

1. The domain and range of $f(x) = \sin \log \frac{\sqrt{4-x^2}}{1-x}$ are
 (A) $(-2, 0); [-1, 0]$ (B) $(-2, 1); [-1, 1]$ (C) $(-2, 2); [0, 1]$ (D) None of these

2. If z is a point on the argand plane such that $|z - 1| = 1$, then $\frac{z-2}{z}$ is equal to
 (A) $\tan(\arg z)$ (B) $\cot(\arg z)$ (C) $i \tan(\arg z)$ (D) None of these

3. The radius of the circle passing through the foci of the ellipse $\frac{x^2}{16} + \frac{y^2}{9} = 1$, and having its centre at $(0, 3)$ is
 (A) 4 (B) 3 (C) $\sqrt{12}$ (D) $\frac{7}{2}$

4. Two friends A and B have equal number of daughters. There are three cinema tickets which are to be distributed among the daughters of A and B . The probability that all the tickets go to daughters of A is $\frac{1}{20}$. The number of daughters each of them have is
 (A) 3 (B) 6 (C) 5 (D) 4

5. The arithmetic mean of a set of observations is \bar{x} . If each observation is divided by α and then is increased by 10. Then the mean of the new series is
 (A) $\frac{\bar{x}}{\alpha}$ (B) $\frac{\bar{x} + 10}{\alpha}$ (C) $\frac{\bar{x} + 10\alpha}{\alpha}$ (D) $\alpha \bar{x} + 10$

6. $\cos \frac{\pi}{65} \cos \frac{2\pi}{65} \cos \frac{4\pi}{65} \cos \frac{8\pi}{65} \cos \frac{16\pi}{65} \cos \frac{32\pi}{65} =$
 (A) $\frac{1}{64}$ (B) $\frac{1}{32}$ (C) $\frac{1}{16}$ (D) $\frac{1}{8}$

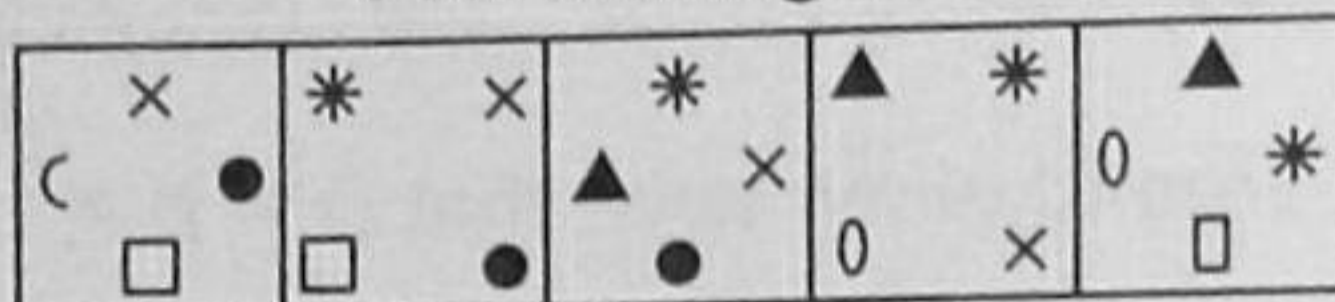
7. If $\lim_{x \rightarrow a} \frac{a^x - x^a}{x^x - a^a} = -1$, then the value of a is
 (A) 1 (B) 0 (C) e (D) None of these

8. There is a set of m parallel lines intersecting a set of another n parallel lines in a plane. The number of parallelograms formed, is
 (A) ${}^{m-1}C_2 \cdot {}^{n-1}C_2$ (B) ${}^mC_2 \cdot {}^nC_2$ (C) ${}^{m-1}C_2 \cdot {}^nC_2$ (D) ${}^mC_2 \cdot {}^{n-1}C_2$
9. The sum of first 12 terms of the series $\left(x + \frac{1}{x}\right)^2 + \left(x^2 + \frac{1}{x^2}\right)^2 + \left(x^3 + \frac{1}{x^3}\right)^2 + \dots$ is
 (A) $\left(\frac{x^{24}-1}{x^2-1}\right) \cdot \left(\frac{x^{26}-1}{x^{24}}\right) + 24$ (B) $\left(\frac{x^{24}-1}{x^2-1}\right) \cdot \left(\frac{x^{26}+1}{x^{24}}\right) + 24$
 (C) $\left(\frac{x^{24}-1}{x^2-1}\right) \cdot \left(\frac{x^{26}-1}{x^{24}}\right) - 24$ (D) $\left(\frac{x^{24}+1}{x^2-1}\right) \cdot \left(\frac{x^{26}-1}{x^{24}}\right) + 24$
10. The digit at unit's place in the number $17^{1995} + 11^{1995} - 7^{1995}$ is
 (A) 3 (B) 2 (C) 1 (D) 0

LOGICAL AND ANALYTICAL REASONING

11. Select a figure which will continue the given series as established by the five problem figures.

Problem Figures



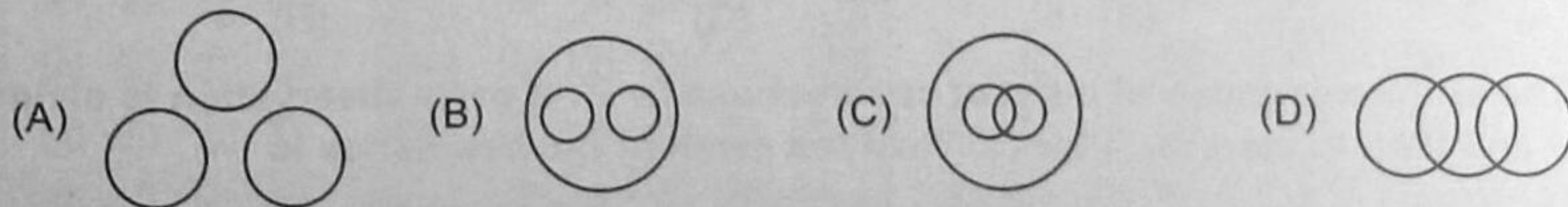
- (A) (B) (C) (D)

12. How many such symbols are there in the below arrangement, each of which is immediately preceded by a consonant but not immediately followed by a number?

M % T A P 4 * E D 1 7 N I J 5 \$ 3 F H 8 U B 6 @ W L 2 © K Q #

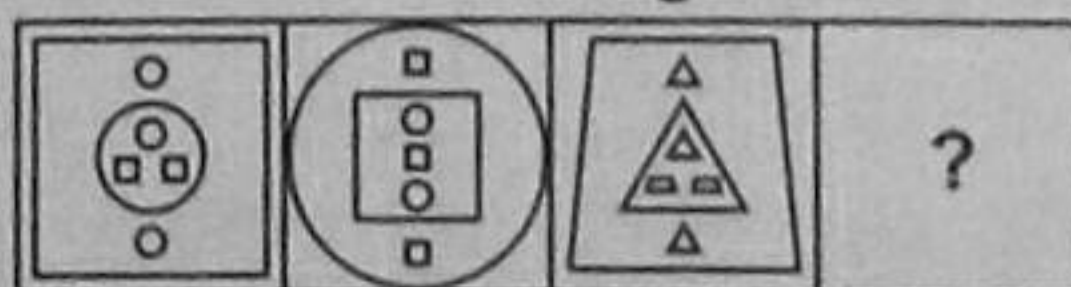
- (A) One (B) Two (C) Three (D) More than three

13. Identify the Venn diagram which will best describe the relationship between "Grams, Beans, Legumes."



14. Select a figure which will continue the same series as established by the three problem figures.

Problem Figures



- (A) (B) (C) (D)

15. A man travelled from his office straight for 400 metres. He then turned left and travelled 500 metres straight, after which he turned left again and travelled for 400 metres straight. He then turned right and walked for another 600 metres straight. How far is he from his office?

- (A) 1.0 km (B) 1.1 km (C) 1.4 km (D) 1.8 km

16. Which of the following resembles the water-image of the given word.

b r i d g e

- (A) p r i q d e (B) p r i q d e (C) p r i q d e (D) p r i p d e

17. Two rows of numbers are given. The resultant numbers in each row is to be worked out separately based on the following rules and the question below the rows is to be answered. The operations of numbers progress from left to right.

Rules:

- (i) If an even number is followed by another even number they are to be added.
- (ii) If an even number is followed by a prime number, they are to be multiplied.
- (iii) If an odd number is followed by an even number, the even number is to be subtracted from the odd number.
- (iv) If an odd number is followed by another odd number, the first number is to be added to the square of the second number.
- (v) If an even number is followed by a composite odd number, the even number is to be divided by the odd number.

84 21 13
15 11 44

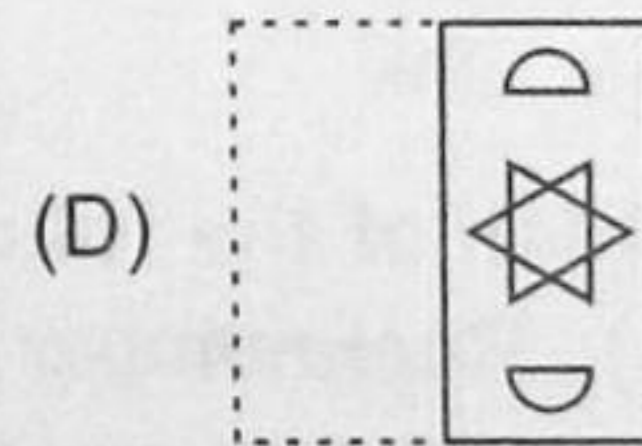
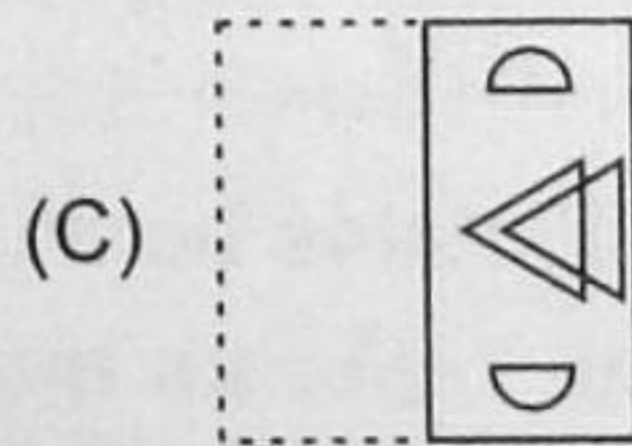
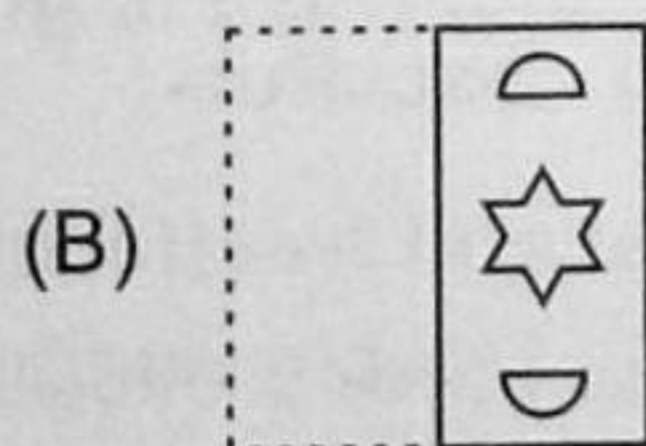
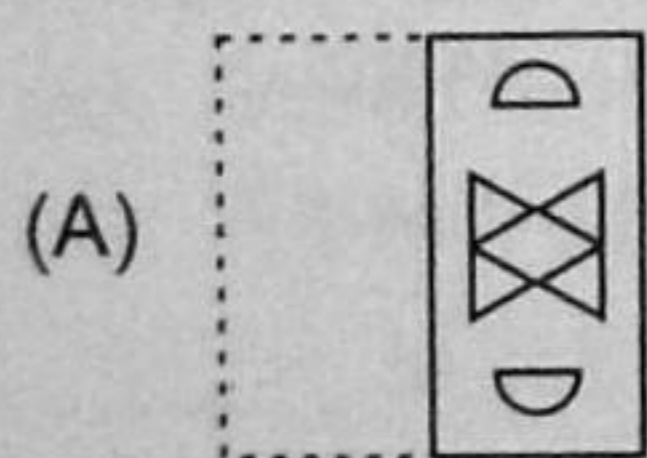
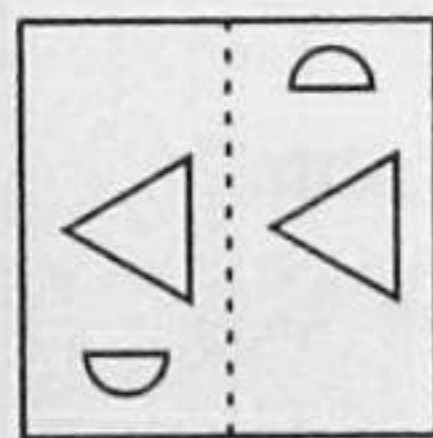
What is half of the sum of the resultants of the two rows?

- (A) 116 (B) 132 (C) 232 (D) 236

18. If 'A - B' means 'A is sister of B', 'A × B' means 'A is mother of B' and 'A ÷ B' means 'A is brother of B', which of the following means 'M is aunt of K'?

- (A) $M \times N \div K$ (B) $N \div K \times M$ (C) $M - P \times Q \times K$ (D) $M - T \times Q \div K$

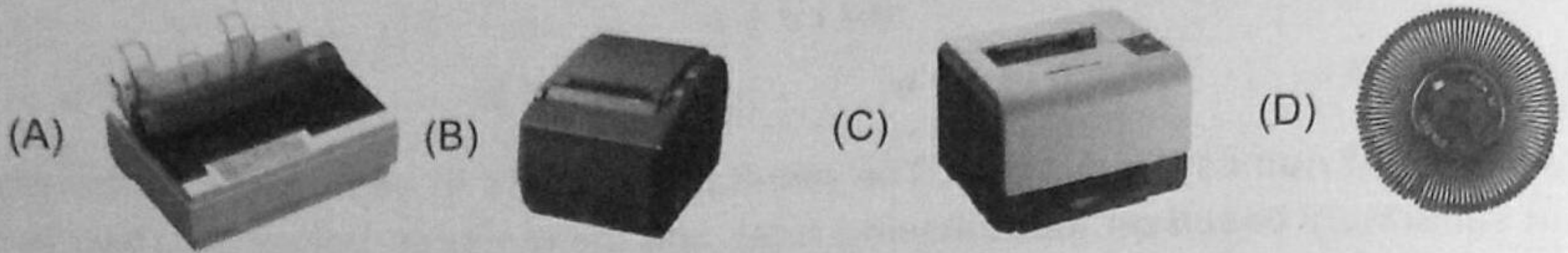
19. A square transparent sheet with a pattern is given. Find from amongst the options as to how the pattern would appear when the transparent sheet is folded along the dotted line.



20. In a certain code language GUWAHATI is written as HVYCKDXM. How will LUCKNOW be written in that code?
(A) NVENRQB (B) MVFRNQB (C) MVERNQB (D) MVEMQRA

COMPUTERS AND INFORMATION TECHNOLOGY

21. _____ printers cannot print graphics.



22. _____ is the Microsoft's motion control gaming console which is controller less.
(A) XBox 360 (B) XBox one (C) XBox 720 (D) Natal XBox
23. A MAC address consist of _____ bits.
(A) 32 (B) 24 (C) 48 (D) 16
24. First microprocessor developed was _____ by _____.
(A) 4004, Intel (B) 8080, Intel (C) 480, Intel (D) 1001, AMD
25. Which of the following layer in OSI model has sub-layers?
(A) Transport (B) Physical (C) Data Link (D) Session
26. Which of the following editions of Windows 7 support both direct access and XP mode?
(A) Windows 7 Enterprise 64-bit (B) Windows 7 Enterprise x86
(C) Windows 7 Home Premium (D) Both (A) and (B)
27. _____ is the old name of "Windows Presentation Foundation".
(A) Avalon (B) IIS (C) Avalanche (D) Ready Boost
28. Composition of two or more clouds that remain unique entities but are bound together is called _____.
(A) Complex cloud (B) Hybrid cloud (C) Versatile cloud (D) Personal cloud
29. From where do you assign the space for virtual memory?
(A) RAM (B) ROM (C) Hard Disk (D) Both (A) and (B)
30. Who is considered as father of spam?
(A) Vint Cerf (B) Alan Turing (C) Charles Babbage (D) Gary Thuerk
31. _____ is the initial name of Google.
(A) Oak (B) RIM (C) BackRub (D) Marc
32. Which of the following contains both integral and fractional part in C++?
(A) Real number (B) Double number
(C) Floating point number (D) Integer number

33. _____ converts text information into spoken sentences.
 (A) Speech Recognition System (B) Voice Response System
 (C) Speech Synthesizer (D) None of these
34. _____ is NOT under direct control of processing unit.
 (A) Near-line storage (B) Offline storage
 (C) On-line storage (D) Directional storage
35. $(4706)_8 = (\underline{\hspace{2cm}})_{10}$
 (A) 2205 (B) 2520 (C) 2502 (D) 5022
36. There are two versions of IP addresses, IPv4 and IPv6. In IPv4, IP addresses consist of how many bits?
 (A) 24 (B) 32 (C) 16 (D) 64
37. Find the output of the given C++ program.

```
#include<iostream.h>
int main( )
{
  unsigned int i = 65535;
  {
    while(i++!= 0)
    cout << i++;
    cout << "\n";
    return 0;
  }
}
```

 (A) 0 1 2 ... 65535 (B) No output
 (C) 0 1 2 ... 32766-32765-10 (D) Infinite loop
38. String literal "abc" will be represented in the memory as _____.
 (A) "abc\0" (B) "abc/0" (C) "abc|0" (D) "abc_0"
39. What does error 503 means while surfing the internet?
 (A) Gateway time out (B) Server error
 (C) Bad request (D) Out of resources
40. $(2AB)_{16} = (\underline{\hspace{2cm}})_2$
 (A) 001010101011 (B) 0010101011 (C) 111000110101 (D) 001010101010
41. _____ protocol is used by Usenet.
 (A) HTTP (B) FTP (C) NNTP (D) SMTP
42. Which of the following are formatting techniques in Ms-Word?
 (A) Stream method (B) Selection method
 (C) Whole-Word method (D) All of these
43. _____ is the shortcut to decrease the font size by 1 point, in Ms-Word.
 (A) Ctrl + Shift + < (B) Ctrl + [(C) Ctrl + Shift + > (D) Ctrl + =

44. You see _____ error value if the formula refers to a cell that isn't valid.
(A) #VALUE (B) #REF (C) #NULL! (D) #N/A
45. _____ presents information in a fairly straight forward, text based way, like an outline.
(A) Process diagram (B) Cycle diagram
(C) List diagram (D) Hierarchy diagram
46. Which of the following formats are supported in Ms-PowerPoint?
(A) MIX (B) WMF (C) MPG (D) Both (A) and (B)
47. In HTML, _____ sets an element as an item of microdata.
(A) itemtype (B) itemscope (C) itemref (D) itemprop
48. In Ms-Excel, which of the following syntax of the formula is INCORRECT?
(A) $=(B3*C3)*\$B\7 (B) $=\$B3*C\2 (C) $=\$B\$2*\$C\2 (D) $=(B3*C3)*\$B7\$$
49. An element can contain _____ in XML.
(A) Other elements (B) Text (C) Attributes (D) All of these
50. _____ protocol does not remove the e-mails from server after user has downloaded them.
(A) POP3 (B) IMAP (C) RARP (D) SMTP