PARAS
Since 1995
INSTITUTE OF COMMERCE (P) LTD.
DSS- 24-25, PLA Shopping complex, Hisar Ph # 989 6685777

PIC/M/RP/IL-I

Max. Marks : 40
Time : 1 Hr.

1. **In what ratio should tea worth Rs. 10 per kg to mixed with tea worth Rs. 14 per kg, so that the average price of the mixture may be Rs. 11 per kg?**

(a) 2 : 1 (b) 3 : 1 (c) 3 : 2 (d) 4 : 3.

2. **Log (m + n) = log m + log n,m can be expressed as :**

(a) $m = \frac{n}{n-1}$ (b) $m = \frac{n}{n+1}$ (c) $m = \frac{n+1}{n}$ (d) $m = \frac{n+1}{n-1}$

3. **Find the value of** $\left[\log_{10}\sqrt{25} - \log_{10}(2^3) + \log_{10}(4)^2\right]^x$

(a) x (b) 10 (c) 1 (d) None

4. **The value of**

$$\log_5\left(1+\frac{1}{5}\right)+\log_5\left(1+\frac{1}{6}\right)+.....+\log_5\left(1+\frac{1}{624}\right)=$$

(a) 2 (b) 3 (c) 5 (d) 0

5. $\log_{2\sqrt{2}}(512) : \log_{3\sqrt{2}} 324 =$

(a) 128:81 (b) 2:3 (c) 3:2 (d) None

6. **Value of** $\frac{1}{\log_3 60}+\frac{1}{\log_4 60}+\frac{1}{\log_5 60}$ **is:**

(a) 0 (b) 1
(c) 5 (d) 60

7. **7 Log** $\left(\frac{16}{15}\right)$ **+5 log** $\left(\frac{25}{24}\right)$ **+ 3 log** $\left(\frac{81}{80}\right)$ **is equal to :**

(a) 0 (b) 1 (c) log 2 (d) log 3.

8. **Log 144 is equal to :**

(a) 2 log 4 + 2 log 2 (b) 4 log 2+ 2 log 3
(c) 3 log 2 + 4 log 3 (d) 3 log 2 - 4 log 3.

9. **If x =** $\sqrt{3}+\frac{1}{\sqrt{3}}$ **then** $\left(x-\frac{\sqrt{126}}{\sqrt{42}}\right)\left(x-\frac{1}{x-\frac{2\sqrt{3}}{3}}\right)=$

(a) $\frac{5}{6}$ (b) $\frac{6}{5}$ (c) $\frac{2}{3}$ (d) $-\frac{3}{5}$

10. If $x=\log_{24}12$; $y=\log_{36}24$; $z=\log_{48}36$ then xyz + 1 = ?

(a) 2xy (b) 2zx (c) 2yz (d) 2

11. If $\log x = m + n, \log y = m - n$ then $\log\left(\frac{10x}{y^2}\right) =$

(a) 1 - m + 3n (b) m - 1 + 3n
(c) m + 3n + 1 (d) None

12. Number of digits in the numeral for 2^{64}. [Given log 2 = 0.30103] :

(a) 18 digits (b) 19 digits (c) 20 digits (d) 21 digits.

13. If $x = \frac{e^n - e^{-n}}{e^n + e^{-n}}$, then the value of n is :

(a) $\frac{1}{2}\log_e \frac{1+x}{1-x}$ (b) $\log_e \frac{1+x}{1-x}$ (c) $\log_e \frac{1-x}{1+x}$ (d) $\log_c \frac{1+x}{1+x}$.

14. $\log_4 (x^2+x) - \log_4 (x+1) = 2$. Find x

(a) 16 (b) 0 (c) -1 (d) None of these.

15. The value of the expression : $a^{\log_a b.\log_b c.\log_c d.\log_d t}$

(a) t (b) abcdt (c) (a+b+c+d+t) (d) None.

16. If $x = \frac{1}{5+2\sqrt{6}}$ then the value of the expression $x^2 - 10x + 1$ is

(a) 0 (b) 10 (c) $26-12\sqrt{2}$ (d) $\sqrt{15}+\sqrt{3}$

17. If $\log_2 [\log_3(\log_2 x)] = 1$, then x equals :

(a) 128 (b) 256 (c) 512 (d) none.

18. Two numbers are in the ratio 2 : 3 and the difference of their squares is 320. The numbers are:

(a) 12, 18 (b) 16, 24 (c) 14, 21 (d) None

19. The value of $\left[\frac{x^2-(y-z)^2}{(x+z)^2-y^2} + \frac{y^2-(x-z)^2}{(x+y)^2-z^2} + \frac{z^2-(x-y)^2}{(y+z)^2-x^2}\right]$

(a) 0 (b) 1
(c) —1 (d) ∞

20. If abc = 2, then the value of $\frac{1}{1+a+2b^{-1}} + \frac{1}{1+\frac{1}{2}b+c^{-1}} + \frac{1}{1+c+a^{-1}}$

(a) 1 (b) 2
(c) 3 (4) 1/2

21. If $\log_{10000} x = \frac{-1}{4}$, then x is given by :

(a) $\frac{1}{100}$ (b) $\frac{1}{10}$ (c) $\frac{1}{20}$ (d) None of these.

22. In a film shooting, A and B received money in a certain ratio and B and C also received

the money in the same ratio. If A gets Rs. 1,60,000 and C gets Rs. 2,50,000. Find the amount received by B?

(a) Rs. 2,00,000 (b) Rs. 2,50,000 (c) Rs. 1,00,000 (d) Rs. 1,50,000

23. The recurring decimal 2.7777 ..... can be expressed as.

(a) 24/9 (b) 22/9 (c) 26/9 (d) 25/9.

24. P, Q and Rare three cities. The ratio of average temperature between P and Q is 11 : l2 and that between P and R is 9 : 8. The ratio between the average temperature of Q and R is:

(a) 22 : 27 (b) 27 : 22 (c) 32 : 33 (d) None.

25. The value of $\frac{(3^{n+1}+3^n)}{(3^{n+3}-3^{n+1})}$ **is equal to**

(a) 1/5 (b) 1/6 (c) 1/4 (d)1/9

26. If $\sqrt[3]{a}+\sqrt[3]{b}+\sqrt[3]{c}=0$ **then the value of** $\left(\frac{a+b+c}{3}\right)^3$

(a) abc (b) 9abc (c) $\frac{1}{abc}$ (d) $\frac{1}{9abc}$

27. Rs. 407 are to be divided among A, B and C so that their shares are in the ratio $\frac{1}{4}:\frac{1}{5}:\frac{1}{6}$**.The respective shares of A, B, C are:**

(a) Rs.165, Rs.132, Rs.110 (b) Rs.165, Rs.110, Rs.132

(c) Rs.l32, Rs.110, Rs.165 (d) Rs.110, Rs.132, Rs.165.

28. In 40 litres mixture of glycerine and water, the ratio of glycerine and water is 3 : 1. The quantity of water added in the mixrure in order to make this ratio 2 : 1 is :

(a) 15 litres (b) 10 litres (c) 8 litres (d) 5 liters

29. If $4^x = 5^y = 20^z$ then z is equal to :

(a) xy (b) $\frac{x+y}{xy}$ (c) $\frac{1}{xy}$ (d) $\frac{xy}{x+y}$.

30. $\sqrt{12+\sqrt{12+\sqrt{12+}}}$.....$\infty$

(a) 5 (b) 3 (c) 4 (d) 7

31. Value of $(a^{1/8} + a^{-1/8})(a^{1/8} - a^{-1/8})(a^{1/4} + a^{-1/4})(a^{1/2} + a^{-1/2})$ is :

(a) $a + \frac{1}{a}$ (b) $a - \frac{1}{a}$ (c) $a^2 + \frac{1}{a^2}$ (d) $a^2 - \frac{1}{a^2}$.

32. If $x = 4^{1/3} + 4^{-1/3}$ then $4x^3-12x$ is given by

(a) 12 (b) 13 (c) 15 (d) 17

33. If $2^{x^2}=3^{y^2}=12^{z^2}$ **then**

(a) $\frac{1}{x^2}+\frac{1}{y^2}=\frac{1}{z^2}$ (b) $\frac{1}{x^2}+\frac{2}{y^2}=\frac{1}{z^2}$ (c) $\frac{2}{x^2}+\frac{1}{y^2}=\frac{1}{z^2}$ (d) None

34. If p :q is the sub-duplicate ratio of $p - x^2 : q - x^2$ then x^2 is:

(a) $\frac{p}{p+q}$ (b) $\frac{q}{p+q}$ (c) $\frac{qp}{p-q}$ (d) None.

35. X, Y, Z together starts a business If X invests 3 times as much as Y invests and Y invests two third of what Z invests, then the ratio of capitals of X, Y, Z is

(a) 3:9:2 (b) 6:3:2
(c) 3:6:2 (d) 6:2:3

36. If a:b = 2:3, b:c = 4:5, c:d = 6:7 then a:d is _____

(a) 24:35 (b) 8:15 (c) 16:35 (d) 7:15

37. $\log xy^2 - \log y = \log (x+y)$ Find the value of y in term of x

(a) x - 1 (b) $\frac{x}{x+1}$ (c) $\frac{x}{x-1}$ (d) x + 1

38. There are total 23 coins of Rs. 1, Rs.2 and Rs. 5 in a bag. If their value is Rs. 43 and the ratio of coins of rs. 1 and Rs. 2 is 3:2. Then the number of coins of Rs. 1 is :

(a) 12 (b) 5
(c) 10 (d) 14

39. On simplification $\frac{1}{1+z^{a-b}+z^{a-c}}+\frac{1}{1+z^{b-c}+z^{b-a}}+\frac{1}{1+z^{c-a}+z^{c-b}}$ **reduces to :**

(a) $\frac{1}{z^{2(a+b+c)}}$ (b) $\frac{1}{z^{(a+b+c)}}$ (c) 1 (d) 0.

40. If $\left[\frac{9^{n+1/4}.\sqrt{3.3^n}}{3\sqrt{3^{-n}}}\right]^{\frac{1}{n}}$

(a) 1 (b) 3 (c) 9 (d) 27