

**MIZORAM PUBLIC SERVICE COMMISSION**  
**TECHNICAL COMPETITIVE EXAMINATIONS FOR RECRUITMENT TO**  
**JUNIOR ENGINEER (JE) CONTRACT BASIS**  
**UNDER RURAL DEVELOPMENT DEPARTMENT, NOVEMBER, 2016.**

**COMPUTER SCIENCE ENGINEERING**  
**PAPER - I**

Time Allowed : 2 hours

Full Marks : 150

*All questions carry equal marks of 2 each.*

*Attempt all questions*

1. Software instruction intended to satisfy a user's specific processing needs are called
  - (a) System software
  - (b) Process software
  - (c) Documentation
  - (d) Application software
2. BCD numbers are obtained
  - (a) by converting decimal number to binary
  - (b) by converting decimal to octal
  - (c) when each decimal digit is represented by four bit binary
  - (d) by converting binary to decimal.
3. The ASCII code is for information interchange by a binary code for
  - (a) numbers only
  - (b) alphabets only
  - (c) alphanumeric and other common symbols
  - (d) none of these
4. The register which keeps track of the execution of a program and which contains the memory address of the next instruction to be executed is known as
  - (a) index register
  - (b) instruction register
  - (c) memory address register
  - (d) program counter
5. Which of the following is used as storage locations both in the ALU and in the control section of a computer
  - (a) accumulator
  - (b) register
  - (c) adder
  - (d) decoder
6. The fastest type of memory is
  - (a) tape
  - (b) semiconductor memory
  - (c) disk
  - (d) bubble memory
7. In magnetic disks data is organized on the platter in a concentric sets or rings called
  - (a) sector
  - (b) track
  - (c) head
  - (d) block
8. By taking 2's complement again of the 2's complement of a binary, one gets
  - (a) the 1's complement
  - (b) the 2's complement
  - (c) the original number
  - (d) the sign magnitude form of the numbers

9. Microprocessor with 'n' address lines is capable of addressing
- (a)  $2n$  locations
  - (b)  $2(n + 1)$  locations
  - (c)  $2^n$  locations
  - (d)  $n^2$  locations
10. For each instructions of program in memory the CPU goes through a
- (a) decode - fetch - execute sequence
  - (b) execute - store - decode sequence
  - (c) fetch - decode - execute sequence
  - (d) fetch - execute - decode sequence
11. The performance of cache memory is frequently measured in terms of a quantity called
- (a) miss ratio
  - (b) hit ratio
  - (c) latency ratio
  - (d) read ratio
12. In which addressing mode the operand is given explicitly in the instruction
- (a) absolute
  - (b) immediate
  - (c) indirect
  - (d) direct
13. 8088 microprocessor has
- (a) 16 bit data bus
  - (b) 4 byte pre-fetch queue
  - (c) 6 byte pre-fetch queue
  - (d) 16 bit address bus
14. The no. of address lines required to address a memory of size 32 K is
- (a) 15 lines
  - (b) 16 lines
  - (c) 18 lines
  - (d) 14 lines
15. Binary equivalent of decimal number 25 is
- (a) 011001
  - (b) 011111
  - (c) 010011
  - (d) 111111
16. Product of matrices A(m x n) and B(n x p) will be matrix C with row and column as
- (a) m and p
  - (b) n and p
  - (c) p and n
  - (d) none of these
17. Consider the following program fragment:
- ```
main()
{
    int a,b,c;
    b=2;
    a=2*(b++);
    c=2*(++b);
}
```
- Which one of the given answers is correct?
- (a) a=4,c=6
  - (b) b=3,c=8
  - (c) b=3,c=6
  - (d) a=4,c=8
18. When multidimensional arrays are assigned initial value
- (a) Rightmost subscript increases most rapidly
  - (b) Leftmost subscript increases most rapidly
  - (c) Rightmost subscript increases least
  - (d) None of these

19. What is being done by the following function?

```
int test(int a, int b)
{
    int z = (abs(a) >= abs(b)) ? a:b;
    return (z);
}
```

- (a) Finds the larger of a and b
  - (b) Returns the minimum of a and b
  - (c) Returns the member whose absolute value is largest
  - (d) None of these
20. The statement FILE \*ptr;
- (a) Defines a pointer to pre-defined structure type FILE
  - (b) Defines a pointer to user defined structure type FILE
  - (c) Defines a pointer to pre-defined data type FILE DESCRIPTOR
  - (d) None of the above
21. To write a small number of mixed string and integer variable to a file, the appropriate function is
- (a) fputs()
  - (b) fgets()
  - (c) fprintf()
  - (d) fwrite()
22. The function fseek()
- (a) Finds a given word or phrase in a file
  - (b) Finds the correct file
  - (c) Helps access records in the middle of a file
  - (d) None of these
23. Deletion of a node from a singly linked list, in general, requires adjustment of pointer field of \_\_\_\_\_ node(s)
- (a) 1
  - (b) 2
  - (c) 3
  - (d) 4
24. Insertion of a node at the beginning of a linked list requires adjustment of pointer field of \_\_\_\_\_ node(s)
- (a) Head
  - (b) Tail
  - (c) Middle
  - (d) Top
25. Identify the most appropriate sentence to describe unions
- (a) Unions are like structures
  - (b) Unions contain members of different data types which share the same storage area in memory
  - (c) Unions are less frequently used in programs
  - (d) Unions are used for set operations
26. In the expression float \*fptr; which is represented as type float
- (a) The variable fptr
  - (b) The address of fptr
  - (c) The variable pointer to by fptr
  - (d) None of these
27. A compiler is
- (a) Machine-independent and OS-independent
  - (b) Machine-dependent and OS-dependent
  - (c) Machine-dependent and OS-independent
  - (d) Machine-independent-OS-dependent

28. In case of ordinary int variables

- (a) The leftmost bit is reserved for sign
- (b) The rightmost bit is reserved for sign
- (c) No bit is reserved for sign
- (d) None of these

29. Swapping of two numbers is done by

- (a) Direct interchanging of values with each other
- (b) Storing the value of one in a temp variable and shifting the value of the other into the first and then copying the value of temp to the other
- (c) Transfer one number to other number without storing any number in the temp variable
- (d) None of these

30. Which of the following are unary operators in C?

- (i) !
- (ii) sizeof
- (iii) ~
- (iv) &&
- (a) i, ii
- (b) i, iii
- (c) ii, iv
- (d) i, ii, iii

31. A NAND gate is called a universal logic element because

- (a) It is used by everybody.
- (b) Any logic function can be realized by NAND gates alone.
- (c) All the minimization techniques are applicable for optimum NAND gate realization.
- (d) Many digital computers use NAND gates.

32. The minimum time for which the input signal has to be maintained at the input of flip-flop is called \_\_\_\_\_ of the flip-flop.

- (a) Set-up time
- (b) Hold time
- (c) Pulse Interval time
- (d) Pulse Stability time (PST)

33. \_\_\_\_\_ of a D/A converter is determined by comparing the actual output of a D/A converter with the expected output.

- (a) Resolution
- (b) Accuracy
- (c) Quantization
- (d) Missing Code

34. Why the decimal number system is also called as positional number system?

- (a) Since the values of the numbers are decided by multiplying the values.
- (b) Since the values of the numbers are decided by the weight of the values.
- (c) Since the values of the numbers are decided by adding the values.
- (d) Since the values of the numbers are decided by the position of the values.

35. In which conversion the product of number 16 raised by the location and then add all the products to get the final decimal value?

- (a) Octal to decimal
- (b) Binary to Decimal
- (c) Hexadecimal to decimal
- (d) None of these

36. Binary numbers can be converted into equivalent octal numbers by making groups of three bits \_\_\_\_\_.

- (a) Starting from the MSB
- (b) Starting from the LSB
- (c) Ending at the MSB
- (d) Ending at the LSB

37. There are \_\_\_\_\_ cells in a 4-variable K-map.
- (a) 12 (b) 16  
(c) 18 (d) All of these
38. It is a circuit, which has a number of input lines and selection lines with one output line
- (a) Sequential Circuit (b) Multiplexer  
(c) Counter (d) All of these
39. It is a counter where the flip-flops do not change states at exactly the same time, as they do not have a common clock pulse.
- (a) Asynchronous Ripple Counter (b) Synchronous Ripple Counter  
(c) Counter (d) All of these
40. A register can also be used to provide data movements.
- (a) Parallel Register (b) Simple Register  
(c) Shift Register (d) All of these
41. The output of an AND gate with three inputs, A, B, and C, is HIGH when \_\_\_\_\_.
- (a)  $A = 1, B = 1, C = 0$  (b)  $A = 0, B = 0, C = 0$   
(c)  $A = 1, B = 1, C = 1$  (d)  $A = 1, B = 0, C = 1$
42. If a 3-input NOR gate has eight input possibilities, how many of those possibilities will result in a HIGH output?
- (a) 1 (b) 2  
(c) 7 (d) 8
43. The bit sequence 0010 is serially entered (right-most bit first) into a 4-bit parallel out shift register that is initially clear. What are the Q outputs after two clock pulses?
- (a) 0000 (b) 0010  
(c) 1000 (d) 1111
44. Specifies a star topology featuring a central hub and unshielded twisted-pair wire as the medium.
- (a) 10 Base 2 (b) 10 Base 5  
(c) 10 Base T (d) 10 Base 8
45. Which type of switching uses the entire capacity of a dedicated link?
- (a) Circuit switching (b) Datagram  
(c) Virtual Circuit (d) Message switching
46. In OSI model, which of the following layer transforms information from machine format into that understandable by user?
- (a) Application (b) Session  
(c) Presentation (d) Physical
47. A device that links two homogenous packet-broadcast local networks is \_\_\_\_\_.
- (a) Hub (b) Gateway  
(c) Repeater (d) Bridge
48. In which of the following delivery does packets of a message are logically connected to one another.
- (a) A connectionless (b) A direct  
(c) A connection oriented (d) An indirect

49. What is the name of the algorithm used in CSMA/CD networks in order to avoid repeated collisions?
- (a) collision avoidance
  - (b) crash prevent
  - (c) exponential back-off
  - (d) exponential collisions
50. What is the name of routing type in which every incoming packet is sent to every neighbor router except the one from which the packet came?
- (a) distribution
  - (b) multicast
  - (c) link-state
  - (d) flooding
51. The number of allowed hops for an IP packet is kept in which of the following field.
- (a) AHF
  - (b) IHL
  - (c) TTL
  - (d) ToS
52. The goal of resizing the sender and receiver window is
- (a) To ensure security
  - (b) To ensure congestion control
  - (c) To endure parity bit
  - (d) None of these
53. Hamming codes can correct
- (a) Single error
  - (b) Multiple error
  - (c) Both a and b
  - (d) None of these
54. In order for the boundary between two frames to be unambiguously recognized by the flag patten, which of the following method is used.
- (a) Aloha
  - (b) Bit stuffing
  - (c) Loop
  - (d) All of these
55. How does CSMA/CD react to collisions?
- (a) All systems jam the network, and then all begin transmitting again.
  - (b) Hosts involved in a collision send an RTS signal indicating a time frame in which to retransmit.
  - (c) Hosts involved in the collision send a jam signal, and then run an algorithm before retransmitting.
  - (d) Collisions do not occur on CSMA/CD.
56. In Vertical redundancy check (parity check)
- (a) Only 1 bit is used for error detection
  - (b) 2 bits are used for error detection
  - (c) 3 bits are used for error detection
  - (d) None of these
57. In \_\_\_\_\_ ARQ, only the specific damaged or lost frame is retransmitted.
- (a) Selective-Reject
  - (b) Go-Back-n
  - (c) Piggy bagging
  - (d) All of these
58. Devices on one network can communicate with devices on another network via a .....
- (a) File Server
  - (b) Utility Server
  - (c) Printer Server
  - (d) Gateway
59. Which of the following are the channels defined by ISDN.
- (a) Bearer, Data and Hybrid.
  - (b) Bearer, Data and Mesh.
  - (c) Bearer, Bit and Mesh.
  - (d) Baud, Bit and Hybrid.
60. Considering data transmission in terms of baud rate and bit rate, which of the following is true?
- (a) Bit rate is less than or equal to baud rate.
  - (b) Bit rate is always equal to baud rate.
  - (c) Baud rate is less than or equal to bit rate.
  - (d) Baud rate is always greater than bit rate.

- 61.** Porting the software to work in a new environment refers to
- (a) Adaptive maintenance
  - (b) Corrective maintenance
  - (c) Testing
  - (d) All of these
- 62.** Planning a project over a number of stages that prevent from making big commitment too early is called
- (a) Effort planning
  - (b) Sliding window planning
  - (c) Cost planning
  - (d) Product planning
- 63.** COCOMO classified any software development project into \_\_\_\_\_ categories based on the development complexity.
- (a) 2
  - (b) 3
  - (c) 4
  - (d) 5
- 64.** Which of the following is the process of determining whether the output of one phase of software development conforms to that of its previous phase?
- (a) Validation
  - (b) Verification
  - (c) Identification
  - (d) None of these
- 65.** Good software design should possess
- (a) Understandability
  - (b) Maintainability
  - (c) Both a and b
  - (d) None of these
- 66.** Specify what the system should do and refrain from stating how to do.
- (a) White-box view
  - (b) Black-box view
  - (c) Conceptual integrity
  - (d) None of these
- 67.** The requirement gathering and analyze customer requirement is the responsibility of
- (a) System analyst
  - (b) Administrator
  - (c) Chief manager
  - (d) Low level manager
- 68.** In a \_\_\_\_\_ team, there is no formal team hierarchy.
- (a) Chief programmer
  - (b) Democratic
  - (c) Mixed control
  - (d) All of these
- 69.** The primary advantage of adhering to a life cycle model is
- (a) It encourages development in systematic and disciplined manner
  - (b) It encourages development in transparent way.
  - (c) It offers good testing strategy.
  - (d) It offers good communication skill.
- 70.** A documented life cycle model prevents
- (a) Misinterpretation
  - (b) Inconsistencies
  - (c) Omission
  - (d) All of these
- 71.** The SRS document is written using
- (a) End-user terminology
  - (b) Technical terminology
  - (c) Analysis terminology
  - (d) None of these

72. The principle of detecting errors as close to their points of introduction as possible is known as
- (a) Phase containment of error
  - (b) Self containment of error
  - (c) Beta testing
  - (d) Alpha testing
73. Instead of making a single estimate for each task, three estimates i.e pessimistic, likely and optimistic estimates are made in \_\_\_\_\_
- (a) Gantt charts
  - (b) PERT charts
  - (c) Critical charts
  - (d) Task charts
74. In \_\_\_\_\_ testing, each component of a composite conditional expression assumes both true and false values.
- (a) Branch coverage
  - (b) Condition coverage
  - (c) Path coverage
  - (d) Control flow
75. In software design, a module having high \_\_\_\_\_ and low \_\_\_\_\_ is said to be functionally independent of other modules.
- (a) Cohesion, coupling
  - (b) Coupling, cohesion
  - (c) Temporal, communicational
  - (d) Logical, sequential

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