

Seat No.	
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**M.Phil./Ph.D. Entrance Examination, August- 2018**  
**COMPUTER SCIENCE**

**Day and Date : Friday, 10 - 08 - 2018**  
**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) The research which is exploring new facts through the study of the past is called
  - A) Philosophical research
  - B) Historical research
  - C) Mythological research
  - D) Content analysis
  
- 2) A doctor studies the relative effectiveness of two drugs of dengue fever. His research would be classified as
  - A) Descriptive Survey
  - B) Experimental Research
  - C) Case Study
  - D) Ethnography
  
- 3) The term 'phenomenology' is associated with the process of
  - A) Qualitative Research
  - B) Analysis of Variance
  - C) Correlational Study
  - D) Probability Sampling

- 4) Newton gave three basic laws of motion. This research is categorized as
- A) Descriptive Research
  - B) Sample Survey
  - C) Fundamental Research
  - D) Applied Research
- 5) Which one of the following is an indication of the quality of a research journal?
- A) Impact factor
  - B) h-index
  - C) g-index
  - D) i10-index
- 6) Good 'research ethics' means
- A) Not disclosing the holdings of shares/stocks in a company that sponsors your research.
  - B) Assigning a particular research problem to one Ph.D/research student only.
  - C) Discussing with your colleagues confidential data from a research paper that you are reviewing for an academic journal.
  - D) Submitting the same research manuscript for publishing in more than one journal.
- 7) Which of the following sampling methods is based on probability?
- A) Convenience sampling
  - B) Quota sampling
  - C) Judgement sampling
  - D) Stratified sampling
- 8) Identify the incorrect statement:
- A) A hypothesis is made on the basis of limited evidence as a starting point for further investigations.
  - B) A hypothesis is a basis for reasoning without any assumption of its truth.
  - C) Hypothesis is a proposed explanation for a phenomenon.
  - D) Scientific hypothesis is a scientific theory.

- 9) Which one of the following belongs to the category of good 'research ethics'?
- A) Publishing the same paper in two research journals without telling the editors.
  - B) Conducting a review of the literature that acknowledges the contributions of other people in the relevant field or relevant prior work.
  - C) Trimming outliers from a data set without discussing your reasons in a research paper.
  - D) Including a colleague as an author on a research paper in return for a favor even though the colleague did not make a serious contribution to the paper.
- 10) A research paper
- A) is a compilation of information on a topic.
  - B) contains original research as deemed by the author.
  - C) contains peer-reviewed original research or evaluation of research conducted by others.
  - D) can be published in more than one journal.
- 11) At present, the ratio between the ages of Arun and Deepak is 4:3. After 6 years, Arun's age will be 26 years. What is the age of Deepak at present?
- A) 12 years
  - B) 15 years
  - C) 19 and half
  - D) 21 years
- 12) Steel Express runs between Tatanagar and Howrah and has five stoppages in between. Find the number of different kinds of one-way second class ticket that Indian Railways will have to print to service all types of passengers who might travel by Steel Express?
- A) 49
  - B) 42
  - C) 21
  - D) 7

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- 13) The horizontal distance of a kite from the boy flying it is 30 m and 50 m of cord is out from the roll. If the wind moves the kite horizontally at the rate of 5 km per hour directly away from the boy, how fast is the cord being released?
- A) 3 km per hour
  - B) 4 km per hour
  - C) 5 km per hour
  - D) 6 km per hour
- 14) ABCD is a trapezium, such that AB, DC are parallel and BC is perpendicular to them. If  $\angle DAB = 45^\circ$ ,  $BC = 2$  cm and  $CD = 3$  cm then  $AB = ?$
- A) 5 cm
  - B) 4 cm
  - C) 3 cm
  - D) 2 cm
- 15) The sum of the numbers from 1 to 100, which are not divisible by 3 and 5.
- A) 2946
  - B) 2732
  - C) 2632
  - D) 2317
- 16) Soft computing approach to machine learning comprises of ---.
- A) Fuzzy Logic
  - B) Artificial Neural Network
  - C) Genetic Algorithm
  - D) All of the above
- 17) Which algorithm has same average, worst case and best case time?
- A) Binary search
  - B) Maximum of n numbers
  - C) Quick sort
  - D) Fibonacci search

- 18) The maximum number of nodes in a binary tree of depth 10 is:
- A) 1024
  - B) 2100
  - C) 1000
  - D) None of the above
- 19) Which of the following is essential concept related to Cloud?
- A) Reliability
  - B) Productivity
  - C) Abstraction
  - D) All of the mentioned
- 20) Which of the following is Cloud Platform by Amazon?
- A) Azure
  - B) AWS
  - C) Cloudera
  - D) All of the mentioned
- 21) 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
- 22) A \_\_\_\_\_ serves as the master and there is only one NameNode per cluster.
- A) Data Node
  - B) Name Node
  - C) Data block
  - D) Replication

- 23) Perception involves
- A) Sights, sounds, smell and touch
  - B) Hitting
  - C) Boxing
  - D) Dancing
- 24) What is state space?
- A) The whole problem
  - B) Your Definition to a problem
  - C) Problem you design
  - D) Representing your problem with variable and parameter
- 25) Does WEKA support multi-label classification?
- A) Yes
  - B) No
  - C) Platform dependant
  - D) Data Dependant
- 26) A relation  $R = \{A,B,C,D,E,F\}$  is given with following set of functional dependencies:  $F = \{A \rightarrow B, AD \rightarrow C, B \rightarrow F, A \rightarrow E\}$ . Which of the following is Candidate Key?
- A) A
  - B) AC
  - C) AD
  - D) None of these
- 27) Which of the following statements is wrong?
- A) 2-phase Locking Protocols suffer from deadlocks
  - B) Time-Stamp Protocols suffer from more aborts
  - C) Time-Stamp Protocols suffer from cascading roll back where as 2-phase locking Protocol do not
  - D) None of these

- 28) In DBMS, deferred update means:
- A) All the updates are done first but the entries are made in the log file later
  - B) All the log files entries are made first but the actual updates are done later
  - C) Every update is done first followed by a writing on the log file
  - D) Changes in the views are deferred till a query asks for a view
- 29) Which data management language component enabled the DBA to define the schema components?
- A) DML
  - B) Subschema DLL
  - C) Schema DLL
  - D) All of these
- 30) In case of Bus/Tree topology signal balancing issue is overcome by:
- A) Strong Transmitter
  - B) Polling
  - C) Segmentation
  - D) Modulation
- 31) The subnet mask 255.255.255.192
- A) Extends the network portion to 16 bits
  - B) Extends the network portion to 26 bits
  - C) Extends the network portion to 36 bits
  - D) Has no effect on the network portion of an IP address
- 32) What is the function of a translating bridge?
- A) Connect similar remote LANs
  - B) Connect similar local LANs
  - C) Connect different types of LANs
  - D) Translate the network addresses into a layer 2 address

- 33) A 10 BASE-2 network is limited to:
- A) 20 bytes per data field
  - B) 30 stations per segment
  - C) 40 Segments
  - D) 50 feet of cable
- 34) A compiler for a high level language that runs on one machine and produces code for a different machine is called:
- A) Optimizing
  - B) One pass compiler
  - C) Cross compiler
  - D) Multipass compiler
- 35) A permanent database of a general model of compiler is.....
- A) Identifier table
  - B) Page map table
  - C) Literal table
  - D) Terminal table
- 36) Tasks done in parsing are:
- A) Check the validity of a source string
  - B) Determine the syntactic structure of a source string
  - C) Both (A) and (B)
  - D) None of these
- 37) Are we building the right product? This statement refers to
- A) Verification
  - B) Validation
  - C) Testing
  - D) Software quality assurance



- 38) The COCOMO model is used for.....
- A) Software design
  - B) Software cost estimation
  - C) Software cost approximation
  - D) Software analysis
- 39) Which of the following tools is not required during system analysis phase of system development life cycle?
- A) Case tool
  - B) RAD tool
  - C) Reverse engineering
  - D) None of these
- 40) Concept description is the basic form of the
- A) Predictive data mining
  - B) Descriptive data mining
  - C) Data warehouse
  - D) Relational data base
- 41) \_\_\_\_\_describes the data contained in the data warehouse
- A) Relational data
  - B) Operational data
  - C) Metadata
  - D) Informational data
- 42) Data Warehouse provides
- A) Transaction Responsiveness
  - B) Storage, Functionality Responsiveness to queries
  - C) Demand and Supply Responsiveness
  - D) None of the above

- 43) What is a web browser?
- A) a program that can display a web page
  - B) a program used to view html documents
  - C) it enables user to access the resources of internet
  - D) all of the mentioned
- 44) Dynamic web page
- A) is same every time whenever it displays
  - B) generates on demand by a program or a request from browser
  - C) both (A) and (B)
  - D) none of the mentioned
- 45) Which one of the following is not used to generate dynamic web pages?
- A) PHP
  - B) ASP.NET
  - C) JSP
  - D) none of the mentioned
- 46) Which HTML tag produces the biggest heading?
- A) <h7>
  - B) <h9>
  - C) <h4>
  - D) <h1>
- 47) Which of the following package stores all the standard java classes?
- A) lang
  - B) java
  - C) util
  - D) java.packages

- 48) Which of the following is correct way of implementing an interface salary by class manager?
- A) class manager extends salary { }
  - B) class manager implements salary { }
  - C) class manager imports salary { }
  - D) None of the mentioned
- 49) Which of these method of class String is used to obtain length of String object?
- A) get ()
  - B) Sizeof ()
  - C) lengthof ()
  - D) length ()
- 50) What is the output of this program?
- ```
class String_demo {  
    public static void main (String args [])  
    {  
        int ascii [] = {65, 66, 67, 68};  
        String s = new String (ascii, 1, 3);  
        System.out.println(s);  
    }  
}
```
- A) ABC
  - B) BCD
  - C) CDA
  - D) ABCD



**Rough Work**