

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
4. Indirect Taxation with focus on CGST Act, 2017
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.



IT SYLLABUS

Skill Set	Area
Operating System	Windows/Linux
Networking	LAN/WAN/Wireless using CISCO
DBA (RDBMS)	Oracle/SQL Server
Security	IDS/Firewalls/PK1
Application Development	Programming Language, OOPS, SAP BASIS,SAP ABAP,SAP BW/Business Objects, SAP HCM, SAP TRM, SAP IMIC, SAP FICO/FSCE
Web designing	HTML CSS, PHP, Apache, MySQL Joomla. Web Services, XML, ASP/JSP



**Recruitment of Scale I Officers (Assistant Manager) at
General Insurance Corporation of India 2019.**

SYLLABUS for Legal Stream

S.No	Subject	Details
1.	Insurance laws and Regulations	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 & Criminal 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 h. Registration Act, 1908 i. Indian Stamp Act, 1899 j. Bombay Stamp Act, 1958 k. Arbitration and Conciliation Act, 1996 l. Indian Penal Code, 1860 m. Code of criminal procedure, 1973
3.	Miscellaneous Law	a. Labour Laws b. Companies Act, 2013 c. Information Technology Act, 2000 d. Competition Act, 2002 e. Right To Information Act, 2005 f. Specific Relief Act, 1963 h. The Negotiable Instruments Act, 1881 i. Partnership Act, 1932 j. Taxation Laws including GST k. Insolvency and Bankruptcy Code, 2016 l. Securities Laws m. Intellectual Property laws n. Consumer Protection Act, 1986
4.	Legal Language and Legal Current affairs	

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Syllabus for Automobile 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.

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

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.

AUTOMOBILE ENGINEERING

Internal Combustion Engines: Classification – SI Engines, CI Engines, Engine-Lubrication, Cooling, Supercharging/Turbo charging, Engine testing & performance, Engine Exhaust emission and its control, Alternative fuels and Basics of electronic Engine control.

Hybrid Electric and Fuel cell Vehicles: Fuel cell technology, Fuel cell performance, Hybrid Electric Technology and Electric drive trains, Hybrid vehicle technology.



Automotive Systems: Clutches, Transmission, Drive Lines, Final Drive & Rear Axles, Braking & Suspension systems, Steering, Tyres, Road Wheels and hubs.

Chassis and Body engineering: Vehicle body styles, Vehicle aerodynamics, ergonomic and preliminary design, Body Loads, Strength of Vehicles

Vehicle Maintenance/Dynamics/safety

Transport Management and Motor Industry: Motor vehicle Act, Taxation, Insurance, Passenger and goods transport operations, Advance techniques in Traffic management.

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SYLLABUS FOR CIVIL ENGINEERING

CE Civil Engineering

Section 1: Engineering Mathematics

Linear Algebra: Matrix algebra; Systems of linear equations; Eigen values and Eigenvectors.

Calculus: Functions of single variable; Limit, continuity and differentiability; Mean value theorems, local maxima and minima, Taylor and Maclaurin series; Evaluation of definite and indefinite integrals, application of definite integral to obtain area and volume; Partial derivatives; Total derivative; Gradient, Divergence and Curl, Vector identities, Directional derivatives, Line, Surface and Volume integrals, Stokes, Gauss and Green's theorems.

Ordinary Differential Equation (ODE): First order (linear and non-linear) equations; higher order linear equations with constant coefficients; Euler-Cauchy equations; Laplace transform and its application in solving linear ODEs; initial and boundary value problems.

Partial Differential Equation (PDE): Fourier series; separation of variables; solutions of one-dimensional diffusion equation; first and second order one-dimensional wave equation and two-dimensional Laplace equation.

Probability and Statistics: Definitions of probability and sampling theorems; Conditional probability; Discrete Random variables: Poisson and Binomial distributions; Continuous random variables: normal and exponential distributions; Descriptive statistics - Mean, median, mode and standard deviation; Hypothesis testing.

Numerical Methods: Accuracy and precision; error analysis. Numerical solutions of linear and non-linear algebraic equations; Least square approximation, Newton's and Lagrange polynomials, numerical differentiation, Integration by trapezoidal and Simpson's rule, single and multi-step methods for first order differential equations.

Section 2: Structural Engineering

Engineering Mechanics: System of forces, free-body diagrams, equilibrium equations; Internal forces in structures; Friction and its applications; Kinematics of point mass and rigid body; Centre of mass; Euler's equations of motion; Impulse-momentum; Energy methods; Principles of virtual work.

Solid Mechanics: Bending moment and shear force in statically determinate beams; Simple stress and strain relationships; Theories of failures; Simple bending theory, flexural and shear stresses, shear centre; Uniform torsion, buckling of column, combined and direct bending stresses.

Structural Analysis: Statically determinate and indeterminate structures by force/ energy methods; Method of superposition; Analysis of trusses, arches, beams, cables and frames; Displacement methods: Slope deflection and moment distribution methods; Influence lines; Stiffness and flexibility methods of structural analysis.



Construction Materials and Management: Construction Materials: Structural steel - composition, material properties and behaviour; Concrete - constituents, mix design, short-term and long-term properties; Bricks and mortar; Timber; Bitumen. Construction Management: Types of construction projects; Tendering and construction contracts; Rate analysis and standard specifications; Cost estimation; Project planning and network analysis - PERT and CPM.

Concrete Structures: Working stress, Limit state and Ultimate load design concepts; Design of beams, slabs, columns; Bond and development length; Prestressed concrete; Analysis of beam sections at transfer and service loads.

Steel Structures: Working stress and Limit state design concepts; Design of tension and compression members, beams and beam- columns, column bases; Connections – simple and eccentric, beam-column connections, plate girders and trusses; Plastic analysis of beams and frames.

Section 3: Geotechnical Engineering

Soil Mechanics: Origin of soils, soil structure and fabric; Three-phase system and phase relationships, index properties; Unified and Indian standard soil classification system; Permeability - one dimensional flow, Darcy's law; Seepage through soils - two-dimensional flow, flow nets, uplift pressure, piping; Principle of effective stress, capillarity, seepage force and quicksand condition; Compaction in laboratory and field conditions; Onedimensional consolidation, time rate of consolidation; Mohr's circle, stress paths, effective and total shear strength parameters, characteristics of clays and sand.

Foundation Engineering: Sub-surface investigations - scope, drilling bore holes, sampling, plate load test, standard penetration and cone penetration tests; Earth pressure theories - Rankine and Coulomb; Stability of slopes - finite and infinite slopes, method of slices and Bishop's method; Stress distribution in soils - Boussinesq's and Westergaard's theories, pressure bulbs; Shallow foundations - Terzaghi's and Meyerhoff's bearing capacity theories, effect of water table; Combined footing and raft foundation; Contact pressure; Settlement analysis in sands and clays; Deep foundations - types of piles, dynamic and static formulae, load capacity of piles in sands and clays, pile load test, negative skin friction.

Section 4: Water Resources Engineering

Fluid Mechanics: Properties of fluids, fluid statics; Continuity, momentum, energy and corresponding equations; Potential flow, applications of momentum and energy equations; Laminar and turbulent flow; Flow in pipes, pipe networks; Concept of boundary layer and its growth.

Hydraulics: Forces on immersed bodies; Flow measurement in channels and pipes; Dimensional analysis and hydraulic similitude; Kinematics of flow, velocity triangles; Basics of hydraulic machines, specific speed of pumps and turbines; Channel Hydraulics - Energy-depth relationships, specific energy, critical flow, slope profile, hydraulic jump, uniform flow and gradually varied flow.



Hydrology: Hydrologic cycle, precipitation, evaporation, evapo-transpiration, watershed, infiltration, unit hydrographs, hydrograph analysis, flood estimation and routing, reservoir capacity, reservoir and channel routing, surface run-off models, ground water hydrology -steady state well hydraulics and aquifers; Application of Darcy's law.

Irrigation: Duty, delta, estimation of evapo-transpiration; Crop water requirements; Design of lined and unlined canals, head works, gravity dams and spillways; Design of weirs on permeable foundation; Types of irrigation systems, irrigation methods; Water logging and drainage; Canal regulatory works, cross-drainage structures, outlets and escapes.

Section 5: Environmental Engineering

Water and Waste Water: Quality standards, basic unit processes and operations for water treatment. Drinking water standards, water requirements, basic unit operations and unit processes for surface water treatment, distribution of water. Sewage and sewerage treatment, quantity and characteristics of wastewater. Primary, secondary and tertiary treatment of wastewater, effluent discharge standards. Domestic wastewater treatment, quantity of characteristics of domestic wastewater, primary and secondary treatment. Unit operations and unit processes of domestic wastewater, sludge disposal.

Air Pollution: Types of pollutants, their sources and impacts, air pollution meteorology, air pollution control, air quality standards and limits.

Municipal Solid Wastes: Characteristics, generation, collection and transportation of solid wastes, engineered systems for solid waste management (reuse/ recycle, energy recovery, treatment and disposal).

Noise Pollution: Impacts of noise, permissible limits of noise pollution, measurement of noise and control of noise pollution.

Section 6: Transportation Engineering

Transportation Infrastructure: Highway alignment and engineering surveys; Geometric design of highways - cross-sectional elements, sight distances, horizontal and vertical alignments; Geometric design of railway track; Airport runway length, taxiway and exit taxiway design.

Highway Pavements: Highway materials - desirable properties and quality control tests; Design of bituminous paving mixes; Design factors for flexible and rigid pavements; Design of flexible pavement using IRC: 37-2012; Design of rigid pavements using IRC: 58-2011; Distresses in concrete pavements.

Traffic Engineering: Traffic studies on flow, speed, travel time - delay and O-D study, PCU, peak hour factor, parking study, accident study and analysis, statistical analysis of traffic data; Microscopic and macroscopic parameters of traffic flow, fundamental relationships; Control devices, signal design by Webster's method; Types of intersections and channelization; Highway capacity and level of service of rural highways and urban roads.



Section 7: Geomatics Engineering

Principles of surveying; Errors and their adjustment; Maps - scale, coordinate system; Distance and angle measurement - Levelling and trigonometric levelling; Traversing and triangulation survey; Total station; Horizontal and vertical curves. Photogrammetry - scale, flying height; Remote sensing - basics, platform and sensors, visual image interpretation; Basics of Geographical information system (GIS) and Geographical Positioning system (GPS).



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.

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MARINE ENGINEERING SYLLABUS

1. Internal combustion engines
2. Marine auxiliary machinery
3. Electrical Engineering
4. Naval architecture



General Insurance Corporation of India
Recruitment of Scale I Officers (Assistant Manager)

SYLLABUS FOR OFFICIAL LANGUAGE TEST

PART A (Objective)	Technical & Professional Knowledge Test in the relevant discipline= test of Hindi and English grammar/ vocabulary + knowledge of Act & rules regarding Official language implementation	40	40
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1. Test of Hindi and English grammar/ vocabulary + knowledge of Act & rules regarding Official language implementation – 10 MCQs
2. भारत सरकार की राजभाषा नीति से संबंधित 10 MCQs
3. राजभाषा अधिनियम/नियम/ संकल्प से जुड़े 10 MCQs
4. राजभाषा वार्षिक कार्यक्रम -2019-20 से जुड़े 10 MCQs



PART B (Objective)	Test of Reasoning	20	20	
ii	Test Of translation (English to Hindi and Hindi to English) objective type.	20	20	<p>1) अनुवाद :</p> <p>(क) शब्दों का अनुवाद</p> <ol style="list-style-type: none"> साधारण बोलचाल के शब्द साहित्यिक शब्द पारिभाषिक शब्द <p>1. सामान्य हिंदी ज्ञान परीक्षा :</p> <ol style="list-style-type: none"> मुहावरे व लोकोक्तियां - अर्थ - वाक्य निर्माण एक वचन से बहुवचन/ बहुवचन से एक वचन पुल्लिंग से स्त्रीलिंग/ स्त्रीलिंग से पुल्लिंग
iii	Test of General Awareness	20	20	



Part C (Descriptive)	Test of Hindi Language Essay, precise and Comprehension & Hindi & English grammar + translation from English to Hindi and Hindi to English (Text) + Hindi typing, UNICODE	50	05	<p><u>अनुच्छेद का अनुवाद (2) हिंदी से अंग्रेजी एवं अंग्रेजी से हिंदी</u></p> <p>1. क) साधारण बोलचाल के शब्दों से युक्त अनुच्छेद ख) साहित्यिक शब्दों से युक्त अनुच्छेद ग) पारिभाषिक शब्दों से युक्त अनुच्छेद</p> <p>2 <u>अनुच्छेद को संक्षेप में लिखना (precise writing)</u></p> <p>1. साहित्यिक - किसी साहित्यिक कथा, कहानी, लेख से लिए अनुच्छेद</p> <p>2. पारिभाषिक - किसी बीमा / पुनर्बीमा संबंधी लेख से लिए अनुच्छेद.</p> <p>3. <u>निबंध लेखन :</u></p> <p>क) सामान्य ज्ञान का कोई एक विषय</p> <p>ख) बीमा/बैंकिंग/ वित्तीय क्षेत्र से जुड़ा कोई एक विषय</p>
Total		150	123	

