

# Psychology Department

## Ph.D. Entrance Exam 2017-18

### Paper II- Syllabus

#### **Chapter 1: SENSATION, ATTENTION AND PERCEPTION**

- 1 Sensation - Introduction to psychophysics: Basic concepts and methods.
2. Attention: (a) Functions of attention: Divided attention, selective attention  
(b) Theories of attention process (c) Signal Detection Theory and vigilance.
3. Perception-approaches: Gestalt, Bottom-Up (feature analysis, template matching, prototypes), Top-Down and Pandemonium
4. Perception: Cross-cultural studies
5. Application: Subliminal perception, perceptual defence, and extra-sensory perception.

#### **Chapter 2 : PROBLEM SOLVING, CREATIVITY AND DECISION MAKING**

1. Problem: Definition, problem solving cycle, types, obstacles and aids
2. Problem solving approaches – Algorithm; heuristics: means-end analysis computer simulation, and analogy
3. Definition of creativity, measurement creativity
4. Reasoning and decision-making: Types of reasoning – Syllogistic and Conditional; factors influencing decision-making.
5. Application: Artificial intelligence

#### **Chapter 3: RELIABILITY**

1. Correlation coefficient: Meaning, statistical significance, reliability coefficient
2. Definition and types of reliability
3. Reliability of speeded tests
4. Dependence of reliability on the sample tested
5. Using reliability information

#### **Chapter 4: VALIDITY**

1. Validity: Definition and evolving concepts
2. Content-description validation procedures
3. Criterion-prediction procedures
4. Construct-identification procedures
5. Test validity and decision theory

#### **Chapter 5: CORRELATION AND REGRESSION**

1. Concept and meaning of correlation
2. Pearson's Product-Moment Correlation
3. Point – Biserial Correlation and Phi-coefficient
4. Bi-serial and tetra choric correlation
5. Partial and Multiple Correlation
6. Simple Linear Regression: Concept and uses

## **Chapter 6: INFERENTIAL STATISTICS**

1. Inferences: Standard error of mean and other statistics
2. Significance of difference for means, variances and correlation coefficients.
3. Assumptions of Analysis of Variance, and One-way ANOVA- Independent, concept of repeated measures
4. Two-way ANOVA - Independent, concept of repeated measures
5. Analysis of Covariance: Concept.

## **Chapter 7 : TYPES OF MEMORY**

1. Sensory memory- Iconic and echoic
2. Short Term Memory
3. Long Term Memory: Types
4. Determinants of memory
5. Applications: Memory improvement techniques

## **Chapter 8: NEUROLOGICAL BASIS OF LEARNING AND MEMORY**

1. Brain areas associated with learning and memory
2. Types of Amnesia- Amnesia after concussion (Anterograde, Retrograde), Korsakoff, Alzheimer's disease
3. Studies on role of brain in learning and conditioning
4. Synaptic mechanisms and synaptic plasticity of learning and memory
5. Application: Neuro-linguistic programming.

## **Chapter 9: EXPERIMENTAL DESIGNS**

1. Experimental designs: Definition, principles and functions
2. Between-group designs: Randomised group designs
3. Between-group designs: Block designs- a) two group designs, b) randomized block designs with more than two groups
4. Factorial designs: Simple factorial designs, factorial designs with covariate, randomized block factorial designs
5. Conceptual distinction among between group designs, repeated measures designs, and mixed designs.

## **Chapter10: QUASI-EXPERIMENTAL DESIGNS AND SCALING**

1. Characteristics and types of quasi-experimental designs: Single-group designs, pre test-post test designs
  2. Non-equivalent control group designs, discontinuity promotion designs, time series designs, cohort designs
  3. Application of quasi-experimental designs in program evaluation research.
  4. Scaling: Purpose, psychophysical scaling
  5. Scaling: Psychological scaling: Thurstone-type scales (i.e. differential), and Likert-type scale (i.e. summated).
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