P P SAVANI UNIVERSITY

Seventh Semester of B.P.T Examination
February 2021
SPPT 4040 Research Methodology and Biostatistics

08.02.2021, Monday   Time: 10:00 a.m. To 12:30 p.m.   Maximum Marks: 70

Instructions:
1. The question paper comprises of two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.
4. Use of scientific calculator is allowed.

SECTION – I

1. Mean, Median and Mode are _____.
   a. Measures of deviation
   b. Ways of sampling
   c. Measures of control tendency
   d. None of the above

2. Research is_____.
   a. Searching again and again
   b. Finding solution to any problem
   c. Working in a scientific way to search for truth of any problem
   d. None of the above

3. Which of the following is the first step in starting the research process?
   a. Searching sources of information to locate problem.
   b. Survey of related literature
   c. Identification of problem
   d. Searching for solutions to the problem

4. The essential qualities of a researcher are_____.
   a. Spirit of free enquiry
   b. Reliance on observation and evidence
   c. Systematization or theorizing of knowledge
   d. All the above

5. In the process of conducting research 'Formulation of Hypothesis" is followed by_____.
   a. Statement of Objectives
   b. Analysis of Data
   c. Selection of Research Tools
   d. Collection of Data

6. A research paper is a brief report of research work based on_____.
    a. Primary Data only
    b. Secondary Data only
    c. Both Primary and Secondary Data
    d. None of the above

7. Questionnaire is a _____.
    a. Research method
    b. Measurement technique
    c. Tool for data collection
    d. Data analysis technique

8. "Controlled Group" is a term used in_____.
    a. Survey research
    b. Historical research
    c. Experimental research
    d. Descriptive research

9. An appropriate source to find out descriptive information is_____.
    a. Bibliography
    b. Directory
    c. Encyclopedia
    d. Dictionary

10. Information is_____.
    a. Raw Data
    b. Processed Data
    c. Input data
    d. Organized data

11. A therapist designs a research study which examines the effect of functional knee bracing on speed and agility are the_____.
    a. Dependent variables
    b. Independent variables
    c. Criterion variables
    d. Extraneous variables

12. As a part of the total quality management program, a physiotherapy program decides to collect patient satisfaction data. The most appropriate initial action is to_____.
    a. Identify appropriate statistical techniques to analyze the data
    b. Design a questionnaire for the therapists
    c. Design a patient satisfaction survey
    d. Modify patient care standards based on the collected date.

13. Therapists routinely assess the amount of assistance a patient needs to complete a selected activity. Categories of assistance include maximal, moderate, minimal, standby or independent. This type of measurement scale is best classified as_____.

    a. Interval

    b. Nominal

    c. Ordinal

    d. Ratio

14. A group of senior physiotherapy students utilizes ten patients from a local rehabilitation center with adhesive capsulitis for a research project. This type of sampling most accurately describes_____.

    a. Cluster sampling

    b. Convenient sampling

    c. Stratified sampling

    d. Systematic sampling

15. Therapists utilize a variety of sampling designs when conducting research. Which design is most likely to result in the greatest degree of sampling error?

    a. Simple random sample

    b. Systematic sample

    c. Cluster sample

    d. Stratified random sample

16. A therapist presents the results of a research project entitled "Effect of an Aerobic Exercise Program on Heart Rate and Blood Pressure". The independent variable in the therapists study is_____.

    a. Exercise program

    b. Exercise program and heart rate

    c. Exercise program and blood pressure

    d. Heart rate and blood pressure

17. A therapist wants to compare frequencies of carpal tunnel syndrome occurring in different groups of individuals: assembly line workers and computer programmers. The most appropriate statistical tool to use for analysis of the data is_____.

    a. Simple one way anova

    b. t test

    c. Normal distribution curve

    d. Chi square test

18. A physical therapist is performing clinical research in which a specific myofascial technique is applied to a patient with chronic back pain. She is using a single case experimental design with an A-B-A-B format (A represents multiple baseline measurements while B represents multiple post-treatment measurements). Her research hypothesis states that pain rating score will decrease with the treatment intervention. Acceptance of this hypothesis would be indicated if_____.

    a. B is equal to A
    b. B is greater than A, at the 1.0 level
    c. B is greater than A, at the .05 level
    d. B is less than A

19. Two therapists are asked to perform a test on the same group of patients using the Functional Independence Measure(FIM). The result of both sts of measurements reveal differences in therapists score but not in the repeat measurements. This is indicative of a problem in_____.

    a. Concurrent validity
    b. Interrater reliability
    c. Intrarater reliability
    d. Construct validity

20. A researcher states that he expects that there will be no significant difference between 20 and 30 years olds after a 12 week exercise training program using exercise heart rates and myocardial oxygen consumption as measure of performance. The kind of hypothesis that is being used in this study is_____.

    a. Experimental hypothesis
    b. Research hypothesis
    c. Null hypothesis
    d. Directional hypothesis

Instructions:

- Attempt any **TEN** questions. Each question carries maximum 05 marks.
- **50 Marks (Total Time 2 hours)**

1	What is research process?
2	Explain purposive sampling.
3	Explain cross sectional type of research.
4	What are the problems faced by researchers in India.
5	Explain post ex facto.
6	Explain the difference between probability and nonprobability sampling.
7	Explain Validity and Reliability with appropriate examples.
8	Write down characteristics of a good sample design.
9	Write down significance of statistics in research methodology.
10	Explain ordinal scale in research methodology with example.
11	What is hypothesis? Explain types of hypothesis?
12	What are Research tools?

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