid properties; fluid statics, manometry, buoyancy; control-volume analysis of mass, momentum and energy; fluid acceleration; differential equations of continuity and momentum; Bernoulli's equation; viscous flow of incompressible fluids; boundary layer; elementary turbulent flow; flow through pipes, head losses in pipes, bends etc.

Heat-Transfer: Modes of heat transfer; one dimensional heat conduction, resistance concept, electrical analogy, unsteady heat conduction, fins; dimensionless parameters in free and forced convective heat transfer, various correlations for heat transfer in flow over flat plates and through pipes; thermal boundary layer; effect of turbulence; radiative heat transfer, black and grey surfaces, shape factors, network analysis; heat exchanger performance, LMTD and NTU methods.

Thermodynamics: Zeroth, First and Second laws of thermodynamics; thermodynamic system and processes; Carnot cycle. irreversibility and availability; behaviour of ideal and real gases, properties of pure substances, calculation of work and heat in ideal processes; analysis of thermodynamic cycles related to energy conversion.

Applications: Power Engineering: Steam Tables, Rankine, Brayton cycles with regeneration and reheat. I.C Engines: air-standard Otto, Diesel cycles. Refrigeration and air-conditioning: Vapour refrigeration cycle, heat pumps, gas refrigeration, Reverse Brayton cycle; moist air: psychrometric chart, basic psychrometric processes. Turbomachinery: Pelton-wheel, Francis and Kaplan turbines — impulse and reaction principles, velocity diagrams.

MANUFACTURING AND INDUSTRIAL ENGINEERING

Engineering Materials: Structure and properties of engineering materials, heat treatment, stress-strain diagrams for engineering materials.

Metal Casting: Design of patterns, moulds and cores; solidification and cooling; riser and gating design, design considerations.

Forming: Plastic deformation and yield criteria; fundamentals of hot and cold working processes; load estimation for bulk (forging, rolling, extrusion, drawing) and sheet (shearing, deep drawing, bending) metal forming processes; principles of powder metallurgy.

Joining: Physics of welding, brazing and soldering; adhesive bonding; design considerations in welding.

Machining and Machine Tool Operations: Mechanics of machining, single and multi-point cutting tools, tool geometry and materials, tool life and wear; economics of machining; principles of non-traditional machining processes; principles of work holding, principles of design of jigs and fixtures

Metrology and Inspection: Limits, fits and tolerances; linear and angular measurements; comparators; gauge design; interferometry; form and finish measurement; alignment and testing methods; tolerance analysis in manufacturing and assembly.

Computer Integrated Manufacturing: Basic concepts of CAD/CAM and their integration tools.

Production Planning and Control: Forecasting models, aggregate production planning, scheduling, materials requirement planning.

Inventory Control: Deterministic and probabilistic models; safety stock inventory control systems.

Operations Research: Linear programming, simplex and duplex method, transportation, assignment, network flow models, simple queuing models, PERT and CPM.

Disclaimer: The syllabus mentioned above is exhaustive in nature and not be considered restrictive. The candidate is expected to have in-depth knowledge of his/her domain.

General Insurance Corporation of India

Recruitment of Scale I Officers (Assistant Manager)

SYLLABUS FOR AERONAUTICAL ENGINEERING

AIRPLANE CONTROL SYSTEMS
Conventional Systems – power assisted and fully powered flight controls – power actuated systems –engine control systems – push pull rod system – operating principles – modern control systems –digital fly by wire systems – auto pilot system, active control technology

ENGINE SYSTEMS
Fuel systems – piston and jet engines – components - multi-engine fuel systems, lubricating systems -piston and jet engines – starting and ignition systems – piston and jet engines

AIRCRAFT INSTRUMENTS
Flight instruments and navigation instruments – accelerometers, air speed indicators – mach meters –altimeters - gyroscopic instruments– principles and operation – study of various types of engine instruments – tachometers – temperature gauges – pressure gauge – operation and principles.

AIRCRAFT SYSTEMS
Hydraulic systems – Study of typical workable systems – components – hydraulic systems controllers– modes of operation – pneumatic systems – working principles – typical pneumatic power system –brake system – components, landing gear systems – classification – shock absorbers – retractive mechanism.

POWER PLANTS
Basic ideas about piston, turboprop and jet engines - use of propeller and jets for thrust production -comparative merits, principles of operation of rocket, types of rockets and typical applications,exploration into space.

AIRPLANE STRUCTURES AND MATERIALS
General types of construction, monocoque, semi-monocoque and geodesic constructions, typical wing and fuselage structure. Metallic and non-metallic materials, use of aluminium alloy, titanium, stainless steel and composite materials. Stresses and strains – hooke's law – stress - strain diagrams – elastic constants.

AIRCRAFT CONFIGURATIONS
Different types of flight vehicles, classifications. Components of an airplane and their functions. Conventional control, powered control, basic instruments for flying - typical systems for control actuation.

HISTORY OF FLIGHT
Balloon flight – ornithopters - early airplanes by wright brothers, biplanes and monoplanes, developments in aerodynamics, materials, structures and propulsion over the years.

BASICS OF FLIGHT MECHANICS
Physical properties and structure of the atmosphere, temperature, pressure and altitude relationships, newton's law of motions applied to aeronautics - evolution of lift, drag and moment. aerofoils, mach number, maneuvers.

CRUISING FLIGHT PERFORMANCE

Forces and moments acting on a flight vehicle - Equation of motion of a rigid flight vehicle – Different types of drag –estimation of parasite drag co-efficient by proper area method- Drag polar of vehicles from low speed to high speeds - Variation of thrust, power with velocity and altitudes for air breathing engines . Performance of airplane in level flight - Power available and power required curves. Maximum speed in level flight - Conditions for minimum drag and power required

STABILITY

Static and dynamic stability - Influence of CG location - Dihedral effect - Coupling between rolling and yawing moments - Aileron reversal - Weather cocking effect – Rudder requirements – One engine inoperative condition - Rudder lock - Spiral, divergence, Dutch roll, auto rotation and spin.

FUNDAMENTALS OF AIR BREATHING ENGINES

Operating principles of piston engines – thermal efficiency calculations – classification of piston engines - illustration of working of gas turbine engine – the thrust equation – factors affecting thrust – effect of pressure, velocity and temperature changes of air entering compressor – methods of thrust augmentation – characteristics of turboprop, turbofan and turbojet – performance characteristics.

COMPRESSORS FOR JET ENGINES

Principle of operation of centrifugal compressor and axial flow compressor– Work done and pressure rise – velocity diagrams – degree of reaction – free vortex and constant reaction designs of axial flow compressor – performance characteristics of centrifugal and axial flow compressors– stage efficiency calculations - cascade testing

TURBINES FOR JET ENGINES

Principle of operation of axial flow turbines– limitations of radial flow turbines- Work done and pressure rise – Velocity diagrams – degree of reaction – free vortex and constant nozzle angle designs – performance characteristics of axial flow turbine– turbine blade cooling methods – stage efficiency calculations – basic blade profile design considerations – matching of compressor and turbine

HELICOPTER THEORY

Helicopter as an aircraft, Basic features, Layout, Generation of lift, Main rotor, Gearbox, tail rotor, power plant, considerations on blade, flapping and feathering, Rotor controls and various types of rotor, Blade loading, Effect of solidity, profile drag, compressibility etc., Blade area required, number of Blades, Blade form, Power losses, Rotor efficiency.

AIR TRAFFIC CONTROL AND PLANNING

Objectives of air traffic control systems - Parts of ATC services – Scope and Provision of ATCs – VFR & IFR operations – Classification of ATS air spaces – Various kinds of separation – Altimeter setting procedures – Establishment, designation and identification of units providing ATS – Division of responsibility of control.

AIRFRAME MAINTENANCE AND REPAIR

Hazardous materials storage and handling, Aircraft furnishing practices - Equipments. Trouble shooting. Theory and practices.

Disclaimer: The syllabus mentioned above is exhaustive in nature and not be considered restrictive. The candidate is expected to have in-depth knowledge of his/her domain.

Recruitment of Scale I Officers (Assistant Manager) at

General Insurance Corporation of India 2016.

SYLLABUS for Legal Stream

S.No	Subject	Details
1.	Insurance laws and regulation	a. General Insurance Business (Nationalization) Act, 1972 b. Insurance Act, 1938 c. Insurance Regulation Development Authority of India Act, 1999 d. Motor vehicle Act, 1988 e. IRDA Regulations
2.	Constitutional Law, Administrative law & Civil Law	a. Constitution of India, 1950 b. Administrative Law c. Civil procedure Code, 1908 d. Limitation Act, 1908 e. Indian Evidence Act, 1872 f. Indian Contract Act, 1972 g. Transfer of Property Act, 1882 g. Registration Act, 1908 h. Indian Stamp Act, i. Bombay Stamp Act j. Arbitration and Conciliation Act
3.	Miscellaneous Law	a. Labour Laws b. Companies Act, 2013 c. Information Technology Act d. Competition Act e. Right To Information Act, 2005
4.	Legal Language and Legal Current affairs	

Disclaimer: The syllabus mentioned above is exhaustive in nature and not be considered restrictive. The candidate is expected to have in-depth knowledge of his/her domain.

Syllabus for Finance & Accounts
Recruitment Scale 1 Assistant Managers at GIC Re – Domain Knowledge

1. Fundamentals of Accounting with focus on data entry and basic accounting laws

2. Fundamentals of Business Law/Corporate Law

3. Income Tax Act 1961 with focus on latest Budget Amendments (budget effective 01.04.2016)

4. Indirect Taxation with focus on Maharashtra state tax (MVAT) & Service Tax Act 1994

5. Investment Operations with focus on Fundamentals, knowledge of workings of BSE, NSE commodities exchange

6. Fundamentals of Auditing with focus on Auditing and Assurance Standards as issued by ICAI

7. Fundamentals of Cost Accounting with focus on Budgeting

8. Banking services fundamentals with focus on LC, bank operations

Disclaimer: The syllabus mentioned above is exhaustive in nature and not be considered restrictive. The candidate is expected to have in-depth knowledge of his/her domain.