Annexure - 1

Part A - General Knowledge, *Punjab History and Culture,* Logical Reasoning Mental Ability, Punjabi, English and ICT.

Sr. No.	*Indicative Contents of Syllabus*	*Weightage (Approx.)*
1.	***General Knowledge and Current affairs of National and International importance including:*** *(i) Polity issues,* *(ii) Environment issues,* *(iii) Current Affairs,* *(iv) Science and Technology,* *(v) Economic issues,* *(vi) History of India with special reference to Indian freedom struggle movement.* *(vii) Sports,* *(viii) Cinema and Literature.* *(ix) Geography*	*10*
2.	***Punjab History and Culture:-*** *Physical features of Punjab and its ancient history. Social, religious and economic life in Punjab. Development of Language & literature and Arts in Punjab, Social and culture of Punjab during Afgan/Mughal Rule, Bhakti Movement, Sufism, Teachings/History of Sikh Gurus and Saints in Punjab. Adi Granth, Sikh Rulers, Freedom movements of Punjab.*	*5*
3.	***Logical Reasoning & Mental Ability:*** *(i) Logical reasoning, analytical and mental ability.(05 Marks)* *(ii) Basic numerical skills, numbers, magnitudes, percentage, numerical relation appreciation. (03 Marks)* *(iii) Data analysis, Graphic presentation charts, tables, spreadsheets. (02 Marks)*	*10*
4.	***ਪੰਜਾਬੀ:-*** ਸ਼ੁੱਧ-ਅਸ਼ੁੱਧ, ਸ਼ਬਦਜੋੜ, ਅਗੇਤਰ ਅਤੇ ਪਿਛੇਤਰ, ਸਮਾਨਾਰਥਕ/ਵਿਰੋਧੀਸ਼ਬਦ, ਨਾਂਵ, ਪੜਨਾਂਵ ਅਤੇ ਕਿਰਿਆ ਦੀਆਂ ਕਿਸਮਾਂ ਤੇ ਸਹੀ ਵਰਤੋਂ, ਲਿੰਗ ਅਤੇ ਵਚਨ, ਪੰਜਾਬੀ ਅਖਾਣ ਤੇ ਮੁਹਾਵਰੇ, ਅੰਗਰੇਜੀ ਤੋਂ ਪੰਜਾਬੀ ਅਨੁਵਾਦ ਅਤੇ ਬਹੁਤੇ ਸ਼ਬਦਾਂ ਦੀ ਥਾਂ ਇੱਕ ਸ਼ਬਦ ਆਦਿ।	*5*
5.	***English:-*** *Basic Grammar, Subject and Verb, Adjectives and Adverbs, Synonyms, Antonyms, One Word Substitution, Fill in the Blanks, Correction in Sentences, Idioms and their meanings, Spell Checks, Adjectives, Articles, Prepositions, Direct and Indirect Speech, Active and Passive Voice, Correction in Sentences, etc.*	*5*
6.	***ICT:-*** *Basics of computers, Network & Internet, Use of office productivity tools Word, Excel, Spreadsheet & PowerPoint.*	*5*
	Maximum Marks	**40**

Annexure – 2

Part B - Subject Syllabus for the post of Research Assistant (Grade-B)

Number of Questions 80 **Maximum Marks- 80**

1. PHYSICS

Units and Measurements, Mechanics, Electricity and Magnetism, Relativity and Electromagnetism, Electromagnetic Induction and alternating current, Vibration and Waves, Statistical Physics and Thermodynamics, Optics and lasers, Wave Optics, Quantum Mechanics, Atomic and Molecular Spectra, Dual nature of matter and radiation, Atoms and nuclei, Condensed Matter Physics, Electronics, Radiation and Particle - Physics, Nuclear Physics, Kinematics, Motion in a plane, Laws of Motion, Motion of System of Particles and Rigid Body, Electrostatics, Current Electricity, Electronic Devices, Works Energy Power, Gravitation, Properties of Bulk Matter, Behavior of perfect Gas and Kinetic Theory of gases, Oscillation and waves,

2. CHEMISTRY

Atomic Structure, Periodic Properties, Chemical Bonding & Molecular Structure, Chemical Thermodynamics, Equilibrium, Redox Reactions, Hydrocarbons, Solutions, Electrochemistry, Chemical Kinetics, s-Block Elements, p- Block Elements, d & f block elements, Ionic Solids, Mechanism of Organic Reaction, Alkanes, Alkenes and Alkynes, Alkyl and Aryl Halides, Cycloalkanes, Arenes and Aromaticity, Acid and Bases, Chemistry of Transition Elements, Gaseous States, Liquid State, Colloidal State, Solutions, Dilute Solutions and Colligative Properties, Stereochemistry Organic Compounds, Alcohol, Phenols, Aldehydes and ketones, Thermodynamics, Equilibrium, Coordination Compounds, Non- Aqueous Solvents, Oxidation and Reduction, Chemistry of Lanthanide Elements, Chemistry of Actinides, Bioinorganic Chemistry, Carboxylic Acid, Carboxylic Acid Derivatives, Ether and Epoxides, Organic Compounds of Nitrogen, Organometalic Compounds, Heterocyclic Compounds, Metal-ligand Bonding in Transition Metal Complexes, Magnetic Properties of Transition Metal Complexes, Thermodynamic and Kinetic Aspects of Metal Complexes, Electronic Spectra of Transition Metal Complexes, Organometalic Compounds, Electrochemistry, Nuclear Chemistry, Spectroscopy, Rotational Spectrum, Vibrational Spectrum, Electronic Spectrum, Spectroscopy, Electromagnetic Spectrum, Problem Based on spectroscopy, Organosulphur Compounds, Synthetic Polymers, Organic Synthesis via Enolates, Carbohydrates, Amino, Acids, Peptides, Proteins and Nucleic acids, Quantum Mechanics, Solid State, Photochemistry.

3. Mathematics

Algebra, Calculus and Trigonometry, Calculus and Differential Equations, Calculus, Analysis, Analytical Geometry, Statics and Vector Calculus, Solid Geometry, Dynamics, Number Theory, Linear Algebra, Numerical Analysis, Integrals, Application of Integrals, Differential Equations, Vectors And Three Dimensional Geometry, Linear Programming, Coordinate Geometry, Sets and functions, relation and functions, Co-ordinate Geometry, Probability, Determinants,