

त्रिभुवन विश्वविद्यालय

सेवा आयोग

प्राविधिक, प्राविधिक, सहायक प्रथम, मुख्य प्राविधिक सहायक (सूचना प्रविधि) पदको खुला प्रतियोगितात्मक  
लिखित परीक्षा

२०८२/०५/१३

KEY [B]

पत्र : प्रथम

समय : २ घण्टा १५ मिनेट

पूर्णाङ्क : १००

विषय : सेवा सम्बन्धी

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

Objective

Time : 45 Minutes

Multiple Choice

50×1=50 Marks

1. What is dynamic binding in OOP?  
A) Linking a function call to its definition at compile time  
B) Linking a function call to its definition at runtime  
C) Creating dynamic variables  
D) Allocating memory dynamically
2. Which variable declaration is preferred in modern JavaScript for block scope and reassignment?  
A) Let  
B) Const  
C) Var  
D) Final
3. Which HTML tag is used to insert an image?  
A) <img>  
B) <image>  
C) <picture>  
D) <src>
4. Which PHP function is used to execute an SQL query?  
A) query ()  
B) execute ()  
C) mysqli\_query ()  
D) run\_query ()
5. Which is the right way of declaring a variable in PHP?  
A) \$3hello  
B) \$\_hello  
C) \$this  
D) \$hello-world
6. What does the Critical Path Method (CPM) help determine in project management?  
A) The longest path of dependent tasks affecting project duration  
B) The number of developers required  
C) Software licensing costs  
D) User interface design
7. Which software development life cycle (SDLC) model is best for a large project where the requirements keep changing?  
A) Waterfall  
B) RAD  
C) Incremental  
D) Spiral
8. Which SDLC model follows a strict linear and sequential approach where each phase must be completed before the next phase?  
A) Prototyping  
B) Spiral  
C) Sequential  
D) Waterfall
9. Which testing is performed first?  
A) System  
B) Unit  
C) Acceptance  
D) Regression
10. What is the relationship between schema and instance?  
A) Schema changes as data changes  
B) Schema changes frequently, instance remains fixed  
C) The instance follows the structure defined by the schema  
D) Schema is data at a moment; instance is design structure

Contd...

B - 2, प्राविधिक, प्राविधिक, सहायक प्रथम, मुख्य प्राविधिक सहायक (सूचना प्रविधि)

11. Which query operation filters rows from a table based on a specified condition?  
A) Join                      ~~B) Projection~~                      C) Selection                      D) Aggregation
12. Which of these is not a typical operation in query processing?  
A) Selection                      B) Projection                      C) Join                      ~~D) Data Encryption~~
13. Which of the following is true?  
A) A relation in 3NF is always in BCNF ~~X~~  
~~B) A relation in BCNF is always in 3NF~~  
C) BCNF and 3NF are totally different  
D) A relation in BCNF is in 2NF but not in 3NF ~~X~~
14. Which architecture uses separate memories and buses for instruction and data?  
~~A) Harvard~~                      B) CISC                      C) RISC                      D) Both B and C
15. In which addressing mode does the instruction contain the memory address of the operand?  
A) Immediate                      ~~B) Direct~~                      ~~C) Indirect~~                      ~~D) Register~~
16. Which of the following is the correct sequence of operations in a microprocessor?  
A) Opcode fetch, memory read, memory write, I/O read, I/O write  
B) Opcode fetch, memory write, memory read, I/O read, I/O write ~~X~~  
~~C) I/O read, opcode fetch, memory read, memory write, I/O write~~ ~~X~~  
D) I/O read, opcode fetch, memory write, memory read, I/O write
17. What will be the contents of register B after executing : MVIA, 05H followed by MOV B, A?  
A) 00H                      ~~B) 05H~~                      C) Address of A                      D) Undefined
18. Which of the following statements is true about UDP compared to TCP?  
A) UDP provides reliable data transfer  
B) UDP is connection oriented  
~~C) UDP has lower overhead than TCP~~  
D) UDP guarantees in-order delivery of packets
19. Which of the following network devices operates at the physical layer of the OSI model?  
A) Router                      B) Switch                      C) Gateway                      ~~D) Hub~~
20. Which is not a private IP range?  
~~A) 10.0.0.0~~                      B) 192.168.1.0 ~~X~~                      C) 172.132.0.0 ~~X~~                      D) 172.16.0.0 ~~X~~
21. Which of the following is the multiple access protocol for channel access control?  
A) CSMA/CD                      B) CSMA/CA                      ~~C) Both A and B~~                      D) HDLC
22. What is a firewall primarily used for in a network?  
~~A) To filter traffic based on security rules~~                      B) To connect different networks  
C) To amplify signals                      D) To assign IP addresses
23. In a paging based operating system, what is the primary role of the page table when a page fault occurs?  
A) To allocate additional virtual memory to the process  
~~B) To map the virtual address of the requested page to its physical address in memory~~  
C) To store the entire process data temporarily on disk ~~X~~  
D) To determine the priority of the process causing the page fault ~~X~~

24. Which of the following is a visual way to determine the deadlock occurrence?

- A) Resource allocation graph
- B) Starvation graph ✗
- C) Inversion graph
- D) Deadlock monitoring graph

25. What is a deadlock in an Operating System?

- A) A situation where two or more processes are waiting indefinitely for each other
- B) A process that runs indefinitely
- C) A type of memory leak
- D) A system shutdown due to overheating

26. What is the primary function of the chipset on a motherboard?

- A) To provide power to the CPU
- B) To manage communication between the CPU and other components
- C) To store the BIOS settings ✗
- D) To cool the system ✗

27. What does a "NO POST" error indicate?

- A) Software crash
- B) Full hard drive
- C) Internet disconnection
- D) Hardware failure during boot

28. What is the function of CMOS battery on a motherboard?

- A) To provide power to the CPU
- B) To maintain system time and BIOS settings
- C) To power the RAM
- D) To store data

*Correctly Adaptive*

29. Which of the following is not a type of software maintenance?

- A) Predictive
- B) Adaptive ✗
- C) Corrective ✗
- D) Preventive

30. What does the term "Northbridge" refer to in a chipset?

- A) The part of the chipset that handles input/output operations
- B) The part of the chipset that manages the hard drive
- C) The part of the chipset that connects to the CPU, RAM and graphics controller
- D) The part of the chipset that controls the graphics card

31. Which emerging technology is primarily associated with decentralized digital ledgers?

- A) Artificial Intelligence
- B) Internet of Things
- C) Blockchain
- D) Augmented Reality

32. Which of the following is a use case of Augmented Reality (AR)?

- A) Virtual reality gaming ✓
- B) Overlaying digital information on the real world
- C) Mining cryptocurrencies ✗
- D) Training AI models ✗

33. What does backpropagation do in a neural network?

- A) Updates weights to minimize loss
- B) Initializes weights
- C) Preprocesses input data
- D) Visualizes model output

34. What is the primary purpose of the Electronic Transactions Act, 2063?

- A) To promote the use of electronic devices in government offices
- B) To provide free internet access to all citizens
- C) To regulate the sale of electronic goods in Nepal
- D) To ensure the reliability and security of electronic transactions

B - 4, प्राविधिक, प्राविधिक, सहायक प्रथम, मुख्य प्राविधिक सहायक (सूचना प्रविधि)

35. How many constituent campuses does Tribhuvan University currently serve?  
A) 59                      B) 60                      C) 61                      ~~D) 62~~
36. Who appoints the chairperson of Service Commission of Tribhuvan University?  
A) Registrar              ~~B) Chancellor~~              C) Pro-chancellor      D) Vice-chancellor
37. As per Public Procurement Rule, 2064, which of the following details is not true for procurement master plan?  
A) Shall be prepared for projects to be operated for a period of more than one year or in making a procurement of an amount ~~exceeding~~ two hundred million rupees annually  
B) Shall contain details of tentative numbers of contracts to be concluded and major activities  
C) Shall be approved by secretary level of a public entity ✓  
D) Shall be updated once a year ✓
38. Which entity issues Digital Signature Certificates in Nepal?  
A) Nepal Rastra Bank  
~~B) Certifying Authorities licensed by the Controller~~  
C) Local governments  
D) Internet service providers
39. .... is responsible for transmitting the actual data between the system components.  
A) Address Bus              ~~B) Data Bus~~              ~~C) Control Bus~~              D) Memory
40. Which device is both an input and output device?  
~~A) Speaker~~              B) Microphone              ~~C) Touchscreen~~              ~~D) Monitor~~
41. Which memory hierarchy level is the fastest but has the smallest capacity?  
A) L3 Cache              B) RAM              C) SSD              ~~D) CPU Registers~~
42. The operating system component that provides a user interface is called ....  
A) Compiler              ~~B) Shell~~              C) Scheduler              D) Memory Manager
43. When should you use a section break instead of a page break in a Word document?  
~~A) To start new chapter with different footer text~~  
B) To add a table in the middle of a page  
C) To insert an image between paragraphs  
D) To mark the point at which one page ends
44. What does the "Format Painter" tool do in a word processor?  
A) Changes the page orientation  
~~B) Copies formatting from one text and applies it to another~~  
C) Paints the current format  
D) Deletes unwanted formatting
45. A Workbook is collection of ..... and ..... is combination of rows and columns.  
~~A) Worksheet, Worksheet~~              ~~B) Spreadsheet, Worksheet~~  
C) Worksheet, Excel              D) Worksheet, Workbook
46. Which of the following can be used as a data source for Mail Merge?  
A) A PDF file              B) A web browser  
~~C) An Excel spreadsheet~~              D) A video file
47. To make a logo appear on every slide automatically in MS PowerPoint, the best method is to ....  
A) paste the logo on each slide manually              B) use slide sorter view  
C) use the header/footer option              ~~D) insert the logo on the Slide Master~~

48. Which of the following tools helps to analyze complex decision logic by mapping conditions and outcomes in a matrix format?  
A) Flowchart  B) Decision tree  C) Decision table  D) Pseudocode
49. Which of the following loops checks the condition at the end of each iteration?  
A) for loop  B) while loop  C) foreach loop  D) do ..... while loop
50. Which feature of OOP ensures that internal object details can be hidden from the outside world?  
A) Encapsulation  B) Polymorphism  C) Abstraction  D) Inheritance

- The End -

उत्तरपुस्तिकामा KEY अनिवार्य रूपमा लेख्नुहोला ।

```
for (i=0; i<=n; i++)  
do {  
    while ( )  
    while ( )  
}
```