Seat No.	

M.Phil/Ph.D. Entrance Examination, August - 2018
COMPUTER SCI. AND ENGG
Research Methodology

Day and Date : Saturday, 11 - 08 - 2018   **Total Marks : 100**
Time : 10.00 a.m. to 12.00 Noon

Instructions :
1) All questions are compulsory.
2) Each question carries 2 marks.
3) Answers should be marked in the given OMR answer sheet by darkening the appropriate option.
4) Use black ball point pen only for marking the circle. Do not make any stray mark on the OMR Answer Sheet.
5) Follow the instructions given on OMR Sheet.
6) Rough work shall be done on the sheet provided at the end of question paper.
7) Only non programmable calculators are allowed.

1. The method by which a sample is chosen.

a) Unit   b) design

c) Random   d) None of the above

2. _____which concerns with the question of how many items are to be observed and how the information and data gathered are to be analyzed.

a) Statistical design   b) Observational design

c) Operational design   d) Sampling design

3. Research is classified on the basis of _____ and methods.

a) Purpose   b) Intent

c) Methodology   d) None of the above

P.T.O.

4. The variables are ones that have a strong continent effect on the relationship between the independent variable and dependent variable. They have potential to modify the direction and magnitude of the above stated association.

   a) Moderating variables
   b) Inverting variables

   c) Extraneous variable
   d) None of the above

5. _____ involve random selection.

   a) Probability sampling
   b) Non-probability sampling

   c) Purposive sampling
   d) None of these

6. Research conducted to find solution for an immediate problem is _____.

   a) Fundamental Research
   b) Analytical Research

   c) Survey
   d) Action Research

7. Research related to abstract ideas or concepts is

   a) Empirical research
   b) Conceptual research

   c) Quantitative research
   d) Qualitative research

8. Parametric test, unlike the non-parametric tests, make certain assumptions about.

   a) The population size

   b) The underlying distribution

   c) The sample size

   d) None of the above

9. Two types of errors associated with hypothesis testing are Type I and Type II. Type II error is committed when.

    a) We reject the null hypothesis whilst the alternative hypothesis is true

    b) We reject a null hypothesis when it is true

    c) We accept a null hypothesis when it is not true

    d) None of the above

10. The null hypothesis of the sign test is that

    a) Half the ranks to be less than the median and half greater than the median

    b) Half the ranks to be less than the mean and half greater than the mean

    c) The lower half the ranks to have the same mean as the upper half

    d) The lower half the ranks to have the same standard deviation as the upper half

11. A research which follows case study method is called

    a) Clinical or diagnostic   b) Causal

    c) Analytical   d) Qualitative

12. Research conducted in class room atmosphere is called

    a) Field study   b) Survey

    c) Laboratory Research   d) Empirical Research

13. What is an effect size?

    a) The magnitude of the relationship between variables

    b) The likelihood of type 1 and type 2 errors

    c) The number of expected cases

    d) The variance explained by the measures

14. What does a significant result in a chi-square test imply?

a) That homogeneity of variance has not been established

b) That there is a significant difference between the three categorical variables included in the analysis

c) It implies that the sample is not representative of the population

d) All of these are possible

15. One or two tail test will determine

a) If the two extreme values (min or max) of the sample need to be rejected

b) If the hypothesis has one or possible two conclusions

c) If the region of rejection is located in one or two tails of the distribution

d) None of the above

16. Research through experiment and observation is called

a) Clinical Research
b) Experimental Research

c) Laboratory Research
d) Empirical Research

17. Research method is a part of _____.

a) Problem
b) Experiment

c) Research Techniques
d) Research methodology

18. What are the two types of variance which can occur in your data?

a) Between or within groups

b) Repeated and extraneous

c) Experimenter and participant

d) Independent and confounding

19. You obtained a significant test statistic when comparing three treatments in a one-way ANOVA. In words, how would you interpret the alternative hypothesis HA?

    a) All three treatments have different effects on the mean response.

    b) Exactly two of the three treatments have the same effect on the mean response.

    c) At least two treatments are different from each other in terms of their effect on the mean response.

    d) All of the above.

20. Identifying causes of a problem and possible solution to a problem is

    a) Field Study

    b) Diagnosis tic study

    c) Action study

    d) Pilot study

21. ICSSR stands for

    a) Indian Council for Survey and Research

    b) Indian Council for strategic Research

    c) Indian Council for Social Science Research

    d) Inter National Council for Social Science Research

22. Converting a question into a Researchable problem is called _____.

    a) Solution

    b) Examination

    c) Problem formulation

    d) Problem Solving

23. What is the function of a post-test in ANOVA?

    a) Determine if any statistically significant group differences have occurred.

    b) Describe those groups that have reliable differences between group means.

    c) Set the critical value for the F test (or chi-square).

    d) None of the above

24. Which one of these techniques is most likely to be used in quantitative analysis?

a) Multivariate analysis   b) Sound-tape recordings

c) Transcripts   d) Videos

25. In Testing the statistical hypothesis, which of the following statement is false

a) The critical region is the values of the test statistic for which we reject null hypothesis

b) The level of significance is the probability of type I error

c) The p-value measures the probability that the null hypothesis is true

d) None of the above

26. The lexical analysis for a modern computer language such as Java needs the power of which one of the following machine models in a necessary and sufficient sense?

a) Finite state automata

b) Deterministic pushdown automata

c) Non-Deterministic pushdown automata

d) Turing machine

27. Consider the languages L1, L2 and L3 as given below

L1 = {0^p1^q|p, q εN}

L2 = {0^p1^q|p, q εN and p = q} and

L1 = {$0^p1^q\ 0^r$|p, q, rεN and p = q = r}

Which of the following statements is NOT TRUE?

a) Push Down Automata (PDA) can be used to recognize L1 and L2

b) L1 is a regular language

c) All the three languages are context free

d) Turing machines can be used to recognize all the languages

28. If A=(1, 2, 3, 4). Let ~ =((1, 2), (1, 3), (4, 2)). Then ~ is

a) Not anti-symmetric

b) Transitive

c) Reflexive

d) Symmetric

29. How many strings of length less than 4 contains the language described by the regular expression (x+y)*y(a+ab)*?

a) 7

b) 10

c) 12

d) 11

30. In distributed system each processor has its own

a) local memory

b) clock

c) both (a) and (b)

d) none of the mentioned

31. If one site fails in distributed system

a) the remaining sites can continue operating

b) all the sites will stop working

c) directly connected sites will stop working

d) none of the mentioned

32. Which technique is based on compile-time program transformation for accessing remote data in a distributed-memory parallel system.

a) Cache coherence scheme

b) Computation migration

c) Remote procedure call

d) Message passing

33. A full binary tree with n leaves contains

a) n nodes

b) $\log n^2$ nodes

c) 2n −1 node

d) n^2 nodes

34. The Floyd-Warshall all-pairs shortest path algorithm for finding the shortest distances between nodes in a graph is an example of

a) A Dynamic Programming formulation

b) A Greedy Algorithm

c) A recursion based divide and conquer technique

d) None of the above

35. The files x_1, x_2, x_3 are 3 files of length 30, 20, 10 records each. What is the optimal merge pattern value?

a) 110   b) 60

c) 90   d) 50

36. Consider a relation R (A, B, C, D, E) with function dependency F = {A→B, BC→E, ED→A}. Given R is in which highest normal form?

a) 1 NF   b) 2 NF

c) 3 NF   d) BCNF

37. Shadow paging mechanism is used to implement

a) Atomicity and durability   b) Only Atomicity

c) Only durability   d) None of the above

38. An index is clustered, if

a) It is on a set of fields that form a candidate key.

b) It is on a set of fields that include the primary key.

c) The data records of the file are organized in the same order as the data entries of the index

d) The data records of the file are organized not in the same order as the data entries of the index

39. Data that can be modeled as dimension attributes and measure attributes are called _____ data.

    a)   Multidimensional   b)   Single dimensional

    c)   Measured   d)   Dimensional

40. In Hypertext Transaction, term CONNECT is used for

    a)   Connection   b)   Reserved Connection

    c)   Post Connection   d)   Active Connection

41. In Hyper Text Transfer Protocol (HTTP), a client can directly connect to a server using

    a)   Web   b)   Domain

    c)   TELNET   d)   HTTP

42. Which of the following HTTP Status code means INTERNAL SERVER ERROR, states that server has thrown some exception while executing the method?

    a)   500   b)   401

    c)   404   d)   409

43. Which of the following is server side programming languages?

    1.   HTML   2.   JavaScript   3.   JSP   4.   Sevlets

    a)   1, 2, 3, 4   b)   1, 2

    c)   3, 4   d)   None

44. Which of following is not attributes of Page directive

    a)   Session   b)   Language

    c)   Is thread Safe   d)   Name

45. IPV6 is in which format

a) Hexadecimal format   b) Octal format

c) Alphanumeric format   d) Numeric format

46. What multicast address does RIPng use

a) FF02::A   b) FF02::8

c) FF02::9   d) FF02::5

47. Which of the following is not a feature of Anycast addressing in IPv6?

a) Same IPv6 address assigned to multiple nodes

b) Routing protocol makes the "nearest" determination

c) Supports many future potential applications

d) Provides an any-to-many communication model

48. Because of Pentium's superscalar architecture, the number of instructions that are executed per clock cycle is :

a) 1   b) 2

c) 3   d) 4

49. The type of execution which means that the CPU should speculate which of the next instructions can be executed earlier is :

a) Speculative execution   b) Out of turn execution

c) Dual independent bus   d) Multiple branch prediction

50. Memory management on a multiprocessor must deal with all of found on

a) Uniprocessor Computer   b) Computer

c) Processor   d) System

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Rough Work

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