

Section 1 - Module 7 Creative Problem Solving Innovation and Meaningful R and D

1) The total area of the normal distribution curve is said to cover approximately:

- A) 34% of the cases
 - B) 68% of the cases
 - C) 95% of the cases
 - D) 100% of the cases
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2) Which of the following research objectives can be a part of correlation study?

- A) To study the extent of implementation of TQM in industry in Faridabad
 - B) To ascertain the qualification and experience of teachers working at different levels in technical institutions in the state of Maharashtra
 - C) To study the correlation among need achievement, mechanical aptitude and performance in four years degree programme.
 - D) To study the employment pattern of graduates from diploma institutions in the state of Kerala.
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3) Radical innovation is undertaken by a company preferred when there is:

- A) No risk
 - B) Minimum risk
 - C) Both(A) & (B)
 - D) Neither (A) Nor(B)
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4) Identify the independent variable in the following research problem: 'Effect of Problem Based Learning on the motivation and achievement of +2 students in Chemistry'.

- A) Achievement.
 - B) Problem based learning
 - C) Motivation
 - D) Both (B) & (C)
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5) In thesis, while presenting findings of the study, researcher should:

- A) Present findings correctly
- B) Interpret the findings correctly
- C) Relate the findings with the findings of past studies
- D) All of the above

6) If the population for a research consists of low, average and high socio-economic status groups, the preferred sampling technique will be:

- A) Simple random sampling
 - B) Stratified sampling
 - C) Systematic sampling
 - D) Cluster sampling
-

7) The report is normally structured:

- A) Introduction, Methods and Procedure, Analysis of Data and Results, Summary and Conclusions
 - B) Introduction, Review of related literature, Methods and Procedure, Analysis of Data and Results, Summary and Conclusions
 - C) Introduction, Review of related literature, Analysis of Data and Results, Summary and Conclusions, References
 - D) Introduction, Methods and Procedure, Analysis of Data and Results, References
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8) Which of the following statements best describes the function of a research hypothesis?

- A) An attempt to summarize the notion behind the research study.
 - B) An attempt to suggest a possible answer to a problem, based on available facts or information
 - C) An attempt to link the research problem with the research question.
 - D) An attempt to consider the problem in the form of a scientific statement
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9) Which of the following situations signifies the use of Action Research? A Director of the Technical Education of a State:

- A) Needs to assess and compare the utilization of the resources available to technical institutions of different states
 - B) Needs to know the general profile of teachers working in the technical institutions
 - C) Is concerned with improving the office administration of his/her Directorate
 - D) Wants to determine the relationship between parental education and student achievement
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10) Hypothesis should NOT be:

- A) Stated in question form
 - B) Testable
 - C) Plausible
 - D) Developed prior to collection of data
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11) Which of the following is NOT a probability sampling technique?

- A) Quota sampling
 - B) Systematic sampling
 - C) Simple random sampling
 - D) Stratified random sampling
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12) If the researcher is interested in studying the readiness of technical institutions for implementing the recommendations of New Education Policy regarding introduction of multidisciplinary studies, the type of research preferred will be:

- A) Correlation research
 - B) Descriptive research
 - C) Experimental research
 - D) Ex-post Facto research
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13) Which section of the proposal is likely to include statement of the problem in the research proposal?

- A) Introduction
 - B) Literature review
 - C) Proposed methodology
 - D) References
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14) At which stage of Design Thinking, specific statement of the problem is arrived at?

- A) Discover
 - B) Define
 - C) Create
 - D) Evaluate
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15) Internal validity refers to:

- A) Controlling factors affecting the generalizability of the experiment
 - B) Controlling variables that can cause contamination with in an experiment
 - C) Both (A) and (B)
 - D) Neither (A) Nor (B)
-

16) The action research method is depicted as a spiraling process because

- A) Action researcher continues to study other topics of interest after the initial study is complete
 - B) Data collection continues throughout data analysis
 - C) Process continues even after the data are collected and analyzed, and actions are taken based on findings
 - D) Results are analyzed and used by other researchers to conduct additional investigations of the topic
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17) Which of the following is a characteristic of action research?

- A) Variables are tightly controlled
- B) Results are generalizable
- C) Results demonstrate cause-and-effect relationships
- D) Findings are applicable in the context in which research is undertaken

18) Incomplete questionnaires need to be:

- A) Completed by the researcher before inclusion in data
 - B) Excluded from the study
 - C) Included as such in the study
 - D) Sent to respondents for completion
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19) Which of the following is an example of descriptive research?

- A) Effect of soft skill training on the employability skills of students.
 - B) Extent of implementation of TQM in industry in Faridabad.
 - C) Effect of parental education on the performance of students in Board examination.
 - D) Strategies adopted by Reliance in increasing the market share
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20) If the population is unevenly dispersed geographically, the technique of sampling to be preferred is:

- A) Cluster sampling
 - B) Simple random sampling
 - C) Stratified random sampling
 - D) Purposive sampling
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21) If more than one person is involved in collection of data/information through interviews, it is essential that:

- A) Purpose be made clear
 - B) Interview schedule be explained
 - C) Training be provided
 - D) All of the above
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22) In an experimental research, subjects are randomly assigned to groups so that:

- A) The post test only design can be used
 - B) Non-equivalent groups are treated in the experiment
 - C) Minimize history threat to internal validity
 - D) Equivalent groups are compared on the treatment condition
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23) If you are interested in identifying the strategies adopted by an institution to develop virtual laboratories, you will prefer to undertake

- A) Case study research
- B) Content analysis research
- C) Survey research
- D) Tracer study

24) The population consists of age groups- <25years, 25-45 years 45-65 years and the percentage of these groups is 40%, 45% and 15% respectively. In case, you have to select a proportionate sample of 300 from the population of 1000. The number to be selected from each sub group will be:

- A) 400, 450 and 150 respectively
- B) 135,120 and 45 respectively
- C) 120, 135 and 45 respectively
- D) 100,100, and 100 respectively

25) Which of the following questions can be answered through research?

- A) What is meant by Autonomy?
- B) Is it right to provide sex education in educational institutions ?
- C) Is it good to hire local staff?
- D) Are the institutions of higher learning ready to implement choice based credit system in various programmes?

26) The most frequently occurring score in a distribution is called:

- A) Mean
- B) Median
- C) Mode
- D) Range

27) If you rank order your fifteen students on the basis of how cooperative are they by assigning one to most cooperative and fifteen to least cooperative, the data will be available on:

- A) Nominal scale
- B) Ordinal scale
- C) Interval scale
- D) Ratio scale

28) If you are interested in studying the effect of positive and negative reinforcement on the motivation and achievement of students, you will manipulate the variable of:

- A) Reinforcement
- B) Achievement
- C) Motivation
- D) Instructional strategy

29) If you are interested in determining adequacy and modernization of laboratories related to Computer Engineering, you will use a/an:

- A) Questionnaire
- B) Observation schedule
- C) Questionnaire and observation schedule
- D) Questionnaire and interview schedule

30) Which of the following is not a block to creativity?

- A) Allergy to Ambiguity
 - B) Surity of acceptability
 - C) Fear of failure
 - D) Touchiness
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31) Which of the following questions can be answered through case study research?

- A) What is the impact of TEQIP III on the technical Education system?
 - B) Why students of Institution A scored more than the students of Institution B?
 - C) Both (A) & (B)
 - D) Neither (A) Nor (B)
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32) If the purpose of your research is to establish tentative cause and effect relationship between the type of school a student has attended and the proficiency in oral communication skills, you will use:

- A) Correlation research
 - B) Experimental research
 - C) Ex-post Facto research
 - D) Survey research
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33) A random sampling technique is used to select a sample that will:

- A) Include the correct number of subjects
 - B) Be stratified
 - C) Yield generalizable data
 - D) Yield research findings that are statistically significant
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34) In which of the following studies, Ex-post facto research will be preferred?

- A) Determining the relevance of curricula of various courses
 - B) Studying the effect of remedial instruction on achievement in Applied Physics
 - C) Studying the effect of medium of instruction and type of school attended on the performance of students at degree level.
 - D) Predicting the success of students at degree level on the basis of performance in entrance examination
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35) Try-out/Field Test of a questionnaire is essential to find out its:

- A) Validity
 - B) Reliability
 - C) Appropriateness
 - D) All of the above
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36) If you are interested in studying the reasons for students' indulgence in drugs, you will prefer to select sample by using the technique of:

- A) Cluster sampling
 - B) Simple random sampling
 - C) Stratified random sampling
 - D) Purposive sampling
-

37) The question 'How do you evaluate your students in theory'? Is an example of :

- A) Alternate response type question
 - B) Broad question
 - C) Multiple choice question
 - D) Specific question
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38) What is the purpose of the conclusion in a research report?

- A) It explains how concepts were operationally defined and measured
 - B) It contains a useful review of the relevant literature
 - C) It outlines the methodological procedures that were employed
 - D) It summarizes the key findings in relation to the research questions
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39) Predicting success in the course on the basis of scores obtained in the entrance examination is an example of:

- A) Survey research
 - B) Correlation research
 - C) Ex-post facto research
 - D) Experimental research
-

40) The first step in designing a questionnaire/interview schedule is to:

- A) State the purpose of the study
 - B) State the objectives of the study
 - C) Write the criterion question
 - D) Write research question
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41) The primary purpose of inclusion of past research in the proposal is to:

- A) Demonstrate your knowledge
- B) Identify the gaps in research
- C) Support the findings
- D) Relate the findings of various studies

42) Which of the measures of central tendency is most affected by the presence of extreme scores?

- A) Mean
 - B) Median
 - C) Mode
 - D) All of the above
-

43) 'Evaluation is continuous and objective'. This question is incorrect because:

- A) Inappropriately worded
 - B) It includes two aspects
 - C) Lacks clarity
 - D) Grammatically incorrect
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44) In case you are interested in determining the changes in career graph of graduates of 2016 working in industry every three years, you would prefer:

- A) Case study
 - B) Ex-Post Facto study
 - C) Experimental study
 - D) Panel study
-

45) Which one of the following is an example of directional hypothesis?

- A) Teachers with induction training programme are significantly more effective in teaching than the teachers without induction training programme
 - B) Autonomous institutions provide significantly greater autonomy to students than the non-autonomous institutions.
 - C) Female students show significantly higher academic achievement in external examination than the male students
 - D) All of the above
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46) In case you are interested in determining the relevance and appropriateness of given four books for your students, you will prefer undertaking:

- A) Case study research
 - B) Content analysis research
 - C) Survey research
 - D) Follow-up study
-

47) Which of the following is a directional hypothesis?

- A) Students taught through Problem Based learning show significantly higher mean performance than students taught through discussion method.
 - B) Boys show significantly more readiness for online learning than girls.
 - C) Both (A) & (B)
 - D) Neither (A) Nor (B)
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48) If the purpose of your research is to study the readiness of students for online learning in the state of UP, you will prefer:

- A) Case study method
 - B) Survey research method
 - C) Correlation research
 - D) Experimental research
-

49) The hypothesis "There exists significant difference in the achievement in the course on software development of boys and girls taught through active learning strategies and lecture method" is appropriate for a:

- A) Case study
 - B) Experimental study
 - C) Survey study
 - D) Correlation study
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50) If the researcher is interested in determining the relationship between JEE and performance in four year degree programme in engineering, he will undertake:

- A) Correlation research
 - B) Descriptive research
 - C) Experimental research
 - D) Ex-post Facto research
-

51) Fluency in creativity refers to:

- A) Generation of novel idea
 - B) Generation of idea in a different domain
 - C) Generation of a large number of ideas
 - D) Generation of ideas that can be implemented
-

52) In a prediction study, the data on the criterion variable can be collected:

- A) Simultaneously with the predictor variable
 - B) Before collecting data on the predictor variable
 - C) After collecting data on the predictor variable
 - D) At any time
-

53) While writing findings, you will write the findings:

- A) In accordance with the hypotheses of the study
 - B) In the order in which data were collected
 - C) In the order in which data were analyzed
 - D) By presenting the most significant findings first
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54) If a researcher wants to select a sample of 100 from 1000 and selects every tenth unit, the sampling technique used is:

- A) Purposive Sampling
 - B) Simple random Sampling
 - C) Systematic Sampling
 - D) Cluster Sampling
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55) While undertaking review of related literature, you want to broaden the search, you would prefer the BOOLEAN Algebra operation:

- A) AND
 - B) OR
 - C) NOT
 - D) Both AND & NOT
-

56) Scores obtained by students out of 20 in an assignment are on:

- A) Nominal scale
 - B) Ordinal scale
 - C) Interval scale
 - D) Ratio scale
-

57) If you have subject matter expertise, but the project you want to apply requires Knowledge of AI which is not available in your institution, what will you do?

- A) Do not apply for the project
 - B) Submit partial proposal
 - C) Collaborate with expert from other organization
 - D) Ask your institution to hire a person with that expertise
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58) Which of the following could be the research questions for a study "Effect of virtual internship training on the creative problem solving and team work capabilities of students"?

- A) What is the effect of virtual internship on creative problem solving capability of students?
 - B) What is the effect of virtual internship training on the teamwork capability
 - C) Both (A) and (B)
 - D) Neither (A) nor (B)
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59) Which of the following variables is a discrete variable?

- A) Type of institution-Govt./Govt. Aided/self Financed
 - B) Achievement scores
 - C) Height
 - D) Weight
-

60) In addition to other components of proposal, Funding proposal need to include:

- A) Affiliation
 - B) Brief profile of the researcher/CV
 - C) Sponsored projects accomplished
 - D) All of the above
-

61) The purpose of review of related literature is to:

- A) Provide theoretical background
 - B) Identify the gaps in existing research
 - C) Define the research problem
 - D) All of the above
-

62) Evaluation of a thesis can be:

- A) Formative
 - B) Summative
 - C) Both formative and summative
 - D) Neither Formative nor Summative
-

63) The steps in undertaking research include:

- I) Selecting and defining a problem
- II) Collection and Analysis of data
- III) Review of related literature
- IV) Selecting research design and describing procedure

The correct sequence of the steps involved in undertaking research is:

- A) I-II-III-IV
 - B) I-III-II-IV
 - C) I-III- IV- II
 - D) III-I-II-IV
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64) If the researcher is interested in how Panjab University has given impetus to research, which of the following questions will form part of the semi-structured interview schedule?

- A) What strategies were adopted to build research capability among the faculty?
 - B) How the priority areas of research were identified?
 - C) Both(A) &(B)
 - D) Neither (A) Nor(B)
-

65) If you are interested in finding out the type of questions posed and the kind of feedback provided by the teachers, you will prefer a/an:

- A) Questionnaire
 - B) Observation schedule
 - C) Structured interview schedule
 - D) Semi-structured interview schedule
-

66) Annotated bibliography refers to:

- A) References with a brief about the publication
 - B) List of references
 - C) List of reference list with review
 - D) List of references in an alphabetical order
-

67) Sixth generation innovation model is a:

- A) Market push model
 - B) Open innovation model
 - C) Network innovation model
 - D) Technology push model
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68) In case of experimental design, X O₁ represents :

- A) Post test only design
 - B) One group pretest posttest design
 - C) Pretest posttest control group design
 - D) Post test only control group design
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69) While undertaking the review of related literature, the researcher should first refer to:

- A) Index of current journals
 - B) Journals
 - C) Theses
 - D) Review of reports
-

70) The purpose of action research is to:

- A) Generate new knowledge
- B) Find solution to a classroom problem faced by a teacher
- C) Generalize the findings of basic research in the field
- D) Evaluate a programme

71) If the scores in four year degree programme in mechanical engineering are to be predicted on the basis of mechanical aptitude, joint entrance examination and first year performance, the statistical technique used will be:

- A) Multiple regression
 - B) Pearson Product moment correlation
 - C) Point bi-serial correlation
 - D) Chi- square
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72) Which one of the following is a correct reference for an edited book cited in research work as per APA style?

- A) Kesharwani, P. (Ed.) (2020). *Nanotechnology based approaches for tuberculosis treatment*. Academic Press.
 - B) P. Kesharwani (Ed.). (2020). *Nanotechnology based approaches for tuberculosis treatment*. Academic Press.
 - C) Kesharwani, P. (Ed.). *Nanotechnology based approaches for tuberculosis treatment*. Academic Press.(2020).
 - D) P. Kesharwani, (2020). *Nanotechnology based approaches for tuberculosis treatment*. Academic Press.
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73) While collecting data through structured interview schedule, the researcher should NOT:

- A) Use the same wording
 - B) Pose questions in the same sequence
 - C) Pose additional probing questions
 - D) Record answer of the respondent
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74) Creativity is a process that involves:

- A) Sensing of gaps
 - B) Generation of ideas to fill in the gaps
 - C) Evaluating and selecting the best idea
 - D) All of the above
-

75) The technique of triangulation in research refers to:

- A) Collection of data from various sources
 - B) Collection of data through variety of tools
 - C) Collection of data at multiple times
 - D) Both (A) & (B)
-

76) If you want to develop a new theory in your subject, you will undertake:

- A) Action research
 - B) Applied research
 - C) Basic research
 - D) Evaluation research
-

77) To validate the data collected through questionnaires, the researcher can:

- A) Take interviews of selected sample
 - B) Make observations of the ongoing process or resources
 - C) Both (A) & (B)
 - D) Neither (A) Nor (B)
-

78) If you want to compare the mean performance of students in Electrical, Mechanical and Electronics Engineering Programme, which of the following the statistical technique s would you prefer:

- A) Correlation
 - B) t-Test
 - C) Analysis of Variance
 - D) Analysis of Covariance
-

79) Memos need to be prepared in case of information collected through:

- A) Observation schedules
 - B) Structured interview schedules
 - C) Semi-structured interview schedules
 - D) Questionnaire
-

80) Which one of the following is a type of research based on methods?

- A) Descriptive research
 - B) Action research
 - C) Applied research
 - D) Basic research
-

81) If you are interested in studying the effect of structured industrial training on the practical skills and attitude towards practical work of third year students of industrial electronics, you will undertake:

- A) Case study
 - B) Content analysis research
 - C) Experimental research
 - D) Survey study
-

82) In case, the past studies provide contradictory findings related to the relationship between teachers effectiveness and achievement of students, which one of the following will be an appropriate hypothesis?

- A) There exists significant relationship between the teacher effectiveness and student achievement
 - B) Higher the teaching effectiveness higher will be the student achievement
 - C) Higher the teachers effectiveness, lower will be the student achievement
 - D) There exists no relationship between teachers effectiveness and achievement of students
-

83) In the field of education research, APA stands for:

- A) American Physics Association
 - B) American Psychological Association
 - C) American Psychiatric Association
 - D) American Philosophical Association
-

84) The variable Gender provides data on:

- A) Nominal scale
 - B) Ordinal scale
 - C) Interval scale
 - D) Ratio scale
-

85) Which one of the following can be considered as a longitudinal study?

- A) Job profile of graduates from the institute after ten years
 - B) Follow-up study of graduates performance in field for ten years
 - C) Reactions of graduates towards the curriculum and instructional processes.
 - D) Leadership style and Emotional Intelligence of graduates working as Managers in Industry.
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86) As an examiner for a thesis, while you evaluate the chapter on methods and procedure, you will focus on:

- A) Appropriateness of research design
 - B) Adequacy and appropriateness of sample
 - C) Validity and reliability of measuring tools
 - D) All of the above
-

87) Which of the following criteria is not applicable to hypothesis:

- A) Be clearly written as a statement.
 - B) Be written prior to the collection of data.
 - C) Include all variables in the problem.
 - D) Indicates the relationship between variables.
-

88) The purpose of research in education is:

- A) To generate new knowledge
- B) To solve problems in the field
- C) To evaluate the education policies, programmes, products etc.
- D) All of the above

89) The findings of action research are applicable on the:

- A) Sample studied
 - B) Population
 - C) Both (A) and (B)
 - D) Neither (A) nor (B)
-

90) If a researcher has no information about the population and seeks referrals of persons possessing a particular attribute, the sampling technique used is:

- A) Volunteer sampling
 - B) Snowball sampling
 - C) Quota sampling
 - D) Purposive sampling
-

91) If you have ranks of ten students for Communication Effectiveness and Interpersonal Relations, you will use:

- A) Bi-serial Correlation
 - B) Chi-square
 - C) Pearson Product Moment correlation
 - D) Rank order Correlation
-

92) Interviewer should possess the skills of:

- A) Listening skills
 - B) Observation skills
 - C) Posing a question
 - D) All of the above
-

93) A smaller proportion of sample will be appropriate when:

- A) Population is large
 - B) Population is heterogeneous
 - C) Population is large and homogeneous
 - D) Population is large and heterogeneous
-

94) In case, you want to evaluate a MOOC, you will include questions related to:

- A) Quality of content
- B) Quality of Videos
- C) Quality of interaction
- D) All of the above

95) If teaching sessions are recorded for newly recruited faculty and then analyzed by experts, the technique used is referred to as:

- A) Critical incident
 - B) Content analysis
 - C) Observation
 - D) Socio-metric Test
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96) Which of the following is true about the use of language in research reports as per APA guidelines?

- A) You should choose accurate and clear words that are free from bias.
 - B) You should avoid labeling people whenever possible
 - C) You should avoid using the term "subjects" whenever possible
 - D) All of the above
-

97) Any variable on which the measure is taken in order to determine whether the experimental condition has an effect is referred to:

- A) Dependent variable
 - B) Extraneous variable
 - C) Independent variable
 - D) Control variable
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98) Successful teams are characterized by :

- A) Common purpose
 - B) Synergy
 - C) Complementarity of skills
 - D) All of the above
-

99) Paradigm shift refers to :

- A) Change in the product
 - B) Change in the process
 - C) Change in the way the business is done
 - D) Change in the service
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100) Interview schedule containing all the specific questions to be posed is an example of:

- A) Structured interview schedule
 - B) Semi-structured interview schedule
 - C) Unstructured interview schedule
 - D) All of the above
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