

लोक सेवा आयोग
नेपाल राष्ट्र बैंक, प्राविधिक, अधिकृत तृतीय, सहायक निर्देशक (सूचना प्रविधि) पदको खुला
प्रतियोगितात्मक लिखित परीक्षा
२०८१।०१।३०

पत्र : प्रथम
समय : ३ घण्टा

14

KEY [D]

पूर्णाङ्क : १००

विषय : Information Technology - I

उत्तरपुस्तिकामा प्रश्नपत्रको KEY अनिवार्य रूपले उल्लेख गर्नुपर्नेछ । उल्लेख नगरेमा उत्तरपुस्तिका रद्द हुनेछ । परीक्षामा calculator, mobile प्रयोग गर्न पाइनेछैन ।

Objective

Time : 30 mins

25x1=25 Marks

Multiple Choice

- HDFS works in a fashion.
A) Master-Slave B) Worker-Master C) Slave-Master **D) Master-Worker**
- A proxy firewall filters at layer.
A) Physical B) Data link **C) Network** **D) Application**
- Another name of Merkle-Hellman cryptosystem is
A) RC4 **B) Knapsack** C) Rijndael **D) Diffie-Hellman**
- The process of dissipating the statistical structure of plaintext over bulk of ciphertext is known as
A) Diffusion B) Confusion C) Permutation D) Combination
- Which of the following is not a blockchain component?
A) Ledger B) Wallet C) Certification Authority **D) Hash**
- Cryptographic hash function takes an arbitrary block of data and returns
A) variable size bit string **B) fixed size and variable size bit string**
C) constant size byte string **D) fixed size bit string**
- Which of the following computer architectures is power efficient?
A) IANA B) CISC C) ISA **D) RISC**
- The circuit used to store one bit of data is
A) Decoder B) Encoder **C) Flip Flop** D) Register
- MOV AX, [BX] represents addressing mode.
A) register indirect B) direct C) register D) register relative
- Basic steps of execution of an instruction is
A) fetch - execute - decode B) decode - fetch - execute
C) execute - fetch - decode **D) fetch - decode - execute**
- What is the output of an inverter with respect to less positive input?
A) Less negative B) Less positive **C) More positive** D) More negative
- What happens when both input to RS flip-flop is 1?
A) Toggles **B) Invalid** C) Set D) Reset
- The number of inputs in a half adder is
A) 2 B) 8 C) 11 D) 32

Contd...

14. The set of tracks that are at one arm position make up a
- A) Sector B) Arm assembly C) Cylinder D) Block
15. Compared to process, a thread has all of the following except
- A) Program counter B) Register set C) Access to shared memory space D) Execution stack
16. Distributed pervasive system is also known as
- A) user interface design B) ubiquitous computing C) graphical user interface D) peer to peer system
17. Which of the following is generally used for performing tasks like creating the structure of the relations, deleting relation?
- A) DML B) Query C) Relation Schema D) DDL
18. Which file organization technique is comparatively faster to access any arbitrary record?
- A) Ordered file B) Unordered file C) Hashed file D) B-tree
19. Primary index in sequential order file organization is also known as index.
- A) dense B) clustering C) non-clustering D) sparse
20. Which of the following is not a function of the network layers?
- A) Congestion control B) Error control C) Routing D) Inter-networking
21. What is required to use a simple network management system?
- A) IP B) Rules C) Protocols D) Servers
22. The process of verifying the identity of a user is called
- A) Authentication B) Identification C) Validation D) Verification
23. All the resources are tightly coupled in the computing paradigm of computing.
- A) Cloud B) Parallel C) Centralized D) Distributed
24. What serves as the glue between CORBA implementation and the ORB?
- A) Dynamic skeleton interface B) The object adapter C) Object middleware D) Wrapper
25. The non-occurrence of improper alteration of information is said to be dependability.
- A) integral B) maintainable C) confidential D) available

- The End -

उत्तरपुस्तिकामा KEY अनिवार्य रूपमा लेख्नुहोला ।

917 = 16

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प्रतियोगितात्मक लिखित परीक्षा
२०८१।०१।३०

पत्र : प्रथम
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32

पूर्णाङ्क : १००

विषय : Information Technology - I

प्रत्येक Section को उत्तर छुट्टाछुट्टै उत्तरपुस्तिकामा लेख्नुपर्नेछ । अन्यथा उत्तरपुस्तिका रद्द हुनेछ ।

Subjective

Time : 2 hrs 30 mins

75 Marks

Section : "A"

3

40 Marks

1. What is instruction format? Differentiate between RISC and CISC architecture. 2+3=5
2. Explain 4 to 2 priority encoder along with its truth table, logical expression and logic circuit. 5
3. Differentiate between parallel and distributed computing. 2 5
4. What is referential integrity? Explain how a many to many relationship is converted to relational tables using a suitable example. 2 1+4=5
5. What is ripple counter? Design a 3-bit asynchronous up counter using T-Flip Flop. Explain J-K Flip Flop with its characteristics equation, characteristics table and logic diagram. 3+1+2 2+4+4=10
6. Explain in detail the 3-tier client-server architecture in DBMS. 4 10

Section : "B"

35 Marks

7. Make a comparative study between OSI and TCP/IP model. Suggest which one is better. 2+1 5
8. Discuss about Classless Inter Domain Routing (CIDR) along with example. 2+1 5
9. Explain the process of Remote Procedure Call in distributed system in brief. 2 5
10. Discuss about message authentication and hash functions. 2 5
11. Explain the concept of Kerberos authentication and describe the key components involved in the Kerberos protocol. 2 5
12. Explain briefly the Homogeneous and Heterogeneous Distributed Database Management System. How do you solve middleware in Distributed System? Illustrate taking the case of CORBA. 2+2=4 10

- The End -

12
12
24
32
10
42