

## **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, kinesthesia 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.

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**XH-C5: Psychology (60 marks)**

**Q1. to Q13. are MCQ where only one answer is correct. Each question carries one mark.**

Q1. Which of the following is not a heuristic?

- (A) Status-quo
- (B) Optimism
- (C) Availability
- (D) Anchoring and adjustment

Q2. Match the following

Concept	Description
1. Theory of planned behavior	a. Simple rules of thumb or mental shortcuts are used to process persuasive message
2. Attitude-to-behavior process model	b. Persuasion can occur in one of two ways: through the central route, or second, through the peripheral route
3. Elaboration-likelihood model	c. Attitudes, perceived social norms, and feelings of control together determine one's intentions, which guide behavior
4. Heuristic processing	d. Attitude as well as stored knowledge of what is appropriate in a given situation affects an individual's definition of the present situation. This definition, in turn, influences overt behavior.

- (A) 1 – (d); 2 – (b); 3 – (c); 4 (a)
- (B) 1 – (c); 2 – (d); 3 – (b); 4 (a)
- (C) 1 – (d); 2 – (c); 3 – (b); 4 (a)
- (D) 1 – (c); 2 – (a); 3 – (d); 4 (b)

Q3. In a study, one variable is continuous, and another variable is dichotomous. Which is the appropriate correlation technique for these variables:

- (A) Pearson's coefficient of correlation
- (B) Spearman's rank-order correlation
- (C) Point-Biserial correlation
- (D) Partial correlation

Q4. Radha has received 75 marks in her psychology class (Mean = 70, SD=5). Ramesh has received 70 marks in his history class (Mean = 67, SD=4). Which score will you use to compare marks of Radha and Ramesh?

- (A) z-score
- (B) t-score
- (C) F-score
- (D) raw scores

Q5. Damage to the Broca's area in the brain results in impairment in:

- (A) Language
- (B) Motor movement
- (C) Pitch perception
- (D) Posture

Q6. We perceive complete lines even when they are interrupted, according to which law of perception?

- (A) Law of similarity
- (B) Law of closure
- (C) Law of proximity
- (D) Law of good continuation

Q7. Getting burned while playing with a match box a child is getting:

- (A) Positive reinforcement
- (B) Negative reinforcement
- (C) Positive punishment
- (D) Negative punishment

Q8. Ratio variables are:

- (A) Nominal variables
- (B) Variables with values that can be rank ordered
- (C) Same as interval variables
- (D) Interval variables that have a true zero point

Q9. When the alternate hypothesis is non-directional, which of the following tests may be used?

- (A) Two-tailed test
- (B) One-tailed test
- (C) Alternative hypothesis test
- (D) Directionality test

Q10. Dealing with unacceptable impulses or desires by expressing just the opposite feeling is associated with:

- (A) Sublimation
- (B) Regression
- (C) Reaction formation
- (D) Intellectualization

Q11. Which of the following is the correct sequence of Bandura's principles of social learning?

- (A) Motivation, Attention, Retention, Reproduction
- (B) Attention, Retention, Reproduction, Motivation
- (C) Attention, Retention, Motivation, Reproduction
- (D) Motivation, Reproduction, Retention, Attention

Q12. Animism is shown by children who are at the:

- (A) Sensory-motor stage
- (B) Preoperational stage
- (C) Concrete operational stage
- (D) Formal operational stage

Q13. Activation of visceral bodily changes in the beginning followed by interpretation of it by the brain as emotional experience is associated with:

- (A) James-Lange theory
- (B) Plutchik's model of emotions
- (C) Rotter's theory
- (D) Opponent-Process Theory

**Q14. to Q18. are MCQ type, where only one answer is correct. Each question carries two marks.**

Q14. According to cognitive theories under what circumstances could a poor grade in one course lead to major depression?

- (A) I'm stupid
- (B) The exam was really hard
- (C) I was tired that day
- (D) I should study some other subject

Q15. A researcher was interested in studying the effect of domestic violence on children in major cities in a state. The researcher found that official data did not exist for all the cities. She then made a list of all the cities for which data was available and then selected a few cities randomly for data collection for the research project. Relevant surveys were then conducted in the selected locations. Which of the following sampling methods was the researcher employing?

- (A) Systematic sampling
- (B) Stratified random sampling
- (C) Cluster sampling
- (D) Convenience sampling

Q16. In Piaget's experiment when lemonade from a glass is poured into a tall thin glass and a 7-year old correctly asserts it's the same amount. This shows the child is in which stage of development and capable of which mental operation:

- (A) Concrete operations stage; Conservation
- (B) Preoperational stage; Egocentrism
- (C) Concrete operations stage; Assimilation
- (D) Formal operations stage; Adaptation

Q17. Which of the following is not a conflict/crisis in Erikson's psychosocial stages of development?

- (A) Competence versus role confusion
- (B) Autonomy versus self-doubt
- (C) Ego-integrity versus despair
- (D) Generativity versus stagnation

Q18. Which of the following is related to grounded theory research most appropriately?

- (A) Grounded theory never allows researchers to understand how themes are related to theory
- (B) Grounded theory involves analytic codes rather than preconceived hypotheses
- (C) Grounded theory does not use the process of writing memos
- (D) Grounded theory does not involve simultaneous data collection and data analysis

**Q19. to Q.25. are MSQ type, where one or more answers are correct. Each question carries one mark.**

Q19. What are the different measures to test reliability of a scale?

- (A) Test-retest reliability
- (B) Criterion reliability
- (C) Concurrent reliability
- (D) Kuder Richardson reliability

Q20. Which of the following statements is/are true regarding the normal curve?

- (A) Normal curves are asymptotic
- (B) Normal curves are symmetrical distributions
- (C) Normal curves can also be asymmetrical sometimes
- (D) Normal curves are unimodal

Q 21. Which of the following describe a scientific study in psychology?

- (A) A study that is in line with empirical approach
- (B) A study that does not have potential for replication
- (C) A study that employs a measurement that is affected by personal bias
- (D) A study that can be reproduced and same results are generated on reproduction

Q22. Which of the following is NOT related to qualitative approach?

- (A) No focus on lived experience of the research participants
- (B) No inclusion of reflexivity in research
- (C) Thick description of experience
- (D) Contextual understanding

Q23. Which of these stages is/are a part of the general adaptation syndrome (GAS)?

- (A) Alarm reaction
- (B) Stage of resistance
- (C) Stage of exhaustion
- (D) Rejuvenation

Q24. An illusion is:

- (A) a false or irrational belief maintained despite clear evidence on the contrary
- (B) false perceptions that occur in the absence of objective stimulation
- (C) an experience of a stimulus pattern in a manner that is factually incorrect
- (D) shared by people in the same perceptual situation

Q25. In a one-way analysis of variance following statements is true:

- (A) If there is no treatment effect, F value will be equal to 1 in most samples
- (B) If there is no treatment effect, F value will be close to 1 in most samples
- (C) Total sum of squares = (Within sum of squares + Between sum of squares)
- (D) F ratio is defined as ratio of between group variance and within group variance

**Q26. to Q40. are MSQ type, where one or more answers are correct. Each question carries two mark.**

Q26. Which of the following is NOT correct about cognitive dissonance?

- (A) Cognitive dissonance is formed when a person is not able to execute his/her plans
- (B) A person may change his/her behavior to reduce cognitive dissonance
- (C) Change in attitude cannot reduce cognitive dissonance
- (D) Attitude does not play any role in formation of cognitive dissonance

Q27. Which of the following are correct statements about famous social psychology studies?

- (A) Solomon Asch used Line Judgment Task to study conformity
- (B) Muzafer Sherif used autokinetic phenomenon to study judgement under uncertainty
- (C) Stanley Milgram used punishment and learning task to study obedience
- (D) Darley and Latané used simulated emergency situation to study helping behaviour

Q28. Correlation coefficient ( $r$ ) between variables M & R is 0.35 and correlation coefficient ( $r$ ) between variables R & P is  $-0.45$ . Which of the following statements are correct?

- (A) R & P share more variance than M & R
- (B) R & P share less variance than M & R
- (C) Degree of association between M & R is greater than R & P
- (D) P is better predictor of R compared to M

Q29. A researcher willing to conduct regression analysis should be careful about which of the following issues in his/her dataset?

- (A) Presence of correlation between predictor variables
- (B) Presence of heteroscedasticity
- (C) Presence of correlation between errors terms of predictor variables
- (D) Presence of correlation between predictor variables and criterion variable

Q30. Please read the assertion and the reason:

Assertion: Social psychologists do not study social institutions

Reason: The focus of social psychology is to study how various situations affect individual actors

- (A) Assertion is correct
- (B) Reason is correct
- (C) Both assertion and reason are correct and reason is correct explanation of assertion
- (D) Assertion is incorrect but reason is correct

Q31. Suppose you are conducting an experiment, to test the Weber's law, in which you ask participants to detect whether two lines are same or of different lengths. If the length of the two standard lines are 10mm and 20mm, for the just-noticeable difference the perceived change in stimulus must be:

- (A)  $1/10^{\text{th}}$  of the standard length
- (B) Greater amount for the longer line
- (C) Lesser amount for the longer line
- (D) Double the size for the longer line

Q32. Which of these stimuli cannot be used in aversion therapy

- (A) Mild electric shock
- (B) Rewarding with a sweet treat
- (C) Nausea producing drugs
- (D) Playing pleasant music in the background

Q33. Which of these is/are components of working memory?

- (A) Phenomenological loop
- (B) A visuospatial sketchpad
- (C) The central executive
- (D) Episodic memories

Q34. When the pigeon in the skinner box is first reinforced after 30 seconds, then 10 seconds and then 25 seconds the rate of learning would be:

- (A) Moderate at a fairly constant rate
- (B) A steep rise
- (C) Resistant to extinction
- (D) Much slower extinction

Q35. Which of the following options is TRUE about operational definitions?

- (A) Operational definitions allow transition of conceptually defined constructs into measurable variables
- (B) Operational definitions are important since different researchers can communicate using the same definition of constructs in research setting
- (C) Operationally defining the concepts can never limit the understanding of complex concepts to the measurement technique used
- (D) Operational definitions never consist of instructions for measurement

Q36. Which of the following is related to narratives in psychology?

- (A) Narrative can be understood as an organized interpretation of events
- (B) Narrative psychology does not encourage any contact with humanities
- (C) In clinical psychology, narrative therapy involves understanding of alternative stories of clients
- (D) Narratives do not bring order and meaning to experience

Q37. Which of the following represents Bartlett's work?

- (A) Memory function can be easily understood without taking into account the reconstructive processes
- (B) The human memory system involves the formation of abstract cognitive structures
- (C) The classic book titled 'Remembering' (1932)
- (D) A study of schema based memory processing

Q38. According to Mischel's cognitive affective personality theory the variables of encodings, affects, goals and values etc., affect the way a person behaves in a particular situation. These develop based on:

- (A) individual's observation and interactions with others
- (B) individual's interaction with inanimate aspects of the physical environment
- (C) average of their personality traits
- (D) based on personality types

Q39. Which of these behaviors can be interpreted as self-handicapping?

- (A) A student who has an important exam tomorrow but spends the whole evening partying with friends.
- (B) A person who completes the assignment a day before submission
- (C) A person who explains his bad grades as "I would do better if I tried harder"
- (D) An employee who calls in sick every time before an important presentation

Q40. Which of the following is/are an adjustment to the psychoanalytic theory made by post-Freudians?

- (A) Greater emphasis on ego functions like development of the self
- (B) Greater role of social variables like family and culture
- (C) Importance of the learning processes
- (D) Personality development not restricted only to childhood

**END of Paper XH-C5**

**ANSWER KEY: XH-C5: Psychology**

Questions	Type	Section	Key	Marks
1	MCQ	XH-C5	B	1
2	MCQ	XH-C5	B	1
3	MCQ	XH-C5	C	1
4	MCQ	XH-C5	A	1
5	MCQ	XH-C5	A	1
6	MCQ	XH-C5	D	1
7	MCQ	XH-C5	C	1
8	MCQ	XH-C5	D	1
9	MCQ	XH-C5	A	1
10	MCQ	XH-C5	C	1
11	MCQ	XH-C5	B	1
12	MCQ	XH-C5	B	1
13	MCQ	XH-C5	A	1
14	MCQ	XH-C5	A	2
15	MCQ	XH-C5	C	2
16	MCQ	XH-C5	A	2
17	MCQ	XH-C5	A	2
18	MSQ	XH-C5	B	2
19	MSQ	XH-C5	A,D	1
20	MSQ	XH-C5	A,B,D	1
21	MSQ	XH-C5	A,D	1
22	MSQ	XH-C5	A,B	1
23	MSQ	XH-C5	A,B,C	1
24	MSQ	XH-C5	C,D	1
25	MSQ	XH-C5	B,C,D	1
26	MSQ	XH-C5	A,C,D	2
27	MSQ	XH-C5	A,C,D	2
28	MSQ	XH-C5	A,C,D	2
29	MSQ	XH-C5	A,B,C	2
30	MSQ	XH-C5	A,B,C	2
31	MSQ	XH-C5	A,B	2
32	MSQ	XH-C5	B,D	2
33	MSQ	XH-C5	A,B,C	2
34	MSQ	XH-C5	A,D	2
35	MSQ	XH-C5	A,B	2
36	MSQ	XH-C5	A,C	2
37	MSQ	XH-C5	B,C,D	2
38	MSQ	XH-C5	A,B	2
39	MSQ	XH-C5	A,C,D	2
40	MSQ	XH-C5	A,B,D	2