

MIZORAM PUBLIC SERVICE COMMISSION

GENERAL COMPETITIVE EXAMINATIONS FOR RECRUITMENT TO THE POST OF PROGRAMMER UNDER PUBLIC HEALTH ENGINEERING DEPARTMENT, JULY, 2018

TECHNICAL PAPER - III

Time Allowed : 2 hours

Full Marks : 200

All questions carry equal marks of 2 each.

Attempt all questions.

1. Which layer in OSI model responsible for compression, encryption, and translation?
(a) Network (b) Application
(c) Presentation (d) Data Link
2. The networks topology which enables highest reliability is
(a) Bus (b) Ring
(c) Star (d) Mesh
3. Start and stop bits in serial communication are used for
(a) Synchronization (b) Error Detection
(c) Error Correction (d) None
4. Mechanism to protect private networks from outside attack is
(a) Antivirus (b) Firewall
(c) Digital Signature (d) None
5. Telnet is a service that runs
(a) Television on Networks (b) Telenext
(c) Remote Program (d) None
6. Which port is used by a TELNET communications session?
(a) 21 (b) 27
(c) 24 (d) 23
7. A device that forwards data packet from one network to another is known as
(a) Hub (b) Switch
(c) Router (d) Bridge
8. Which of the following is the fastest media of data transfer?
(a) Optical Fibre (b) Wireless Communication
(c) Twisted Pair (d) Co-axial Cable
9. How many characters per second can be transmitted over a 2400 bps link if transmission is synchronous (one start bit and one stop bit)? Assume that each character is coded with 10 bits.
(a) 300 (b) 2400
(c) 240 (d) 200

10. A digital signature is
 - (a) Signature in Binary bits
 - (b) Scanned Signature
 - (c) Encryption Information
 - (d) None
11. In go-back-n ARQ mechanism, if frames 6, 4, 5 are received successfully then what is the ACK number receiver may send to the sender?
 - (a) 7
 - (b) 4
 - (c) 5
 - (d) 6
12. Which of the following encoding method does not provide for synchronization?
 - (a) NRZ-L
 - (b) RZ
 - (c) B8ZS
 - (d) HDB3
13. Select incorrect statement related to error transmission in ARQ method.
 - (a) Selective repeat has better line utilization.
 - (b) Go-Back-N mechanism requires more storage at receiver site.
 - (c) Selective repeat comprises complex mechanism than Go-back-N.
 - (d) None
14. Which of the following represents an error if an odd parity approach is used?
 - (a) 10101011
 - (b) 01001010
 - (c) 10101010
 - (d) 10010010
15. Which one is correct for Manchester Code?
 - (a) Bi-polar code
 - (b) polar code
 - (c) return to zero code
 - (d) none
16. The Hamming distance between codes 001111 and 010011 is
 - (a) 3
 - (b) 1
 - (c) 4
 - (d) 2
17. A port address in TCP/IP model is represented by number of bytes-
 - (a) 4
 - (b) 6
 - (c) 8
 - (d) 2
18. SCTP stands for
 - (a) Session Control Transmission Protocol
 - (b) Stream Control Transmission Protocol
 - (c) Source Control Transmission Protocol
 - (d) None
19. HDLC protocol is
 - (a) Code Non-transparent
 - (b) Bit oriented
 - (c) Code Dependent
 - (d) None
20. End-to-end connectivity is provided by
 - (a) Transport Layer
 - (b) Network Layer
 - (c) Session Layer
 - (d) Both Network and transport layers
21. Select the correct statement.
 - (a) Initial setup is possible in connectionless data transmission.
 - (b) Packet sequencing is not guaranteed in connection-oriented data transmission.
 - (c) Destination address is specified at the beginning in connection-oriented service.
 - (d) Initial setup is required in connectionless data service.

22. What is the algorithm to handle collisions in Ethernet networks?
(a) Collision Pooling (b) CSMA-CD
(c) exponential-backoff (d) CSMA-CA
23. In Ethernet networks, physical addressing is achieved by
(a) Ethernet connector (b) Physical layer
(c) Network layer (d) Data-link layer
24. How many bytes are used as Ethernet addresses in CSMA-CD networks?
(a) 16 (b) 5
(c) 6 (d) 48
25. Which of the following does not have a Data-Link Layer?
(a) Router (b) Repeater
(c) Switch (d) Bridge
26. As compared to IPv4, IPv6 has more address space-
(a) 2^{64} (b) 2^{112}
(c) 2^{128} (d) 2^{96}
27. Which of the following is not standard RS-232C signal?
(a) VDR (b) RTS
(c) DSR (d) CTS
28. How many bits are used for addressing in gigabit Ethernet?
(a) 64 bits (b) 48 bits
(c) 32 bits (d) 128 bits
29. In IP broadcast
(a) IP address of a broadcasting host is used.
(b) IP address with all hosts bits set to zero.
(c) IP address with all network bits set to 1.
(d) IP address with all host bits set to 1.
30. In a broad sense, a railway track is an example of
(a) Simplex Communication (b) Half-Duplex Communication
(c) Full-Duplex Communication (d) All
31. DHCP stands for
(a) Dynamic Host Control Protocol (b) Dynamic Host Configuration Protocol
(c) Dynamic Hyper Control Protocol (d) Dynamic Hyper Configuration Protocol
32. Router operates in which layer of OSI Reference Model?
(a) Layer 1 (b) Layer 2
(c) Layer 3 (d) Layer 4
33. Bridge works in which layer of the OSI model?
(a) Application layer (b) Transport layer
(c) Network layer (d) Data link layer

34. Which one is correct for class C address?
(a) First byte is 192. (b) First byte is 128.
(c) First byte is 240 (d) First byte is 255.
35. What is the minimum header size of an IP packet?
(a) 16 bytes (b) 10 bytes
(c) 30 bytes (d) 20 bytes
36. What is the size of MAC Address?
(a) 16-bits (b) 32-bits
(c) 48-bits (d) 64-bits
37. Which of the following protocol is/are defined in Transport layer?
(a) FTP (b) TCP
(c) UDP (d) ARP
38. What is the default mask for a class C address?
(a) 255.255.255.1 (b) 255.255.255.0
(c) 255.255.255.254 (d) 255.255.255.255
39. In HDLC protocol based communication, the flag field is set as
(a) 01010101 (b) 01101100
(c) 01111110 (d) 0 or 1
40. Which of the following is name of a digital channel used in ISDN?
(a) 2B1Q (b) TE1
(c) BRI (d) PBX
41. How many differential pairs do 10BaseT UTP interfaces need?
(a) 6 (b) 2
(c) 6 (d) 4
42. FDDI stands for?
(a) Fibre Digital Data Interconnect (b) Full Duplex Data Integration
(c) Fibre Data Domain Internet (d) Fibre Distributed Data Interface
43. Which one of the following is used in Distance Vector routing to determine distances to its own neighbours?
(a) Ping (b) leaky bucket
(c) shortest path (d) flooding
44. A computer communication technology that provides a way to interconnect multiple computers across short distance is called
(a) MAN (b) Hotspot
(c) LAN (d) WAN
45. Which of following provides reliable communication?
(a) TCP (b) IP
(c) UDP (d) All

46. Internet uses
- (a) Packet switching
 - (b) Circuit switching
 - (c) Telephone switching
 - (d) Telex switching
47. World Wide Web
- (a) is another name for internet
 - (b) worldwide connection for computers
 - (c) a collection of linked database residing on computers connected by the internet
 - (d) a collection of worldwide information
48. A web page is located using a
- (a) Universal Record Linking
 - (b) Uniform Resource Locator
 - (c) Universal Record Locator
 - (d) None
49. What is the output of following program?
- ```
class Output {
 public static void main(String args[]) {
 {
 int x , y;
 x = 10;
 x++;
 —x;
 y = x++;
 System.out.println(x + “ “ + y);
 } }
}
```
- (a) 11 11
  - (b) 10 10
  - (c) 11 10
  - (d) 10 11
50. Which one of these processes occurs automatically by java run time system?
- (a) Serialization
  - (b) Garbage collection
  - (c) File Filtering
  - (d) All the above
51. JSP embeds ..... in .....
- (a) Servlet, HTML
  - (b) HTML, Java
  - (c) HTML, Servlet
  - (d) Java, HTML
52. Consider the following script.
- ```
<html>  
<head><title>JavaScript</title></head>  
<body>  
<script language=”JavaScript”>  
document.write((125/5)%12);  
</script>  
</body>  
</html>
```
- What would be the output of the above script?
- (a) 0
 - (b) 1
 - (c) 2.083
 - (d) 3

53. DMSP stands for
- (a) Distributed Mail System Protocol
 - (b) Distributed Message System Protocol
 - (c) Distributed Message System Pool
 - (d) Distributed Mail System Pool
54. Which Layer is not present in TCP/ IP model?
- (a) Application Layer
 - (b) Internet Layer
 - (c) Transport Layer
 - (d) Presentation Layer
55. IP address 192.5.48.3 belongs to
- (a) class A
 - (b) class B
 - (c) class C
 - (d) class D
56. Parent class of all Java classes is
- (a) java.lang.system
 - (b) java.lang.object
 - (c) java.lang.class
 - (d) java.lang.reflect.object
57. Enterprise JavaBeans can be deployed in _____
- (a) J2EE server
 - (b) Weblogic
 - (c) Web sphere
 - (d) All of the above
58. What is the default value of priority variables MIN_PRIORITY and MAX_PRIORITY?
- (a) 0 & 256
 - (b) 0 & 1
 - (c) 1 & 10
 - (d) 1 & 256
59. Select the correct option for HTML.
- (a) It is a modelling language.
 - (b) It is a DTP language.
 - (c) It is a partial programming language.
 - (d) It is used to structure documents.
60. What is invoked via HTTP on the Web server when it responds to requests from a user's Web browser?
- (a) A Java application
 - (b) A Java applet
 - (c) A Java servlet
 - (d) None of the above is correct
61. Which of the following is true about client-side script used in HTML documents?
- (a) Java, JavaScript, Jscript and VBScript are used on many web sites as Scripting languages.
 - (b) Client side scripts are executed on the server and the resulting page will be downloaded and interpreted by the browser.
 - (c) Client-side scripts increase the network traffic on execution of the script.
 - (d) Client-side scripts can perform many functions such as data validation and provide interactive feedback to the user.
62. FTP does not use.....
- (a) Two transfer mode.
 - (b) Control connection to remote computer before file can be transferred.
 - (c) UDP.
 - (d) Authorization of a user through login and password verification.
63. Which type of web document is run at the client site?
- (a) Static
 - (b) Active
 - (c) Dynamic
 - (d) All the above

64. The main function of a browser is to
- (a) interpret HTML
 - (b) compile HTML
 - (c) de-compile HTML
 - (d) interpret CGI programs
65. HTML and XML are markup languages-
- (a) Specially development for the web
 - (b) Are based on SGML
 - (c) Are versions of SGML
 - (d) Independent of SGML
66. In order to interpret XML documents one should
- (a) Use standardized tags
 - (b) Have a document type definition which defines the tags
 - (c) Define the tags separately
 - (d) Specify tag filename
67. XSL definition is used along with XML definition to specify
- (a) The data types of the contents of XML document
 - (b) The structure of XML document
 - (c) The links with other documents
 - (d) The presentation of XML document
68. DTD definition is used along with XML to specify
- (a) The data types of the contents of XML document
 - (b) The presentation of XML document
 - (c) The links with other documents
 - (d) The structure of XML document
69. HTML uses
- (a) pre-specified tags
 - (b) user defined tags
 - (c) tags only for linking
 - (d) fixed tags defined by the language
70. Consider the following script-
- ```
<html>
<head><title>JavaScript</title></head>
<body>
<script language="JavaScript">
var x=80
var y=(x==80 ? "pass" : "fail");
document.write(y)
</script>
</body>
</html>
```
- What will be the output of the above script?
- (a) pass
  - (b) fail
  - (c) null
  - (d) 80

71. When trying to access a URL, the following message is displayed on the browser:  
Server; Error 403  
What could be the reason for the above message?
- (a) The requested HTML file is not available.
  - (b) The requested HTML file or CGI script has insufficient permission.
  - (c) The path to the interpreter of the script file is invalid.
  - (d) The first line of the output from the script is not a valid HTTP header.
72. A header in CGI script can specify
- (a) format of the document
  - (b) new location of the document
  - (c) Start of the document
  - (d) None
73. The term byte stuffing refers to-
- (a) data stuffing used with character oriented hardware.
  - (b) data stuffing used with bit oriented hardware.
  - (c) data stuffing used with byte oriented hardware.
  - (d) None.
74. Which of the following is/are correct regarding the SMTP protocol?
- (a) SMTP delivers email by having the source machine establish a TCP connection to port 25 of the destination machine.
  - (b) SMTP is simple ASCII protocol.
  - (c) SMTP provides for mail exchange between users on the same or different computers.
  - (d) All the above.
75. HTTP has similarities to both of the following protocols-
- (a) FTP; SMTP
  - (b) FTP; SNMP
  - (c) SMTP; SNMP
  - (d) None

**Directions (Question No. 76 to 83) : Study carefully the following series of numbers. Choose the correct number which would go next in the series.**

76. 2, 5, 11, 20, 32, ...
- (a) 50
  - (b) 45
  - (c) 47
  - (d) 49
77. 3, 7, 15, 31, 63, ...
- (a) 127
  - (b) 128
  - (c) 130
  - (d) 125
78. 2, 4, 10, 28, 82, ...
- (a) 240
  - (b) 244
  - (c) 220
  - (d) 248
79. How many oranges can be purchased for Rs 50 at the rate of three for Rs 10?
- (a) 30
  - (b) 15
  - (c) 50
  - (d) 20
80. If 15 pens cost Rs.75, how much will 12 pens cost?
- (a) 70
  - (b) 55
  - (c) 62
  - (d) 60

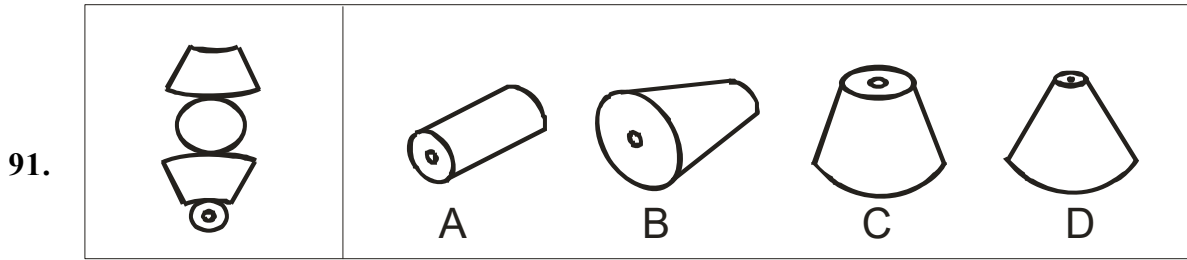


81. Determine the discount in percent when the marked price is Rs. 400 and the selling price is Rs. 360.  
(a) 4% (b) 5%  
(c) 15% (d) 10%
82. The price of a commodity is increased by 15%. The price before the increase was Rs. 220. The new price is \_\_\_\_\_  
(a) Rs 253 (b) Rs 235  
(c) Rs 282 (d) Rs 276
83. Pipes A and B can fill a tank in 4 and 6 hours respectively. Pipe C can empty it in 12 hours. If all the three pipes are operational simultaneously, after how much time will the tank be full.  
(a) 3 hours 25 minutes (b) 3 hours 20 minutes  
(c) 3 hours 30 minutes (d) 3 hours 35 minutes

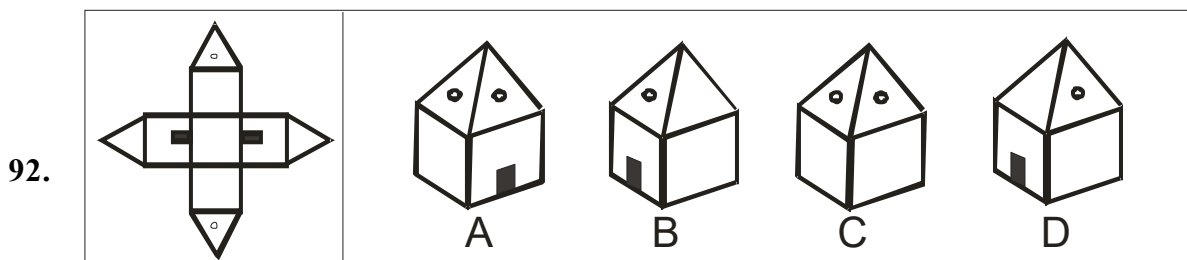
**Directions (Question No. 84 to 90) : In the following sentences, the last word is omitted, and a blank space is provided in its place. You are to pick out words which will fill the blanks so that the sentences will be true and sensible.**

84. Poet is to verse as sculptor is to \_\_\_\_\_  
(a) crime (b) chisel  
(c) statue (d) artist
85. Coloured is to bleached as flushed is to \_\_\_\_\_  
(a) blushed (b) drained  
(c) wan (d) truffle
86. Inert is to static as dynamic is to \_\_\_\_\_  
(a) active (b) speaker  
(c) motor (d) regal
87. Hope is to future as regret is to \_\_\_\_\_  
(a) atone (b) past  
(c) absent (d) sins
88. Umbrella is to rain as dam is to \_\_\_\_\_  
(a) electricity (b) high  
(c) flood (d) spillway
89. Toronto is to Canada as Rangoon is to \_\_\_\_\_  
(a) Indonesia (b) Myanmar  
(c) Pakistan (d) Bangladesh
90. Each is to all as part is to \_\_\_\_\_  
(a) whole (b) separate  
(c) role (d) many

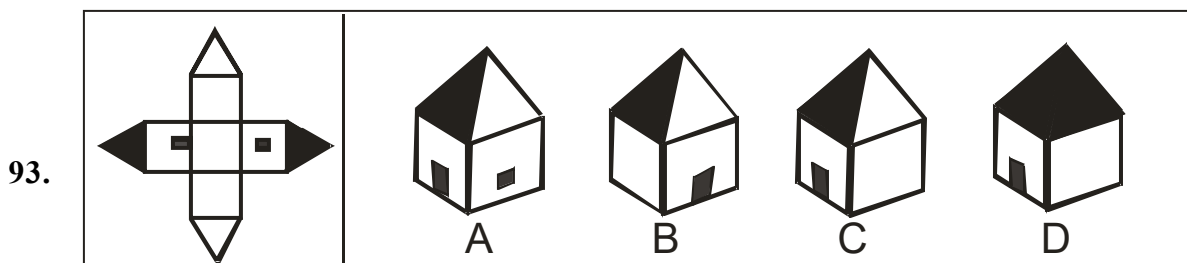
**Directions (Question No. 91 to 95) :** Each problem in this test consists of one figure on the left of a vertical line and four figures on the right. You are to decide which of the four figures on the right is the same as the figure on the left.



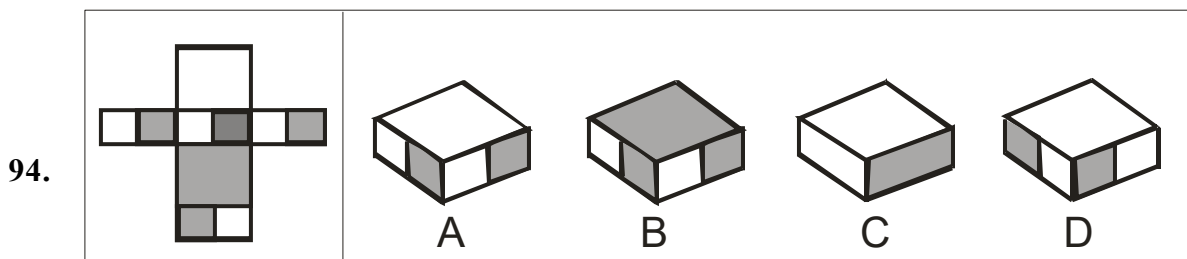
- (a) A (b) B  
(c) C (d) D



- (a) A (b) B  
(c) C (d) D

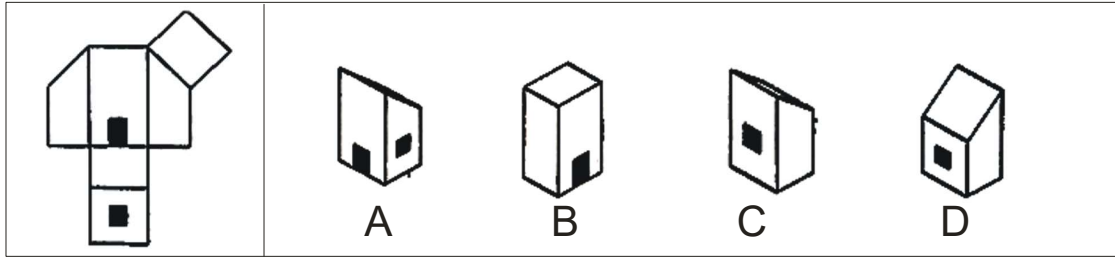


- (a) A (b) B  
(c) C (d) D



- (a) A (b) B  
(c) C (d) D

95.



- (a) A
- (c) C

- (b) B
- (d) D

**Directions (Question No. 96 to 100) :** The rows of designs or figures below have four problem figures which make a series. The fifth figure is missing. Choose the right figure from among the answer figures, which belongs next in the series.

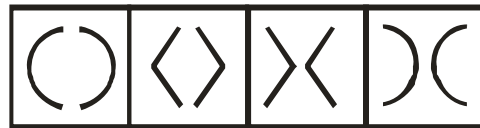
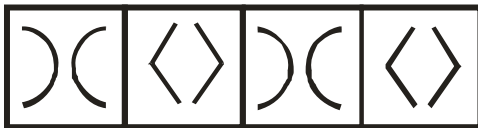
96.



- (a) A
- (c) C

- (b) B
- (d) D

97.



- (a) A
- (c) C

- (b) B
- (d) D

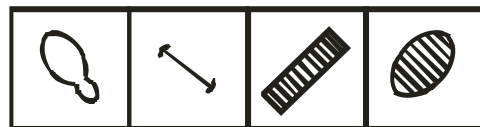
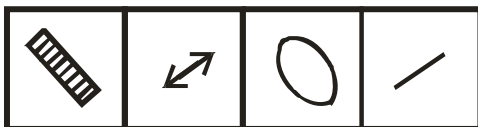
98.



- (a) A
- (c) C

- (b) B
- (d) D

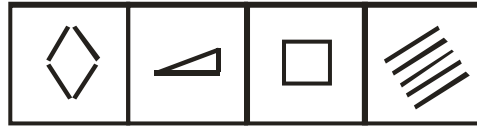
99.



- (a) A
- (c) C

- (b) B
- (d) D

100.



- (a) A
- (c) C

- (b) B
- (d) D

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