Seat No.	

M.Phil./Ph.D. Entrance Examination, May - 2019 (Special Drive)
COMPUTER SCIENCE AND ENGINEERING
(For M.E., M.Tech. Students)

Day and Date : Wednesday, 22 - 05 - 2019 **Total Marks : 100**
Time : 4.00 p.m. to 6.00 p.m.

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.

Research Methodology

1) _____ which deals with the techniques by which the procedures specified in the sampling, statistical and observational designs can be carried out

   A) Statistical design
   B) Observational design
   C) Operational design
   D) Sampling design

2) Which of the following is a non-probability sample?

   A) Quota sample
   B) Simple random sample
   C) Purposive sample
   D) (A) and (C) both

3) A Hypothesis contributes to the development of _____

   A) Theory
   B) Generalization
   C) Evolution
   D) Concept

P.T.O.

4) A Hypothesis must be _____

   A) Diffuse   B) Specific

   C) Slow   D) Speedy

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) 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

7) The first purpose of a survey is to _____

   A) Description   B) Evaluation

   C) Propagation   D) Provide Information

8) In a survey the number questions is

   A) Unlimited

   B) Limited

   C) Both limited and unlimited

   D) None of the above

9) For collection of Data _____ time is devoted

   A) 50%

   B) 25%

   C) 75%

   D) 33%

10) How many dependent variables must you have for an ANOVA to be conducted?

    A) Ordinal variables

    B) Nominal variables

    C) Only 1 continuous variable

    D) None of these

11) 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

12) Final stage in the Research Process is

    A) Problem formulation

    B) Data collection

    C) Data Analysis

    D) Report Writing

13) A Research Report is a formal statement of _____.

   A) Research Process   B) Research Problem

   C) Data collection   D) Data Editing

14) A comprehensive full Report of the research process is called

   A) Thesis

   B) Summary Report

   C) Abstract

   D) Article

15) _____ is a statistical technique that identifies homogenous subgroups.

   A) Factor analysis

   B) Multivariate analysis of variance

   C) Cluster analysis

   D) Discriminant analysis

16) The first page of the research report is

   A) Appendix   B) Bibliography

   C) Index   D) Title Page

17) In Research Report _____ is used to acknowledge indebtness

   A) Bibliography   B) Index

   C) Appendix   D) Foot-Notes

18) Failure to acknowledge the borrowed material is called (Take and use of others as one's own)

   A) Acknowledgement

   B) Foot note

   C) Index

   D) Plagiarism

19) The order in which participants complete a task is an example of what level of measurement?

A) Ordinal   B) Nominal

C) Ratio   D) Interval

20) What is the difference between data measured on an interval scale and data measured on a ratio scale?

A) A ratio scale has a true zero point, so zero on the scale corresponds to zero of the concept being measured.

B) An interval scale has a true zero point, so zero on the scale corresponds to zero of the concept being measured.

C) A ratio scale has equal intervals between the points on the scale, whereas an interval scale does not.

D) A ratio scale puts scores into categories, while an interval scale measures on a continuous scale.

21) When concordant pairs exceed discordant pairs in a P-Q relationship, Kendall's tau b reports a(n) _____ association between the variables under study.

A) Inverse   B) Positive

C) Negative   D) Weak

22) Research design is a blue print, outline and a _____.

A) Plan   B) System

C) Strategy   D) Guide

23) 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

24) The original source from which researcher collects information is

   A) Primary Source

   B) Secondary Source

   C) Both primary and Secondary

   D) None of these

25) An instrument used in method is called

   A) Sample   B) Technique

   C) Tool   D) Survey

Computer Science and Engineering

26) Which of the following pairs have DIFFERENT expressive power?

   A) Deterministic finite automata (DFA) and Non-deterministic finite automata (NFA)

   B) Deterministic push down automata (DPDA) and Non-deterministic push down automata (NPDA)

   C) Deterministic single-tape Turing machine and Non-deterministic single tape Turing machine

   D) Single-tape Turing machine and multi-tape Turing machine

27) Given the language L {ab, aa, baa}, which of the following strings are in L*?

   1) abaabaaabaa   2) aaaabaaaa

   3) baaaaabaaaab   4) baaaaabaa

   A) 1, 2 and 3   B) 2, 3 and 4

   C) 1, 2 and 4   D) 1, 3 and 4

28) In nondeterministic PDA a string is supposed to be accepted, if there exists at least one path traced by the string, leading to _____ state?

   A ACCEPT   B) REJECT

   C) START   D) READ

29) The CFG which generates the regular language is called _____ ?

    A) Regular expression   B) Finite Automata

    C) Regular grammar   D) None of the given options

30) The link between two processes P and Q to send and receive messages is called:

    A) communication link

    B) message-passing link

    C) synchronization link

    D) All of these

31) In indirect communication between processes P and Q:

    A) there is another process R to handle and pass on the messages between P and Q

    B) there is another machine between the two processes to help communication

    C) there is a mailbox to help communication between P and Q

    D) None of these

32) In the non-blocking send:

    A) the sending process keeps sending until the message is received

    B) the sending process sends the message and resumes operation

    C) the sending process keeps sending until it receives a message

    D) None of these

33) ODL supports which of the following types of relationships?

   A) Unary

   B) Unary and Binary

   C) Unary, Binary and Ternary

   D) Unary, Binary, Ternary and Higher

34) Which of the following is an unordered collection of elements that may contain duplicates?

   A) Set

   B) Bag

   C) List

   D) Dictionary

35) The quick sort algorithm exploits _____ design technique

   A) Greedy   B) Dynamic programming

   C) Divide and Conquer   D) Backtracking

36) Which of the given option provide the increasing order of asymptotic complexity of functions f_1, f_2, f_3 and f_4?

   $f_1 (n) = 2^n$; $f_2 (n) = n^{3/2}$; $f_3 (n) = n\log_2 n$; $f_4 (n) = n\log_2 n$

   A) f_3, f_2, f_4, f_1 B) f_3, f_2, f_1, f_4

   C) f_2, f_3, f_1, f_4 D) f_2, f_3, f_4, f_1

37) The preorder traversal sequence of a binary search tree is 30, 20, 10, 15, 25, 23, 39, 35, and 42. Which one of the following is the postorder traversal sequence of the same tree?

   A) 10, 20, 15, 23, 25, 35, 42, 39, 30

   B) 15, 10, 25, 23, 20, 42, 35, 39, 30

   C) 15, 20, 10, 23, 25, 42, 35, 39, 30

   D) 15, 10, 23, 25, 20, 35, 42, 39, 30

38) A binary search tree whose left subtree and right subtree differ in height by at most 1 unit is called

   A)   AVL tree

   B)   Red-black tree

   C)   Lemma tree

   D)   None of the above

39) In case of heterogeneous distributed database which of the following is true?

   A)   The same DBMS is used at each location and data are not distributed across all nodes.

   B)   The same DBMS is used at each location and data are distributed across all nodes.

   C)   A different DBMS is used at each location and data are not distributed across all nodes.

   D)   A different DBMS is used at each location and data are distributed across all nodes.

40) In distributed database, global wait-for graph is used for

   A)   Handling concurrency control

   B)   Handling failures

   C)   Handling deadlock

   D)   None of the above

41) Which life cycle method is called once in servlet life?

   A)   class loading   B)   init()

   C)   service()   D)   destroy()

42) Which method is called when client request come?

   A)   get()   B)   post()

   C)   init()   D)   service()

43) The _____ class is at the highest level of DOM approach

   A)   DocumentBuilderFactory   B)   DocumentBuilder

   C)   Document   D)   Element

44) The.. .approach of parsing is based on loading the entireXML into memory

   A)   SAX   B)   DOM

   C)   StAX   D)   JAXP

45) What is on-demand mail relay (ODMR)?

   A)   protocol for SMTP security

   B)   an SMTP extension

   C)   protocol for web pages

   D)   none of the mentioned

46) DHCP (dynamic host configuration protocol) provides _____ to the client.

   A)   IP address   B)   MAC address

   C)   URL   D)   None of the mentioned

47) DHCP is used for

   A)   IPv6   B)   IPv4

   C)   both (A) and (B)   D)   none of the mentioned

48) Design of SMPs and Cluster is

A) Same   B) Different

C) Complex   D) Easy

49) Symmetric multiprocessing in computer system does not use

A) master relationship

B) slave relationship

C) master slave relationship

D) serial processing

50) Multiprocessing provided by computer system is of type

A) symmetric multiprocessor

B) asymmetric multiprocessing

C) symmetric multiprocessing

D) both B and C

✗   ✗   ✗

Rough Work