

MENTAL ABILITY

1. Let x, y, z be in A.P. and x^2, y^2, z^2 be in G.P. If $x < y < z$ and $x + y + z = \frac{3}{2}$, then the value of x is

(A) $\frac{1}{2\sqrt{2}}$ (B) $\frac{1}{2\sqrt{3}}$ (C) $\frac{1}{2} - \frac{1}{\sqrt{3}}$ (D) $\frac{1}{2} - \frac{1}{\sqrt{2}}$

2. The standard deviations of two sets containing 10 and 20 members are 2 and 3 respectively measured from their common mean 5. The S.D. for the whole set of 30 members is

(A) $\sqrt{\frac{22}{3}}$ (B) $\sqrt{6}$ (C) $\sqrt{3}$ (D) $\frac{2}{\sqrt{3}}$

3. Negation of the compound proposition

"If the examination is difficult, then I shall pass if I study hard" is

- (A) The examination is difficult and I study hard but I shall not pass
 (B) The examination is not difficult and I study hard and I shall pass
 (C) The examination is difficult and I study hard and I shall pass
 (D) None of these

4. If $f : N \rightarrow N$ is given by $f(n) = \begin{cases} n/2, & \text{if } n \text{ is even} \\ \frac{(n+1)}{2}, & \text{if } n \text{ is odd} \end{cases}$.

Suppose g is a function $g : N \rightarrow N$, such that $g \circ f = I$, then g is

- (A) One-one (B) Onto (C) Bijective (D) Does not exist

5. If z_1 and z_2 are two complex numbers satisfying the equation $\left| \frac{z_1 + z_2}{z_1 - z_2} \right| = 1$, then $\frac{z_1}{z_2}$ is a number which is

- (A) Zero (B) Positive real (C) Negative real (D) Purely imaginary

6. The condition for which $a^2x^4 + bx^3 + cx^2 + dx + f^2$ may be a perfect square is
 (A) $4a^2c - b^2 = 8a^3f$ (B) $4a^2c = 8a^3f$
 (C) $2a^2c = a^3f$ (D) None of these
7. $\sin 120^\circ \cos 150^\circ - \cos 240^\circ \sin 330^\circ$ is equal to
 (A) 1 (B) -1 (C) $\frac{2}{3}$ (D) $-\left(\frac{\sqrt{3}+1}{4}\right)$
8. There are four balls of different colours and four boxes of colours same as those of the balls. The number of ways in which the balls, one in each box, could be placed such that a ball does not go to box of its own colour is
 (A) 7 (B) 9 (C) 8 (D) None of these
9. The equation of a circle with origin as centre and passing through the vertices of an equilateral triangle whose median is of length $3a$ is
 (A) $x^2 + y^2 = 9a^2$ (B) $x^2 + y^2 = 6a^2$ (C) $x^2 + y^2 = 4a^2$ (D) $x^2 + y^2 = a^2$
10. The value of the $\lim_{x \rightarrow 0} \left(\frac{\sin x - x + \frac{x^3}{6}}{x} \right)$ is
 (A) 0 (B) 1 (C) $\frac{1}{60}$ (D) None of these

LOGICAL AND ANALYTICAL REASONING

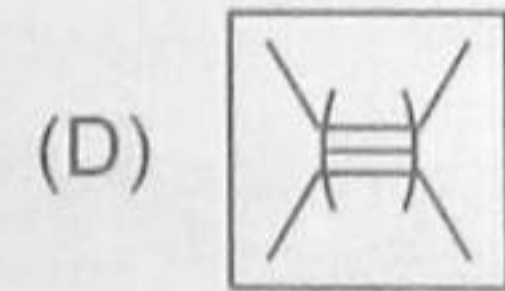
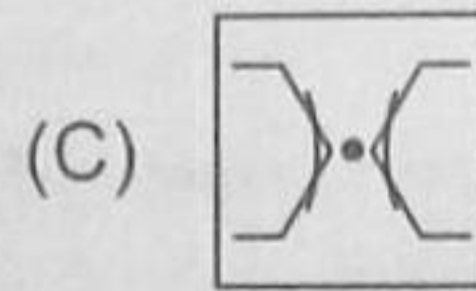
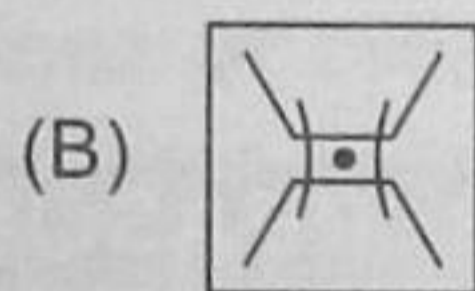
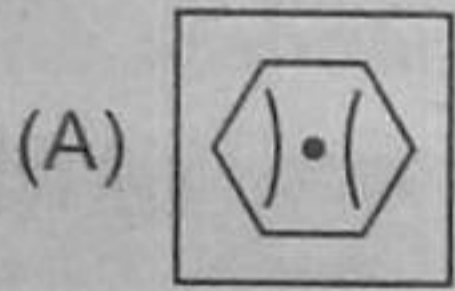
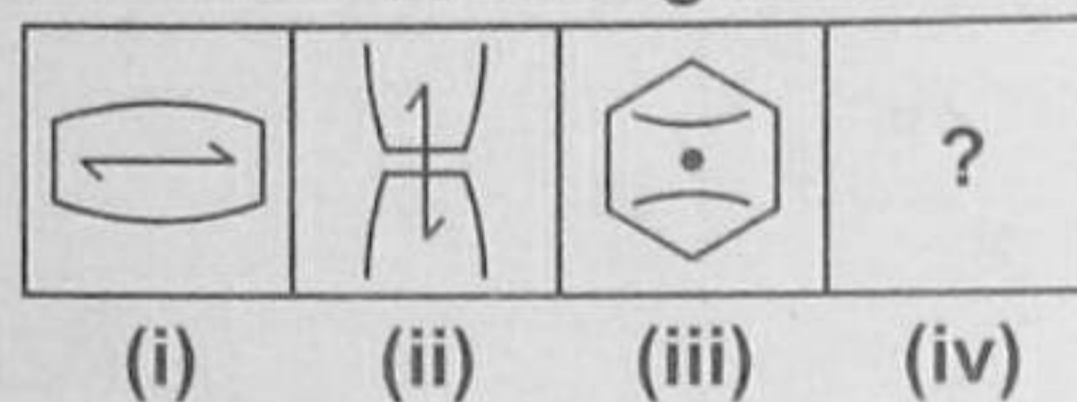
11. How many letters are there between the letter that is twentieth from the left end and the letter that is sixteenth from the right end?
 T H A J K R B T A E M D G S O J K U M B D L U H Y A C M
 (A) Five (B) Six (C) Three (D) Four
12. Which of the following meanings of the arithmetical signs will yield the value 'zero' for the expression given below?
 $200 \times 100 + 300 \times 200 - 10 \div 2 + 40$
 (A) + means -, - means \times , \times means \div , \div means +
 (B) + means -, - means \div , \times means +, \div means \times
 (C) + means \times , - means -, \times means \div , \div means +
 (D) + means \div , - means +, \times means -, \div means \times
13. Forty boys are standing in a row facing the North. Raghu is eleventh from the left and Vijay is thirty-first from the right end of the row. How far away will Uday, who is third to the right of Raghu in the row, be from Vijay?
 (A) 3rd (B) 4th (C) 2nd (D) 5th

14. If in each number the first and the third digits are interchanged, then which number will be the largest?

358 426 853 674 592

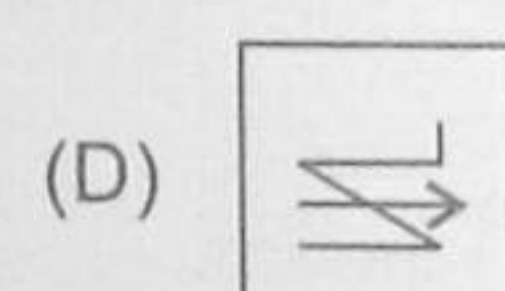
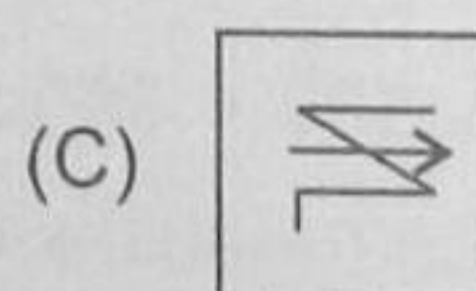
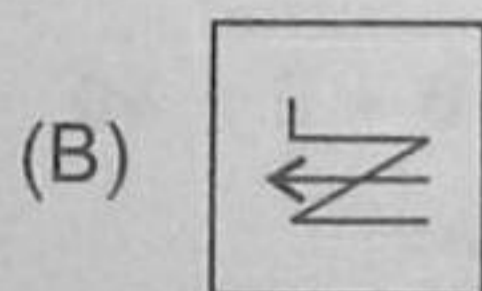
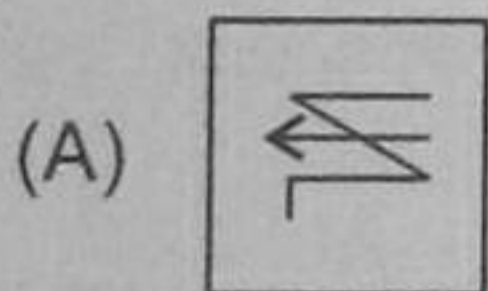
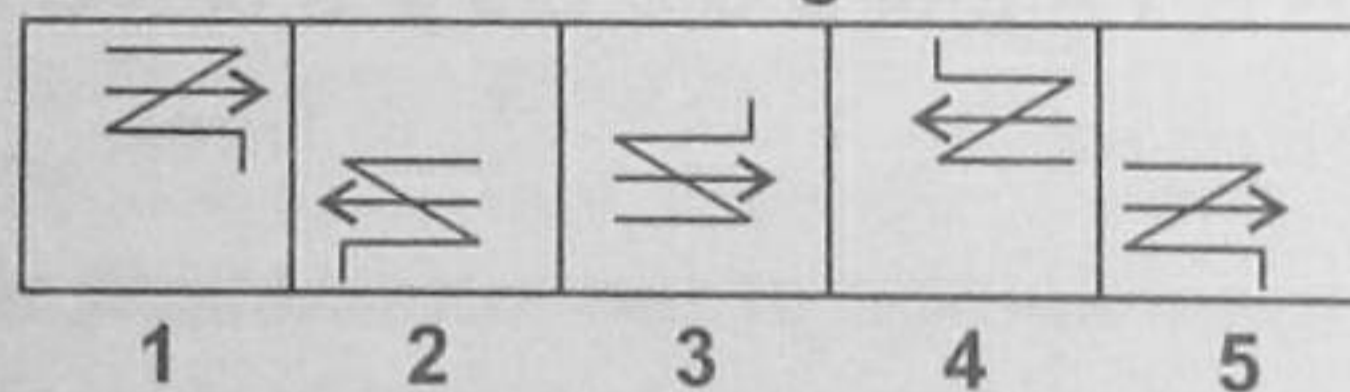
- (A) 358 (B) 426 (C) 853 (D) 592
15. Which of the following expressions will not be true if the expression ' $A = C \geq B > D$ ' is definitely true?
- (A) $B > A$ (B) $D < C$ (C) $A \geq B$ (D) $D < A$
16. If ' $A \times B$ ' means 'A is father of B'; ' $A \div B$ ' means 'A is daughter of B'; ' $A + B$ ' means 'A is sister of B'; ' $A - B$ ' means 'A is husband of B' then in $F \div R \times H - L$, how is H related to F?
- (A) Father (B) Nephew (C) Brother (D) Son
17. Select the figure that would replace the "?" in figure (iv).

Problem Figures

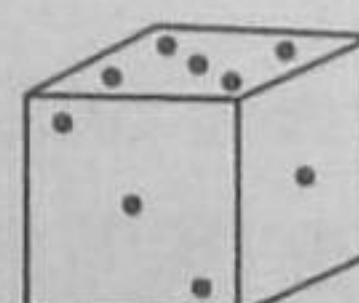
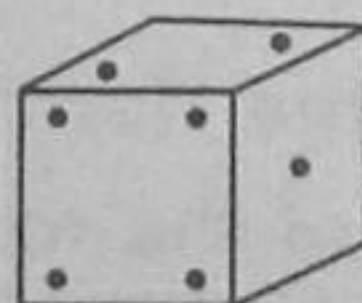


18. Select a figure which will continue the series established by the five Problem Figures.

Problem Figures

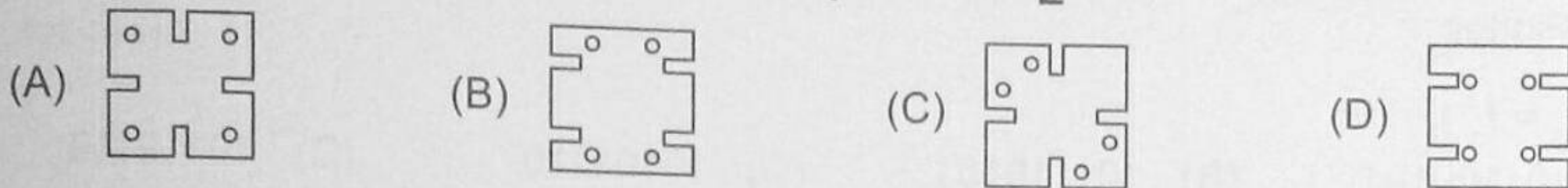
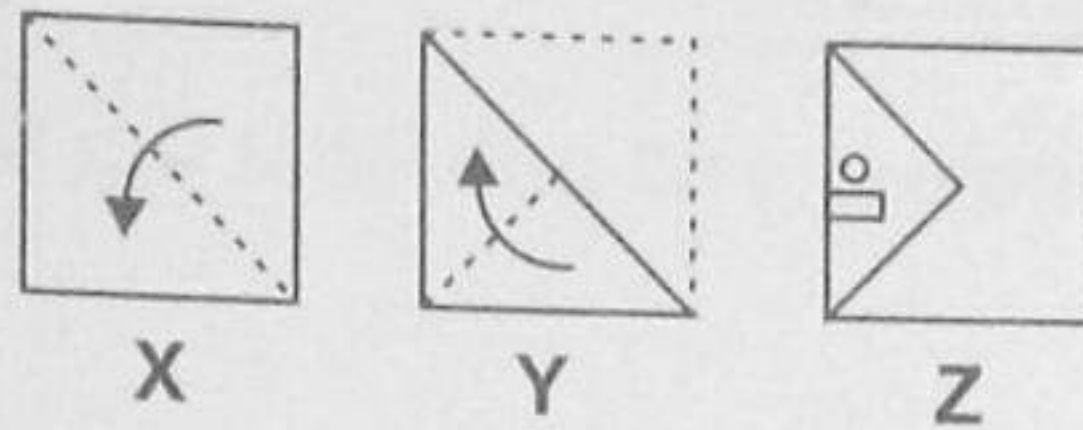


19. Two positions of a cube are shown below. When the number 4 will be at the bottom, then which number will be at the top?



- (A) 3 (B) 5 (C) 6 (D) 1

20. There is a set of three figures X, Y and Z showing a sequence in which a paper is folded and finally cut to form a particular section. You have to select a figure which most closely resembles the unfolded piece of paper.



COMPUTERS AND INFORMATION TECHNOLOGY

21. Which of the following has emerged as India's biggest tablet maker during the first quarter of 2013?
 (A) Apple (B) Datawind (C) Microsoft (D) Google
22. _____ is/are Intel's microprocessor for desktops.
 (A) Conroe (B) Micron (C) Merom (D) Both (A) and (B)
23. _____ is a cloud based operating system being developed by Microsoft.
 (A) Midori (B) Micro Cloud
 (C) Cloud OS (D) None of these
24. A type of transmission that does not require any local storage at sender's or receiver's end is _____.
 (A) Analog (B) Synchronous (C) Digital (D) Asynchronous
25. Which of the following statements refers to the associative memory?
 (A) The data are accessed in serialized manner.
 (B) Address of the data is supplied by the users.
 (C) There is no need for an address *i.e.*, the data is used as an address.
 (D) Address of the data is generated by the CPU.
26. Which of the following is the oldest running webcam?
 (A) FogCam (B) W camera (C) LR 180 (D) SFV 94
27. Which memory system is NOT used as a mass memory medium?
 (A) Semiconductor memory (B) Magnetic drum
 (C) Magnetic tape (D) Magnetic disk
28. Who is considered as father of Artificial Intelligence?
 (A) Charles Babbage (B) John McCarthy
 (C) Martin Cooper (D) Howard Mark

29. Which of the following layer in UNIX has a command interpreter?
(A) Kernel (B) Shell (C) Utilities (D) Core

30. Identify the device.

- (A) MICR
- (B) Digitizer
- (C) Handheld Scanner
- (D) Plotter



31. $(545)_8 = ()_2$
(A) 101100101 (B) 101110101 (C) 10101110 (D) 10110110

32. $(46)_{10} = ()_8$
(A) 56 (B) 58 (C) 55 (D) 51

33. A disk scheduling algorithm in an operating system cause the disk arm to move back and forth across the disk surface in order to service all requests in its path. This is called _____.

- (A) First Come First Serve
- (B) Shortest Seek Time First
- (C) Scan
- (D) First In First Out

34. _____ is an eight wire connector, used to connect computers on the local area networks.

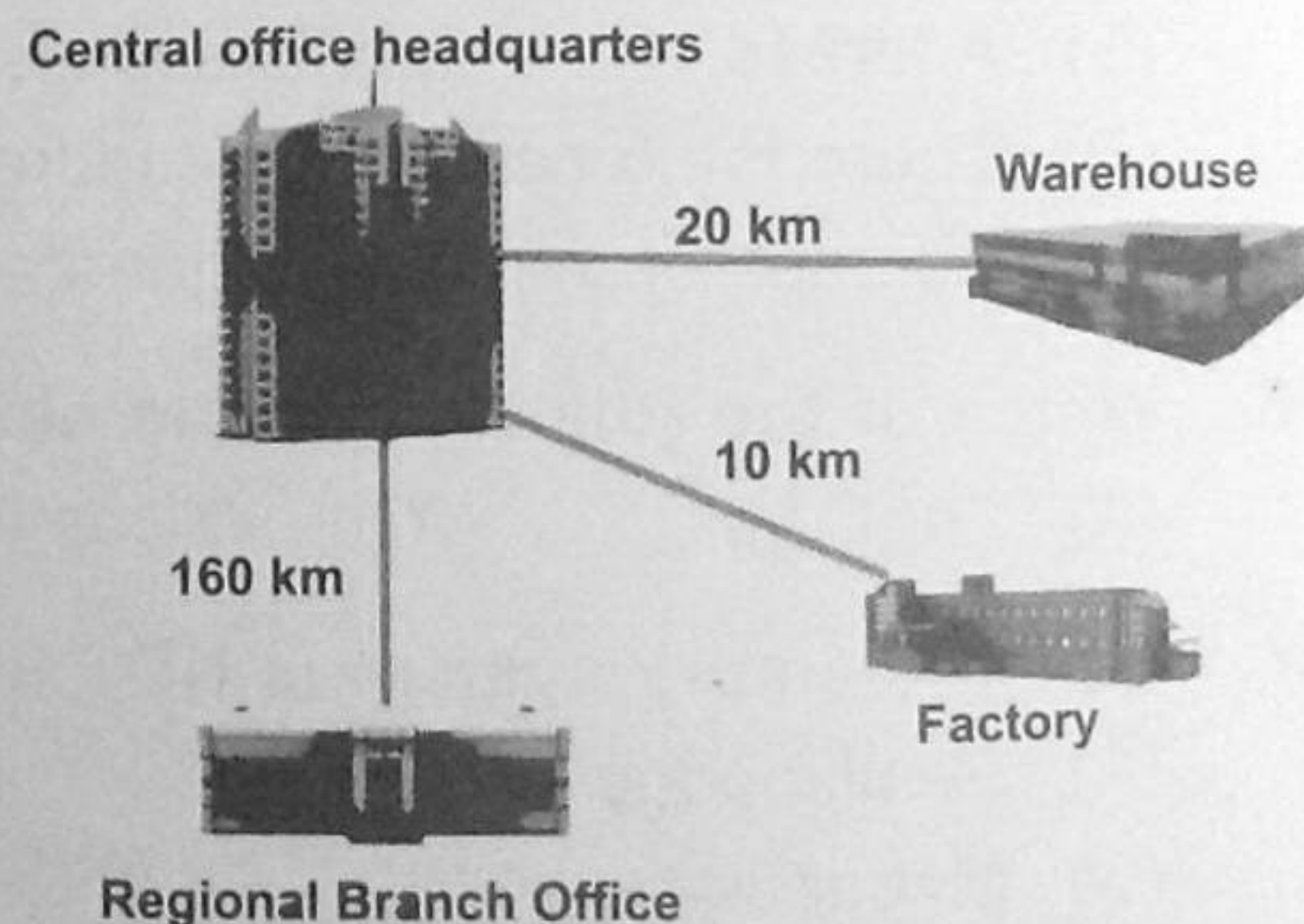
- (A) RJ-12
- (B) RJ-45
- (C) Ethernet Card
- (D) Switch

35. Which of the following types of keyboard contains 101 to 106 keys based on different language layout?

- (A) PC/XT
- (B) PC/AT
- (C) Enhanced
- (D) Windows Keyboard

36. Identify the connection setup.

- (A) LAN
- (B) MAN
- (C) PAN
- (D) WAN



37. A device or program that connects your LAN to the internet, passes messages between the computers on LAN and on internet is called _____.

- (A) Router
- (B) Gateway
- (C) Hub
- (D) Bridge

38. A C++ program contains a function with the header – `int sum(double a, char b)`. Which of the following function headers could be used within the same program?
- (A) `char sum(double a, char b)` (B) `int sum(int a, char b)`
 (C) Both (A) and (B) (D) Neither (A) nor (B)
39. What will be the output of the following C++ program?
- ```
#include<iostream.h>
int x;
int main()
{
 int y;
 cout<<x<<endl;
 return 0;
}
```
- (A) 2 (B) 1 (C) 0 (D) Undefined
40. In Ms-PowerPoint, which of the following diagrams can break things into categories or show how parts contribute to a whole?
- (A) Matrix diagram (B) Pyramid diagram  
 (C) Relationship diagram (D) Hierarchy diagram
41. In Ms-Excel, "Picture", "Values & Source formatting", "Linked Picture", "Values" are options of \_\_\_\_\_ feature.
- (A) Copy (B) Paste (C) Insert (D) Export
42. To change the Notes Page layout in Ms-PowerPoint, you need to go to \_\_\_\_\_ tab and \_\_\_\_\_ group.
- (A) Home, Notes (B) View, Notes Master  
 (C) View, Master Views (D) Review, Master
43. In C++, which of the following are included in `iomanip.h`?
- (A) `setiosflags` (B) `rdstate` (C) `_irot` (D) `tellp`
44. \_\_\_\_\_ are the options provided in Paste Special Dialog box in Ms-Excel.
- (A) Formulas (B) Values  
 (C) Comments (D) All of these
45. In XML, \_\_\_\_\_ is a platform and language neutral interface that allows programs and scripts to dynamically access and update content, structure and style of a document.
- (A) DTD (B) XSL (C) DOM (D) XSLT
46. Select the correct tag in HTML.
- (A) `<mark style = background-color = red></mark>`  
 (B) `<mark style = "background-color = red"></mark>`  
 (C) `<mark style = "background-color : red" ></mark>`  
 (D) `<mark style = "background:colour = red "></mark>`



47. Language that was designed to just transport and store data is \_\_\_\_\_.
- (A) HTML                      (B) XML                      (C) C++                      (D) C
48. \_\_\_\_\_ defines a container for an external application or interactive content.
- (A) <embed>                      (B) <section>                      (C) <canvas>                      (D) <article>
49. First mobile processor based on core microarchitecture is \_\_\_\_\_.
- (A) Conroe                      (B) Merom                      (C) PDP-11                      (D) 4004
50. \_\_\_\_\_ virus is famous for being the first virus to spread via Bluetooth.
- (A) Brain                      (B) Commwarrior                      (C) I Love You                      (D) Trojan