

Seat No.	
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M.Phil./Ph.D. Entrance Examination, September - 2019
COMPUTER SCIENCE

Day and Date : Thursday, 19 - 09 - 2019
Time : 1.00 p.m. to 3.00 p.m.

Total Marks : 100

- 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) A research stream of immediate application is
 - A) Conceptual research
 - B) Action research
 - C) Fundamental research
 - D) Empirical research

- 2) Which of the following is an initial mandatory requirement for pursuing research?
 - A) Developing a research design
 - B) Formulating a research question
 - C) Deciding about the data analysis procedure
 - D) Formulating a research hypothesis

- 3) Ethical norms in research do not involve guidelines for
 - A) Thesis Format
 - B) Copyright
 - C) Patenting Policy
 - D) Data Sharing Policy

- 4) A working hypothesis is
- A) a proven hypothesis for an argument
 - B) not required to be tested
 - C) a provisionally accepted hypothesis for further research
 - D) a scientific theory
- 5) Which of the following statement are true about data in research?
- A) In research data can be quantitative
 - B) In research data can be qualitative
 - C) In research data can be both qualitative and quantitative
 - D) In research data can be quantitative but never qualitative
- 6) _____ is one of the qualities of good researcher.
- A) Good hand writing
 - B) Attendance in workshops and conferences
 - C) Quick thinker
 - D) None of these
- 7) In a group of five persons A, B, C, D and E one plays Tennis, one plays Chess and one Hockey. A and D are unmarried women and play no game. There is a couple among them where E is husband of C. No women play either Chess or Hockey. B is the brother of C and he neither plays Tennis nor Chess. Who plays Hockey here?
- A) A
 - B) B
 - C) C
 - D) E
- 8) What are the penalties for plagiarism?
- A) You can be suspended
 - B) You can go to prison and pay a fine
 - C) Your guideship cancelled
 - D) All of these

M/P ENT - 20

- 14) Which of the following is not one of the elements of a design pattern?
- A) Context
 - B) Problem
 - C) Solution
 - D) Environment
- 15) A simple graph G with n -vertices is connected if the graph has
- A) $(n-1)(n-2)/2$ edges
 - B) More than $(n-1)(n-2)/2$ edges
 - C) Less than $(n-1)(n-2)/2$ edges
 - D) $\sum_{k=1}^n C(n_i, 2)$ edges
- 16) Which of the following is Cloud Platform by Amazon?
- A) Azure
 - B) AWS
 - C) Cloudera
 - D) All of the mentioned
- 17) What was Hadoop named after?
- A) Creator Doug Cutting's favorite circus act
 - B) Cutting's high school rock band
 - C) The toy elephant of Cutting's son
 - D) A sound Cutting's laptop made during Hadoop's development
- 18) Which of the following is essential concept related to Cloud?
- A) Reliability
 - B) Productivity
 - C) Abstraction
 - D) All of the mentioned

M/P ENT - 20

- 19) _____ is the slave/worker node and holds the user data in the form of Data Blocks.
- A) DataNode
B) NameNode
C) Data block
D) Replication
- 20) Does WEKA support multi-label classification?
- A) Yes
B) No
C) Platform dependant
D) Data Dependant
- 21) _____ is a characteristic of cloud computing which is used to handle the increasing workload by increasing in proportion amount of resource capacity.
- A) Scalability
B) Elasticity
C) Security
D) None of these
- 22) _____ is an open source software infrastructure in cloud computing and used to implement clusters in cloud computing platform.
- A) Cloudstack
B) Eucalyptus
C) OpenShift
D) None of these
- 23) _____ technique predicts a single output value using training data.
- A) Clustering
B) Classification
C) Regression
D) None of these

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- 24) _____ is a collection of machine learning algorithms for data mining tasks.
- A) Weka
 - B) R
 - C) Data science
 - D) None of these
- 25) _____ is responsible for storing different kinds of data as blocks in a distributed environment.
- A) HDFS
 - B) YARN
 - C) MapReduce
 - D) None of these
- 26) A company needs to develop digital signal processing software for one of its newest inventions. The software is expected to have 44000 lines of code. The Company needs to determine the effort in person-months needed to develop this software using the basic COCOMO model. The multiplicative factor for this model is given as 2.6 for the software development on embedded systems, while the exponentiation factor is given as 1.20. What is the estimated effort in person-months?
- A) 234.25
 - B) 243.84
 - C) 287.80
 - D) 122.40
- 27) Let R (A,B,C,D) be a relational schema with the following functional dependencies:
- $A \rightarrow B, B \rightarrow C, C \rightarrow D$ and $D \rightarrow B$.
- The decomposition of R into (A,B), (B,C), (B,D)
- A) gives a lossless join, and is dependency preserving
 - B) gives a lossless join, but is not dependency preserving
 - C) does not give a lossless join, but is dependency preserving
 - D) does not give a lossless join and is not dependency preserving

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- 28) Which of the following is NOT a valid deadlock prevention scheme?
- A) Release all resources before requesting a new resource
 - B) Number the resources uniquely and never request a lower numbered resource than the last one requested
 - C) Never request a resource after releasing any resource
 - D) Request and all required resources be allocated before execution
- 29) Select the correct among the following for linking an external style sheet.
- A) `<link rel="stylesheet" type="text/css" href="style.css">`
 - B) `<style rel="stylesheet" type="text/css" href="style.css">`
 - C) `<link>stylesheet`
 - D) `<link href="style.css">stylesheet`
- 30) How many times can you define ____ autoload in a process?
- A) as many times as needed wrong
 - B) thrice
 - C) twice
 - D) once
- 31) Newton-Raphson method is applicable to the solution of _____.
- A) Algebraic equations only
 - B) Transcendental equations only
 - C) Both algebraic and transcendental equations
 - D) None of these

- 32) A data warehouse is _____.
- A) Updated by end users
 - B) Contains numerous naming conventions and formats
 - C) Organized around important subject areas
 - D) Contain only current data
- 33) A _____ is an ordered collection of objects.
- A) Relation
 - B) Function
 - C) Set
 - D) None of these
- 34) RGB color model are used for
- A) Computer display
 - B) Printing
 - C) Painting
 - D) None of these
- 35) Data selection is _____.
- A) The actual discovery phase of a knowledge discovery process
 - B) The stage of selecting the right data for a KDD process
 - C) A subject-oriented, integrated, time-variant, non-volatile collection of data in support of management
 - D) None of these
- 36) An all-pairs shortest-paths problem is efficiently solved using:
- A) Dijkstra' algorithm
 - B) Bellman-Ford algorithm
 - C) Kruskal algorithm
 - D) Floyd-Warshall algorithm

- 37) Constructors have _____ return type.
- A) void
 - B) no
 - C) char
 - D) int
- 38) Consider the following identities for regular expressions:
- (a) $(r + s)^* = (s + r)^*$
 - (b) $(r^*)^* = r^*$
 - (c) $(r^*s^*)^* = (r + s)^*$
- Which of the above identities are true?
- A) (a) and (b) only
 - B) (a) and (c) only
 - C) (b) and (a) only
 - D) (a), (b) and (c)
- 39) Which of the following most accurately describes a programming paradigm?
- A) A good design pattern.
 - B) A way of thinking about programming.
 - C) Code that uses classes.
 - D) A programming language.
- 40) This unsupervised clustering algorithm terminates when mean values computed for the current iteration of the algorithm are identical to the computed mean values for the previous iteration.
- A) agglomerative clustering
 - B) conceptual clustering
 - C) K - Means clustering
 - D) expectation maximization
- 41) _____ is a process of writing the state of an object to a byte stream.
- A) Serialization
 - B) Externalization
 - C) Filtering
 - D) None of these

- 42) In compiler design 'reducing the strength' refers to
- A) Reducing the range of values of input variables.
 - B) Code optimization using cheaper machine instructions.
 - C) Reducing efficiency of program.
 - D) None of the above
- 43) Which type of Statement can execute parameterized queries?
- A) PreparedStatement
 - B) ParameterizedStatement
 - C) ParameterizedStatement and CallableStatement
 - D) All kinds of Statements (i.e. which implement a sub interface of Statement)
- 44) _____ Search algorithm is one of the best and popular technique used in path-finding and graph traversals.
- A) A*
 - B) AO*
 - C) BFS
 - D) None of these
- 45) Which code used by android is not a open source.
- A) Video Driver
 - B) WiFi Driver
 - C) Device Driver
 - D) None of these
- 46) If there are n signal sources of same data rate then TDM link has _____ slots.
- A) n
 - B) n/2
 - C) n*2
 - D) 2n

- 47) Which of the following is the worst type of module cohesion?
- A) Logical Cohesion B) Temporal Cohesion
C) Functional Cohesion D) Coincidental Cohesion
- 48) _____ layer provides end to end security services for applications.
- A) Network B) Transport
C) Application D) Session
- 49) _____ is data-link layer vulnerability where stations are forced to make direct communication with another station by evading logical controls.
- A) VLAN attack B) VLAN Circumvention
C) VLAN compromisation method D) Data-link evading
- 50) The process of monitoring performance, comparing it with goals and correcting any significant deviations is known as:
- A) Planning B) Organizing
C) Leading D) Controlling



Rough Work