XH-B1	Reasoning and Comprehension (Compulsory for all XH candidates)

This part is to test the candidate's ability to comprehend and interpret written information – skills that are critical to research in the Humanities and Social Sciences. The section will not directly test language competence in terms of grammar, vocabulary etc. The focus is instead on critical reasoning (similar to what is often found in exams like LSAT, GRE, GMAT etc.) and analysis of the text and its stylistic and rhetorical structure.

Questions of this section XH-B1 will test the following skills:

- Reading Comprehension: Ability to understand complex language material in short

paragraphs and answer questions regarding them.

- Expression: Questions on stylistic and rhetorical aspects of a short passage including corrections or modifications of particular sentences.
- Analytical Reasoning: ability to understand relationships in statements or short passages and being able to draw reasonable conclusions/inferences from them.
- Logical Reasoning: Thinking critically to evaluate or to predict an argument, identify the main and supporting arguments, predict outcomes etc.

XH-C5	Psychology

C5.1 Research Methods and Statistics

C5.1.1 Approaches to Research: Philosophical worldviews & criteria involved in approach. Research design: quantitative & qualitative, mixed methods.

C5.1.2 Designing Research: Research problems, purpose statement, Variables and Operational Definitions, Hypothesis, Sampling.

C5.1.3 Nature of Quantitative & Qualitative Research: Structured, semi-structured interviewing, self-completion questionnaires (Survey), observation, Experimental, Quasi-experimental, Field studies, Focus groups discussions, Narratives, Case studies, Ethnography.

C5.1.4 Ethics in conducting and reporting research.

C5.1.5 Statistics in Psychology: Measures of Central Tendency and Dispersion. Normal Probability Curve. Parametric and Non-parametric tests Effect size and Power analysis.

C5.1.6 Correlational Analysis: Correlation [Product Moment, Rank Order], Partial correlation, multiple correlation. Special Correlation Methods: Biserial, Point biserial, tetrachoric, phi coefficient. Regression: Simple linear regression, Multiple regression. Factor analysis: Assumptions, Methods, Rotation and Interpretation.

C5.1.7 Experimental Designs: ANOVA [One-way, Factorial], Randomized Block Designs, Repeated Measures Design, Latin Square, Cohort studies, Time series, MANOVA, ANCOVA. Single-subject designs.

C5.2 Psychometrics: Foundations of Psychological measurement; Basic components: scales and items' Construction and analysis of items: Intelligence test items, performance tests, Ability & Aptitude test, Personality questionnaires. Method of test construction, Standardization of measures: Reliability, Validity, Norms, Application of assessment and measurements in Tests— Applications of psychological testing in various settings-educations, counselling and guidance, clinical, organizational and developmental.

C5.3 Biological and Evolutionary Basis of Behaviour: Heredity and behaviour Evolution and natural selection, Nervous system, structures of the brain and their functions, Neurons: Structure, functions, types, neural impulse, synaptic transmission. Neurotransmitters. Hemispheric lateralization, The endocrine system types and functions, Biological basis of Motivation: Hunger, Thirst, Sleep and Sex. Biological basis of emotion: The Limbic system, Hormonal regulation of behaviour. Methods of Physiological Psychology: Invasive methods – Anatomical methods, degeneration techniques, lesion techniques, chemical methods, microelectrode studies, Non-invasive methods – EEG, Scanning methods, Muscular and Glandular system: Genetics and behaviour: Chromosomal anomalies; Nature-Nurture controversy [Twin studies and adoption studies].

C5.4 Perception, Learning, Memory and Forgetting: What is sensation, sensory thresholds and sensory adaptations, Vision, hearing, touch and pain, smell and taste, kinesthesis and vestibular sense, Perception: role of attention; organizing principles of perception, gestalt perception, depth perception and illusions, Theories of learning: classical conditioning, operant conditioning, social learning theory, cognitive learning, Memory: encoding, storage, retrieval, Information processing theories of memory, Retrieval in Long term memory,

reconstructive nature of long-term memory, Forgetting: encoding failure, interference theory, memory trace decay theory, the physical aspects of memory.

C5.5 Cognition: Thinking, Intelligence and Language: Basic elements of thought: Concepts, Propositions, Imagery. Current paradigms of cognitive psychology – Information processing approach, ecological approach, Problem solving: Methods of problem solving, Strategies and obstacles, Role of Metacognitive processing, decision-making: choosing among alternatives, Intelligence: Theories of intelligence (Spearman; Thurstone; Jensen; Cattell; Gardner; Stenberg) and Emotional Intelligence; Measuring intelligence, Individual differences in Intelligence; Role of heredity and environment, Difference between Intelligence, Aptitude and Creativity.

C5.6 Personality: Theories of personality: Psychoanalytic, behaviourist, social cognitive view, humanism and trait and type theories, Biology of personality and Assessment of personality.

C5.7 Motivation, Emotion and Stress and Coping: Approaches to understanding motivation: instinct, drive-reduction, arousal, incentive, humanistic, Achievement motivation, Intrinsic motivation, aggression, curiosity and exploration, Emotions: nature of emotions; biological basis of emotions, Theories of emotions: James-Lange, Canon-Bard, Schachter and Singer, Lazarus, Definition of stress; what are stressors; cognitive factors in stress, Factors in stress reaction: General adaptation syndrome; effect of stress, Coping with stress: problem-focused coping; emotion-focused coping, REBT and meditation

C5.8 Social Psychology: Social perception: Attribution; impression formation; social categorization, implicit personality theory, Social influence: conformity, compliance and obedience, Attitudes, beliefs and values: Evaluating the social world, attitude formation, attitude change and persuasion, cognitive dissonance, Prejudice, discrimination, Aggression, power and prosocial behaviour, Belief systems and value patterns. Group dynamics, leadership style and effectiveness, Theories of intergroup relations and conflicts.

C5.9 Development Across the Life Span: Nature versus nurture in human development, Prenatal development: Chromosomes, Genes and DNA. Physical, cognitive and psychosocial development in infancy, childhood, adolescence and adulthood, Theories of aging, Moral development.

C5.10 Applications of Psychology: Psychological disorders: Conceptions of mental disorders; Assessment and diagnosis, DSM and Other tools, PTSD and Trauma; Psychotherapies: Psychodynamic, Phenomenological/Experiential therapy; Behaviour therapy; cognitive therapy; biological therapy, Applications of theories of motivation and learning in School: Factors in educational achievement; counselling & guidance in schools, Application of theories of motivation, learning, emotions, perceptions, group dynamics & leadership to organizational set up, Issues of Personal space, crowding, and territoriality.

GA General Aptitude

Verbal Aptitude

Basic English grammar: tenses, articles, adjectives, prepositions, conjunctions, verb-noun agreement, and other parts of speech

Basic vocabulary: words, idioms, and phrases in context.

Reading and comprehension, Narrative sequencing.

Quantitative Aptitude

Data interpretation: data graphs (bar graphs, pie charts, and other graphs representing data), 2- and 3-dimensional plots, maps, and tables

Numerical computation and estimation: ratios, percentages, powers, exponents and logarithms, permutations and combinations, and series Mensuration and geometry Elementary statistics and probability.

Analytical Aptitude

Logic: deduction and induction, Analogy, Numerical relations and reasoning.

Spatial Aptitude

Transformation of shapes: translation, rotation, scaling, mirroring, assembling, and grouping paper folding, cutting, and patterns in 2 and 3 dimensions.