

**MIZORAM PUBLIC SERVICE COMMISSION**  
**COMPETITIVE EXAMINATIONS FOR RECRUITMENT TO THE POST OF**  
**INSPECTOR OF LEGAL METROLOGY UNDER FOOD, CIVIL SUPPLIES & CONSUMER AFFAIRS**  
**DEPARTMENT, GOVERNMENT OF MIZORAM, DECEMBER, 2018**

**COMPUTER SCIENCE & ENGINEERING**  
**PAPER - II**

Time Allowed : 2 hours

Full Marks : 200

*All questions carry equal marks of two (2) each.*  
*Attempt all questions.*

1. To access the services of operating system, the interface is provided by the :
  - (a) System calls
  - (b) API
  - (c) Library
  - (d) Assembly instructions
2. By operating system, the resource management can be done via :
  - (a) time division multiplexing
  - (b) space division multiplexing
  - (c) both time and space division multiplexing
  - (d) none of these
3. If a process fails, most operating system write the error information to a :
  - (a) log file
  - (b) another running process
  - (c) new file
  - (d) none of these
4. A process can be terminated due to :
  - (a) normal exit
  - (b) fatal error
  - (c) killed by another process
  - (d) all of these
5. The address of the next instruction to be executed by the current process is provided by the :
  - (a) CPU registers
  - (b) Program counter
  - (c) Process stack
  - (d) Pipe
6. What is a short-term scheduler?
  - (a) It selects which process has to be brought into the ready queue
  - (b) It selects which process has to be executed next and allocates CPU
  - (c) It selects which process to remove from memory by swapping
  - (d) None of these
7. In a time-sharing operating system, when the time slot given to a process is completed, the process goes from the running state to the :
  - (a) Blocked state
  - (b) Ready state
  - (c) Suspended state
  - (d) Terminated state
8. Suppose that a process is in "Blocked" state waiting for some I/O service. When the service is completed, it goes to the :
  - (a) Running state
  - (b) Ready state
  - (c) Suspended state
  - (d) Terminated state

9. Which one of the following is a synchronization tool?
  - (a) thread
  - (b) pipe
  - (c) semaphore
  - (d) socket
10. Mutual exclusion can be provided by the :
  - (a) mutex locks
  - (b) binary semaphores
  - (c) both mutex locks and binary semaphores
  - (d) none of these
11. To enable a process to wait within the monitor,
  - (a) a condition variable must be declared as condition
  - (b) condition variables must be used as boolean objects
  - (c) semaphore must be used
  - (d) all of these
12. Process are classified into different groups in :
  - (a) shortest job scheduling algorithm
  - (b) round robin scheduling algorithm
  - (c) priority scheduling algorithm
  - (d) multilevel queue scheduling algorithm
13. When device A has a cable that plugs into device B, and device B has a cable that plugs into device C and device C plugs into a port on the computer, this arrangement is called a :
  - (a) port
  - (b) daisy chain
  - (c) bus
  - (d) cable
14. Logical memory is broken into blocks of the same size called :
  - (a) frames
  - (b) pages
  - (c) backing store
  - (d) none of these
15. Which one of the following can not be scheduled by the kernel?
  - (a) kernel level thread
  - (b) user level thread
  - (c) process
  - (d) none of these
16. Which of the following memory allocation scheme suffers from external fragmentation?
  - (a) Segmentation
  - (b) Pure demand paging
  - (c) Swapping
  - (d) Paging
17. Which is not a state of the process?
  - (a) Blocked
  - (b) Running
  - (c) Ready
  - (d) Privileged
18. Which of the following is used to removal of process from active contention of CPU and reintroduce them into memory later?
  - (a) Interrupt
  - (b) Swapping
  - (c) Signal
  - (d) Thread
19. \_\_\_\_\_ refers to a situation in which a process is ready to execute but is continuously denied access to a processor in deference to other processes.
  - (a) Synchronization
  - (b) Mutual Exclusion
  - (c) Dead lock
  - (d) Starvation
20. Which of the following information not included in memory table?
  - (a) The allocation of main memory to process.
  - (b) The allocation of secondary memory to process
  - (c) Any information needed to manage virtual memory
  - (d) Any information about the existence of file

21. The methods or algorithms which are used to increase the performance of disk storage sub-system is called :
- (a) Disk performing (b) Disk scheduling  
(c) Disk storing (d) Disk extending
22. A special purpose register that is set to the highest address occupied by the OS code is :
- (a) fence register (b) general purpose register  
(c) protection register (d) control register
23. The process of splitting of data into equal size partitions over multiple disks is known as :
- (a) data stripping (b) array of disks  
(c) RAID (d) SCAN
24. A path name that starts at root directory is :
- (a) absolute (b) relative  
(c) hybrid (d) hierarchical
25. In \_\_\_\_\_ file organization, a fixed format is used for records where all records are of the same length, consisting of the same number of fixed length fields in a particular order.
- (a) pile (b) sequential  
(c) indexed sequential (d) indexed
26. Typically, \_\_\_\_\_ is on an individual block basis where each block contains a pointer to the next block in the chain.
- (a) Chained allocation (b) Indexed allocation  
(c) Contiguous allocation (d) Variable allocation
27. A monitor is a type of :
- (a) semaphore (b) low level synchronization construct  
(c) high level synchronization construct (d) none of these
28. What does Belady's anomaly related to?
- (a) Page replacement Algorithm (b) Memory Management Algorithm  
(c) Deadlock Prevention Algorithm (d) Disk Scheduling Algorithm
29. The Banker's algorithm is used :
- (a) to rectify deadlock (b) to prevent deadlock  
(c) to detect deadlock (d) to solve deadlock
30. For system protection, a process should access :
- (a) all the resources  
(b) only those resources for which it has authorization  
(c) few resources but authorization is not required  
(d) all of these
31. How members of an object are accessed?
- (a) Using dot operator/period symbol (b) Using scope resolution operator  
(c) Using member names directly (d) Using pointer only
32. Which feature of OOP indicates code reusability?
- (a) Encapsulation (b) Inheritance  
(c) Abstraction (d) Polymorphism

33. Which of the following concepts means determining at runtime what method to invoke?
- (a) Data hiding
  - (b) Dynamic Typing
  - (c) Dynamic binding
  - (d) Dynamic loading
34. Which of the following functions are performed by a constructor?
- (a) Construct a new class
  - (b) Construct a new object
  - (c) Construct a new function
  - (d) Initialize objects
35. Which type of function among the following shows polymorphism?
- (a) Inline function
  - (b) Virtual function
  - (c) Undefined functions
  - (d) Class member functions
36. Which of the following statements regarding inline functions is correct?
- (a) Speed up execution
  - (b) Slow down Execution
  - (c) Decrease the code size
  - (d) increase context switch
37. Which of the following is used to make an abstract class?
- (a) Declaring it abstract using static keyword
  - (b) Declaring it abstract using virtual keyword
  - (c) Making at least one member function as virtual function
  - (d) Making at least one member function as pure virtual function
38. Which of the following access specifier is used as a default in a class definition?
- (a) Protected
  - (b) public
  - (c) Private
  - (d) Friend
39. When a destructor is called?
- (a) After the end of object life
  - (b) Anytime in between object's lifespan
  - (c) At end of whole program
  - (d) Just before the end of an object life
40. *RandomAccessFile* can be used to :
- (a) Read from a random access file
  - (b) Write to a random access file
  - (c) Read and write to a random access file
  - (d) Restricts read and write to a random access file
41. Exception handling is targeted at :
- (a) Runtime error
  - (b) Compile time error
  - (c) Logical error
  - (d) All of these
42. The mechanism that binds code and data together and keeps them secure from outside world is known as :
- (a) Abstraction
  - (b) encapsulation
  - (c) Polymorphism
  - (d) Inheritance
43. If we create a file by 'ifstream', then the default mode of the file is :
- (a) ios::out
  - (b) ios::in
  - (c) ios::app
  - (d) ios::binary
44. The operator that cannot be overloaded is :
- (a) ++
  - (b) ::
  - (c) ~
  - (d) ()
45. Overloading a postfix increment operator by means of a member function takes :
- (a) no argument
  - (b) one argument
  - (c) two argument
  - (d) three argument

46. Which language does not support all 4 types of inheritance?  
(a) C++ (b) Java  
(c) Kotlin (d) Small Talk
47. Which concept of OOP is false for C++?  
(a) Code can be written without using classes (b) Code must contain at least one class  
(c) A class must have member functions (d) At least one object should be declared in code
48. Which of the two features match each other?  
(a) Inheritance and Encapsulation (b) Encapsulation and Polymorphism  
(c) Encapsulation and Abstraction (d) Abstraction and Polymorphism
49. Size of a class is :  
(a) Sum of size of all the variables declared inside the class  
(b) Sum of size of all the variables along with inherited variables in the class  
(c) Size of largest size of variable  
(d) Classes doesn't have any size
50. Which among the following is false, for member function of a class?  
(a) All member functions must be defined  
(b) Member functions can be defined inside or outside the class body  
(c) Member functions need not be declared inside the class definition  
(d) Member functions can be made friend to another class using friend keyword
51. Which of the following pairs are similar?  
(a) Class and object (b) Class and structure  
(c) Structure and object (d) Structure and functions
52. Instance of which type of class can't be created?  
(a) Anonymous class (b) Nested class  
(c) Parent class (d) Abstract class
53. In case of using abstract class or function overloading, which function is supposed to be called first?  
(a) Local function  
(b) Function with highest priority in compiler  
(c) Global function  
(d) Function with lowest priority because it might have been halted since long time, because of low priority
54. Which among the following can't be used for polymorphism?  
(a) Static member functions (b) Member functions overloading  
(c) Predefined operator overloading (d) Constructor overloading
55. Which among the following can show polymorphism?  
(a) Overloading || (b) Overloading +=  
(c) Overloading << (d) Overloading &&
56. While using encapsulation, which among the following is possible?  
(a) Code modification can be additional overhead  
(b) Data member's data type can be changed without changing any other code  
(c) Data member's type can't be changed, or whole code have to be changed  
(d) Member functions can be used to change the data type of data members

57. Which among the following violates the principle of encapsulation almost always?
- (a) Local variables
  - (b) Global variables
  - (c) Public variables
  - (d) Array variables
58. Which among the following can be a concept against encapsulation rules?
- (a) Using function pointers
  - (b) Using char\* string pointer to be passed to non-member function
  - (c) Using object array
  - (d) Using any kind of pointer/array address in passing to another function
59. Using encapsulation data security is :
- (a) Not ensured
  - (b) Ensured to some extent
  - (c) Purely ensured
  - (d) Very low
60. Hiding the implementation complexity can :
- (a) Make the programming easy
  - (b) Make the programming complex
  - (c) Provide more number of features
  - (d) Provide better features
61. In terms of stream and files :
- (a) Abstraction is called a stream and device is called a file
  - (b) Abstraction is called a file and device is called a stream
  - (c) Abstraction can be called both file and stream
  - (d) Abstraction can't be defined in terms of files and stream
62. Which specifier allows a programmer to make the private members which can be inherited?
- (a) Private
  - (b) Default
  - (c) Protected
  - (d) Protected and default
63. Which among the following is not a necessary condition for constructors?
- (a) Its name must be same as that of class
  - (b) It must not have any return type
  - (c) It must contain a definition body
  - (d) It can contains arguments
64. If a programmer defines a class and defines a default value parameterized constructor inside it. He has not defined any default constructor. And then he try to create the object without passing arguments, which among the following will be correct?
- (a) It will not create the object (as parameterized constructor is used)
  - (b) It will create the object (as the default arguments are passed)
  - (c) It will not create the object (as the default constructor is not defined)
  - (d) It will create the object (as at least some constructor is defined)
65. Which feature allows open recursion, among the following?
- (a) Use of this pointer
  - (b) Use of pointers
  - (c) Use of pass by value
  - (d) Use of parameterized constructor
66. When an object is returned, \_\_\_\_\_
- (a) A temporary object is created to return the value
  - (b) The same object used in function is used to return the value
  - (c) The Object can be returned without creation of temporary object
  - (d) Object are returned implicitly, we can't say how it happens inside program

67. Why reference is not same as a pointer?
- (a) A reference can never be null.
  - (b) A reference once established cannot be changed.
  - (c) Reference doesn't need an explicit dereferencing mechanism.
  - (d) All of these
68. Which among the following doesn't come under OOP concept?
- (a) Platform independent
  - (b) Data binding
  - (c) Message passing
  - (d) Data hiding
69. What is the additional feature in classes that was not in structures?
- (a) Data members
  - (b) Member functions
  - (c) Static data allowed
  - (d) Public access specifier
70. Which among the following can be used together in a single class?
- (a) Only private
  - (b) Private and Protected together
  - (c) Private and Public together
  - (d) All three together
71. The maximum number of points that can be displayed without overlap on a CRT is referred as :
- (a) Picture
  - (b) Resolution
  - (c) Persistence
  - (d) Density
72. In which system, the Shadow mask methods are commonly used :
- (a) Raster-scan system
  - (b) Random-scan system
  - (c) Both a and b
  - (d) None of these
73. In LCD, the refresh rate of the screen is :
- (a) 60 frames/sec
  - (b) 80 frames/sec
  - (c) 30 frames/sec
  - (d) 100 frames/sec
74. In Bresenham's line algorithm, if the distances  $d_1 < d_2$  then decision parameter  $P_k$  is :
- (a) Positive
  - (b) Equal
  - (c) Negative
  - (d) zero
75. Coordinate references in the polyline function are stated as :
- (a) Relative coordinate values
  - (b) Absolute coordinate values
  - (c) Current position
  - (d) Real coordinate values
76. If the boundary is specified in a single color, and if the algorithm proceeds pixel by pixel until the boundary color is encountered is called :
- (a) Scan-line fill algorithm
  - (b) Boundary-fill algorithm
  - (c) Flood-fill algorithm
  - (d) Parallel curve algorithm
77. The operator that is used for combining a fill pattern with a background pattern is :
- (a) AND operator
  - (b) OR operator
  - (c) X-OR operator
  - (d) All of these
78. If the value of  $s_x=1$  and  $s_y=1$  in scaling then :
- (a) Reduce the size of object
  - (b) Distort the picture
  - (c) Produce an enlargement
  - (d) No change in the size of an object

79. We can combine the multiplicative and translational terms for 2D into a single matrix representation by expanding :
- (a) 2 by 2 matrix into 4\*4 matrix (b) 2 by 2 matrix into 3\*3  
(c) 3 by 3 matrix into 2 by 2 (d) 4\*4 matrix into 3 by 3
80. In a polygon, if a line joining any of its two interior points lies completely within it are called :
- (a) convex polygon (b) concave Polygon  
(c) Regular Polygon (d) Uniform Polygon
81. The rectangle portion of the interface window that defines where the image will actually appear are called :
- (a) Transformation viewing (b) View port  
(c) Clipping window (d) Screen coordinate system
82. \_\_\_\_\_ as the most commonly used boundary presentation for a 3-D graphics object
- (a) Data polygon (b) Surface polygon  
(c) System polygon (d) None of these
83. A Bezier curve is a polynomial of degree \_\_\_\_\_ the no of control points used
- (a) One more than (b) One less than  
(c) Two less than (d) Two more than
84. The projection that can be viewed as the projection that has a centre of projection at a finite distance from the plane of projection are called :
- (a) Parallel projection (b) Perspective projection  
(c) Isometric projection (d) Linear Projection
85. The method which is based on the principle of checking the visibility point at each pixel position on the projection plane are called :
- (a) Object-space method (b) image-space method  
(c) Pixel point Method (d) Projection Point Method
86. In graphical system, the array of pixels in the picture are stored in :
- (a) Memory (b) Frame buffer  
(c) Processor (d) All of these
87. Heat supplied to the cathode by directing a current through a coil of wire is called :
- (a) Electron gun (b) Electron beam  
(c) Filament (d) Anode and cathode
88. The primary output device in a graphics system is :
- (a) Scanner (b) Video monitor  
(c) Neither a nor b (d) Printer
89. Aspect ratio means :
- (a) Number of pixels (b) Ratio of vertical points to horizontal points  
(c) Ratio of horizontal points to vertical points (d) Both (b) and (c)
90. For lines with slope magnitude  $|m| < 1$ ,  $\Delta x$  can be :
- (a) A set corresponding vertical deflection  
(b) A set proportional to a small horizontal deflection voltage  
(c) Only (a)  
(d) All of these



91. Which algorithm is a faster method for calculating pixel positions?  
(a) Bresenham's line algorithm (b) Parallel line algorithm  
(c) Mid-point algorithm (d) DDA line algorithm
92. The algorithm which uses multiple processors to calculate pixel positions is :  
(a) Midpoint algorithm (b) Parallel line algorithm  
(c) Bresenham's line algorithm (d) All of these
93. \_\_\_\_\_ is defined as set of points such that the sum of the distances is same for all points.  
(a) Ellipses (b) Lines  
(c) Square (d) triangle
94. The basic parameter to curved attribute(s) is/are :  
(a) Type (b) Width  
(c) Color (d) All of these
95. If the magnitude of the curve slope is lesser than 1, then :  
(a) We can plot horizontal spans (b) We can plot vertical spans  
(c) Both (a) and (b) (d) None of these
96. If the slope magnitude is 1, then circles, ellipse and other curves will appear :  
(a) Thick (b) Thinnest  
(c) Big (d) Rough
97. The function of the pixel mask is :  
(a) To display dashes and inter dash spaces according to the slope  
(b) To display curved attributes  
(c) To display the thick curves  
(d) None of these
98. The color code "000" is for :  
(a) White (b) Black  
(c) Blue (d) Green
99. The fill color that is combined with the background color is known as :  
(a) Soft fill (b) Tint fill  
(c) Both (a) & (b) (d) None
100. The advantage of B-spline over Bezier curve is :  
(a) It has more control points (b) It has smoother curve  
(c) It passes through more control points (d) It has local control