

UNIT-I

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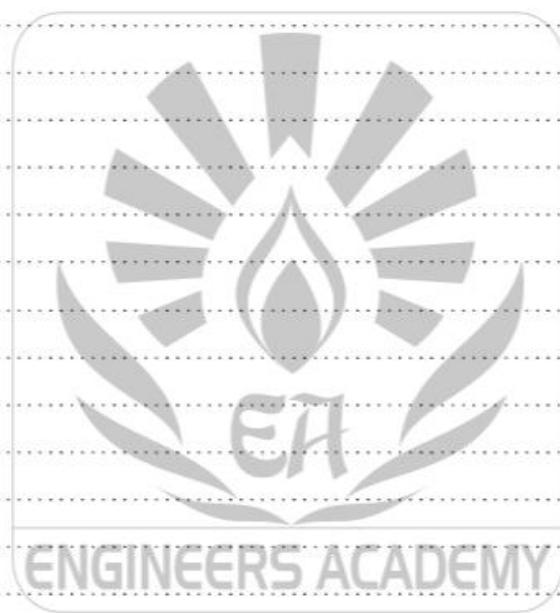
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NOTES



NUMBER SYSTEM

OBJECTIVE QUESTIONS

1. Find the value of

$$75 \times 75 + 2 \times 75 \times 25 + 25 \times 25$$

- (a) 9996 (b) 10000
 (c) 2500 (d) 8000

2. Find the value of

$$(7.5 \times 7.5 + 37.5 + 2.5 \times 2.5)$$

- (a) 100 (b) 80
 (c) 60 (d) 30

3. $(6.5 \times 6.5 - 45.5 + 3.5 \times 3.5)$ is equal to

- (a) 10 (b) 9
 (c) 7 (d) 6

4. $106 \times 106 - 94 \times 94 = ?$

- (a) 4000 (b) 3000
 (c) 2400 (d) 1440

5. $105 \times 105 + 92 \times 92 = ?$

- (a) 19409 (b) 18400
 (c) 17406 (d) 19489

6. $\frac{(0.03)^2 - (0.01)^2}{0.03 - 0.01} = ?$

- (a) 0.02 (b) 0.004
 (c) 0.4 (d) 0.04

7. $\frac{(3.63)^2 - (2.37)^2}{(3.63 + 2.37)} = ?$

- (a) 4 (b) 136
 (c) 2.26 (d) 1.26

8. Find the value of $\frac{(0.5)^4 - (0.4)^4}{(0.5)^2 + (0.4)^2}$

- (a) 0.9 (b) 0.09
 (c) 0.009 (d) 0.08

9. $\frac{5.32 \times 56 + 5.32 \times 44}{(7.66)^2 - (2.34)^2} = ?$

- (a) 10 (b) 9.5
 (c) 8.5 (d) 12

10. $(4.7 \times 13.23 + 4.7 \times 9.43 + 4.7 \times 77.34) = ?$

- (a) 4700 (b) 47000
 (c) 470 (d) 47

11. $\frac{6.5 \times 4.7 + 6.5 \times 5.3}{1.3 \times 7.9 - 1.3 \times 6.9} = ?$

- (a) 3.9 (b) 34.45
 (c) 39 (d) 50

12. $\frac{(987 + 163)^2 + (987 - 163)^2}{987 \times 987 + 163 \times 163} = ?$

- (a) 1 (b) 2
 (c) 3 (d) 4

13. $\frac{(1089 + 285)^2 - (1089 - 285)^2}{1089 \times 285} = ?$

- (a) 1 (b) 2
 (c) 3 (d) 4

14. $\frac{.41 \times .41 \times .41 + .69 \times .69 \times .69}{.41 \times .41 - .41 \times .69 + .69 \times .69} = ?$

- (a) 1.2 (b) 1.1
 (c) 1.3 (d) 1.4

15. $\frac{(.73)^3 + (.27)^3}{(.73)^2 + (.27)^2 - .73 \times .27} = ?$

- (a) 2 (b) 3
 (c) 1 (d) 4

16.	$\frac{10.3 \times 10.3 \times 10.3 + 1}{10.3 \times 10.3 - 10.3 + 1}$	(a) 11.3 (b) 12.3 (c) 14.1 (d) 14.0	24.	Simplify $\frac{(3.07)^2 + (0.0193)^2}{(0.307)^2 + (0.00193)^2}$	(a) 100 (b) 101 (c) 1000 (d) 10000 (e) None of these
17.	$\frac{525 \times 525 + 275 \times 275 - 525 \times 275}{525 \times 525 \times 525 + 275 \times 275 \times 275}$	(a) 800 (b) 600 (c) 500 (d) 1/800	25.	Find the value of $\sqrt{\frac{(0.1)^2 + (0.01)^2 + (0.009)^2}{(0.01)^2 + (0.001)^2 + (0.0009)^2}}$	(a) 10^2 (b) 10 (c) 0.1 (d) 0.01
18.	Find the value of $\frac{64 - 0.008}{16 + 0.8 + 0.04}$	(a) 2 (b) 3.8 (c) 0.6 (d) 4.2	26.	$\frac{0.1 \times 0.1 \times 0.1 + 0.02 \times 0.02 \times 0.02}{0.2 \times 0.2 \times 0.2 + 0.04 \times 0.04 \times 0.04}$	(a) 0.0125 (b) 0.125 (c) 0.25 (d) 0.5
19.	Simplest form of $\frac{(0.96)^3 - (0.1)^3}{(0.96)^2 + 0.096 + (0.1)^2}$	(a) 1.06 (b) 0.95 (c) 0.86 (d) 0.97	27.	Simplify $\frac{(0.17)^3 + (0.29)^3 + (0.24)^3}{(0.96)^3 + (0.68)^3 + (1.16)^3} \div \frac{1}{1024}$	(a) 14 (b) 16 (c) 18 (d) 20 (e) None of these
20.	$\frac{(2.3)^3 - 0.027}{(2.3)^2 + .69 + .09}$	(a) 1.732 (b) 2 (c) 1.737 (d) 1.237	28.	Simplify $\frac{(0.13)^2 + (0.21)^2}{(0.39)^2 + (0.63)^2} - \frac{(0.25)^3 + (0.43)^3 - (0.68)^3}{3(0.25)(0.43)(0.68)}$	(a) $1\frac{1}{9}$ (b) $1\frac{1}{3}$ (c) $1\frac{1}{2}$ (d) 1 (e) None of these
21.	$[(.98)^3 + (.02)^3 + 3 \times .98 \times .02 - 1]$	(a) 0 (b) 1 (c) 2 (d) 3	29.	$\frac{3}{1^2 \cdot 2^2} + \frac{5}{2^2 \cdot 3^2} + \frac{7}{3^2 \cdot 4^2} + \frac{9}{4^2 \cdot 5^2} + \frac{11}{5^2 \cdot 6^2} + \frac{13}{6^2 \cdot 7^2} + \frac{15}{7^2 \cdot 8^2} + \frac{17}{8^2 \cdot 9^2} + \frac{19}{9^2 \cdot 10^2}$	(a) $\frac{1}{100}$ (b) $\frac{99}{100}$ (c) $\frac{101}{100}$ (d) 1
22.	$\frac{.9 \times .9 \times .9 + .2 \times .2 \times .2 + .3 \times .3 \times .3 - 3 \times .9 \times .2 \times .3}{.9 \times .9 + .2 \times .2 + .3 \times .3 - 9 \times .2 - 9 \times .3 - 2 \times .3}$	(a) 1.5 (b) 1.3 (c) 1.4 (d) 1.6			
23.	$\frac{(1.5)^3 + (4.7)^3 + (3.8)^3 - 3 \times 1.5 \times 4.7 \times 3.8}{(1.5)^2 + (4.7)^2 + (3.8)^2 - 1.5 \times 4.7 - 4.7 \times 3.8 - 3.8 \times 1.5}$	(a) 10 (b) 11 (c) 12 (d) 13			

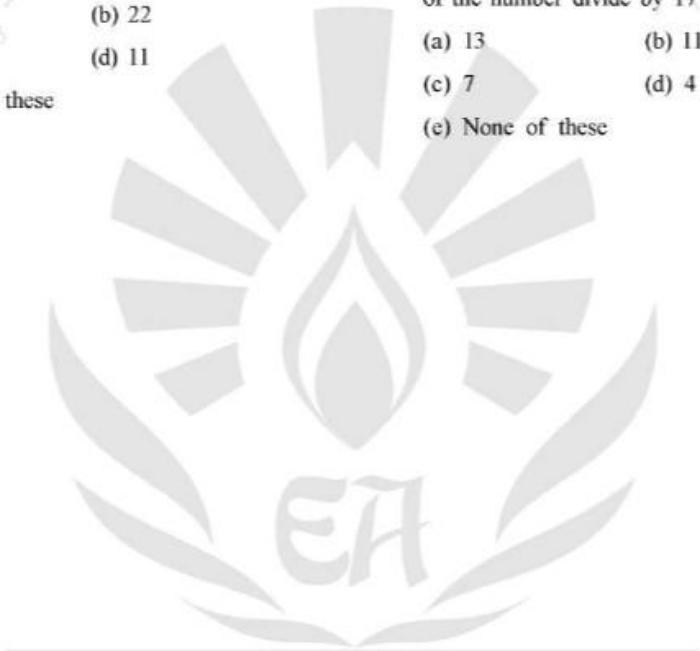
30. Simplify $\left(\frac{1}{30} + \frac{1}{42} + \frac{1}{56} + \frac{1}{72} + \frac{1}{90} + \frac{1}{110} \right) + \left(\frac{1.2.4 + 2.4.8 + 3.6.12 + \dots}{1.3.9 + 2.6.18 + 3.9.27 + \dots} \right)^{1/3}$
- (a) $\frac{128}{165}$ (b) $\frac{130}{165}$
 (c) $\frac{120}{165}$ (d) $\frac{165}{128}$
31. Find the sum of $\frac{1}{2} + \frac{1}{6} + \frac{1}{12} + \frac{1}{20} + \frac{1}{30} + \frac{1}{42} + \frac{1}{56} + \frac{1}{72} + \frac{1}{90} + \frac{1}{110} + \frac{1}{132}$
- (a) $\frac{11}{12}$ (b) $\frac{10}{13}$
 (c) $\frac{11}{13}$ (d) $\frac{11}{19}$
32. Simplify $\left(\frac{1}{72} + \frac{1}{90} + \frac{1}{110} + \frac{1}{132} + \frac{1}{156} \right) \times \left(\frac{1.2.2 + 1.2.2.4 + 1.2.2.9 + 1.2.2.16 + \dots}{1.3.3 + 1.3.3.4 + 1.3.3.9 + 1.3.3.16 + \dots} \right)^{1/2}$
- (a) $\frac{5}{156}$ (b) $\frac{5}{132}$
 (c) $\frac{1}{156}$ (d) $\frac{7}{156}$
33. If $(X + 1/X) = 2$ then find the value of $(X^2 + 1/X^2)$
- (a) 2 (b) 4
 (c) 8 (d) 10
34. If $(X + 1/X) = 5$ then find the value of $(X^3 + 1/X^3)$
- (a) 180 (b) 110
 (c) 125 (d) 80
35. If $(a + 1/a) = 6$ then find the value of $(a^4 + 1/a^4)$
- (a) 1154 (b) 1158
 (c) 1160 (d) 1164
36. If $A + B + C = 13$ and $A^2 + B^2 + C^2 = 69$ then find the value of $AB + BC + CA$
- (a) 50 (b) 40
 (c) 30 (d) 60
37. Find the place value of 8 in 458926
- (a) 8 (b) 8926
 (c) 1000 (d) 8000
38. Find the difference of place value of 4 in 3437247
- (a) 339960 (b) 3000000
 (c) 399960 (d) 3999960
39. If the digit at unit place is 7 then find the * in the product of $459 \times 4 * \times 787 \times 483$
- (a) 5 (b) 3
 (c) 7 (d) 9
40. Find the unit place of - $(81 \times 82 \times 83 \times \dots \times 89)$
- (a) 0 (b) 2
 (c) 6 (d) 8
41. Find the unit place of - $(325)^{918} \times (111)^{918} \times (216)^{676}$
- (a) 1 (b) 2
 (c) 0 (d) 3
42. Find the unit place of $(3127)^{173}$
- (a) 1 (b) 3
 (c) 7 (d) 9
43. Find the unit place of 7^{105}
- (a) 2 (b) 7
 (c) 4 (d) 5

- 44.** Find the unit place of $(2153)^{167}$
- (a) 1 (b) 3
 (c) 7 (d) 9
- 45.** Find the unit place of $16^{61} \times 25^{51} \times 73^{243}$
- (a) 0 (b) 2
 (c) 5 (d) None
- 46.** Find the unit place of $(7^{71} \times 6^{59} \times 3^{65})$
- (a) 1 (b) 2
 (c) 4 (d) 6
- 47.** Find the unit place of $(7^{95} - 3^{58})$
- (a) 0 (b) 4
 (c) 6 (d) 7
- 48.** Find the unit place of $17^{1999} + 11^{1999} - 7^{1999}$
- (a) 7 (b) 1
 (c) 5 (d) 3
- 49.** $(1 + 2 + 3 + \dots + 49 + 50 + 49 + 48 + \dots + 3 + 2 + 1)$ is equal to.
- (a) 2525 (b) 2500
 (c) 2250 (d) 5000
- 50.** Given that $(1^2 + 2^2 + 3^2 + \dots + 10^2) = 385$ then $(2^2 + 4^2 + 6^2 + \dots + 20^2)$ is equal to-
- (a) 770 (b) 1155
 (c) 1540 (d) $(385)^2$
- 51.** If $(1^2 + 2^2 + 3^2 + \dots + 20^2) = 2870$ then find the value of $(2^2 + 4^2 + 6^2 + \dots + 40^2)$?
- (a) 2870 (b) 5037
 (c) 11480 (d) 28700
- 52.** If $1^3 + 2^3 + \dots + 9^3 = 2025$ then find the value of $(0.11^3 + 0.22^3 + \dots + 0.99^3)$
- (a) 0.695275 (b) 2.6952456
 (c) 3.6952589 (d) 0.3695256
- 53.** Find the sum of $(5^3 + 6^3 + \dots + 10^3)$
- (a) 2295 (b) 2425
 (c) 2495 (d) 2925
- 54.** If $1^3 + 2^3 + 3^3 + \dots + 10^3 = 3025$ then find the value of $2^3 + 4^3 + 6^3 + \dots + 20^3$
- (a) 6050 (b) 9075
 (c) 12100 (d) 24200
- 55.** If $1^2 + 2^2 + 3^2 + \dots + x^2 = \frac{x(x+1)(2x+1)}{6}$ then $1^2 + 3^2 + 5^2 + \dots + 19^2$ is equal to.
- (a) 1330 (b) 2100
 (c) 2485 (d) 2500
- 56.** If $1^2 + 2^2 + 3^2 + \dots + n^2 = \frac{n}{6}(n+1)(2n+1)$ then $10^2 + 11^2 + 12^2 + \dots + 20^2$ is equal to.
- (a) 2616 (b) 2585
 (c) 3747 (d) 2555
- 57.** If $9^6 + 1$ is divided by 8 then what is remainder
- (a) 0 (b) 2
 (c) 1 (d) 3
- 58.** If 17^{200} is divided by 18 then what is remainder
- (a) 17 (b) 16
 (c) 1 (d) 2
- 59.** If 25^{25} is divided by 26 then what is remainder
- (a) 1 (b) 2
 (c) 24 (d) 25
- 60.** If $(67^{67} + 67)$ is divided by 68 then what is remainder
- (a) 1 (b) 67
 (c) 63 (d) 66
- 61.** Find the common factor of $(13^7 + 11^7)$ and $(13^5 + 11^5)$
- (a) 24 (b) $13^5 + 11^5$
 (c) $13^2 + 11^2$ (d) None of these
- 62.** Total prime factor of $(4^{11} \times 7^5 \times 11^3)$
- (a) 8 (b) 19
 (c) 30 (d) 111

63. $(4^{61} + 4^{62} + 4^{63} + 4^{64})$ is completely divisible by
 (a) 3 (b) 10
 (c) 11 (d) 13
64. $(3^{25} + 3^{26} + 3^{27} + 3^{28})$ is completely divisible by
 (a) 11 (b) 16
 (c) 25 (d) 30
65. What come at place of * so that number $(5432*7)$ is divisible by 9
 (a) 0 (b) 1
 (c) 6 (d) 9
66. What smallest number come at place of * so that number $92675*$ is divisible by 8
 (a) 0 (b) 1
 (c) 6 (d) 9
67. What smallest number should be added in the number 41116 so that it is divisible by 8
 (a) 4 (b) 5
 (c) 8 (d) 12
 (e) None
68. The minimum value of * so that number 5824* is divisible by 11
 (a) 2 (b) 3
 (c) 5 (d) 6
69. What comes at the place of * so that number $78*3945$ is divisible by 11
 (a) 0 (b) 1
 (c) 3 (d) 5
70. Which number is divisible by 11
 (a) 4823718 (b) 8423718
 (c) 8432718 (d) 4832718
71. If $653xy$ is divisible by 80 than find the value of $(x + y)$
 (a) 2 (b) 3
 (c) 6 (d) 7
72. The number formed by repetition of two digit number like 3737 or 6363 four digit number should be divisible by
 (a) 11 (b) 13
 (c) 101 (d) 10001
73. Which one of the following is not divisible by 18
 (a) 34056 (b) 54036
 (c) 50436 (d) 54037
74. Which one is divisible by 24
 (a) 35718 (b) 63810
 (c) 537804 (d) 3125736
75. The smallest number of 5 digit which is completely divisible by 476
 (a) 10472 (b) 10476
 (c) 44600 (d) 10064
76. The smallest number of 6 digit which is completely divisible by 111
 (a) 111111 (b) 100012
 (c) 100011 (d) 100246
77. The largest number of 4 digit which is completely divisible by 88
 (a) 9768 (b) 8888
 (c) 9988 (d) 9944
78. A number divided by 32 then the remainder is 29 then what the remainder when same number is divided by 8
 (a) 4 (b) 2
 (c) 5 (d) None
79. A number divided by 119 then the remainder is 19 then what the remainder when same number divide by 17
 (a) 2 (b) 17
 (c) 15 (d) 5
80. n is divided by 4 then the remainder is 3. What is the remainder if $2n$ is divide by 4
 (a) 1 (b) 2
 (c) 3 (d) 6

81. A number divided by 6 then remainder is 3. What is the remainder if square of the number divide by 6
 (a) 4 (b) 5
 (c) 3 (d) 6
82. A number divided by 5 then remainder is 3. What is the remainder if square of the number divide by 5
 (a) 9 (b) 3
 (c) 0 (d) 4
83. A number divided by 5 remainder is 2 what is remainder if thrice of the number divide by 5
 (a) 1 (b) 3
 (c) 5 (d) None of these
84. A number divided by 999 then quotient is 366 and remainder is 103 then find the number
 (a) 364724 (b) 365387
 (c) 365737 (d) 366757
85. A divisor is ten time of quotient and five time of remainder. If remainder is 46 then find the dividend
 (a) 4236 (b) 4306
 (c) 4336 (d) 5336
86. A divisor is 25 time of quotient and five time of remainder. If quotient is 16 then find the dividend
 (a) 6380 (b) 6480
 (c) 6500 (d) 6100
87. A number is divided by 4 then sum of quotient and remainder is 8 and sum of their square is 34 then find the number?
 (a) 23 (b) 20
 (c) 25 (d) 30
88. A number is divided by 13, the remainder is 1 then quotient divided by 5 the new remainder is 3 then, what the remainder if number is divided by 65 ?
 (a) 28 (b) 20
 (c) 40 (d) 18
89. The sum of all the two-digit numbers is-
 (a) 4995 (b) 4950
 (c) 4945 (d) 4905
90. How many numbers upto 1000 divisible by 10 and 13 both?
 (a) 9 (b) 8
 (c) 6 (d) 7
91. How many numbers divisible by 225 lie between 1000 and 5000?
 (a) 16 (b) 18
 (c) 19 (d) 12
 (e) None of these
92. Find the sum of all 3 digit number which divide by 5 then remainder is 3?
 (a) 180 (c) 1550
 (c) 6995 (d) 99090
 (e) None
93. How many numbers between 200 and 400 which start with 3 or end with 3?
 (a) 10 (b) 100
 (c) 110 (d) 120
 (e) None of these
94. A largest number which divide $n^3 - n$ where n is a natural number ?
 (a) 12 (b) 6
 (c) 3 (d) 2
95. A largest number which divide $(n^3 - n)(n - 2)$ where n is a natural number bigger than 2?
 (a) 6 (b) 12
 (c) 24 (d) 48
 (e) None of these
96. If $n + \frac{2}{3}n + \frac{1}{2}n + \frac{1}{7}n = 97$ then find the value of n-
 (a) 40 (b) 42
 (c) 44 (d) 46
 (e) None of these

97. $1 \cdot 3 \cdot 5 \cdot 7 \cdots \cdots \cdot 99$ and 128 are multiplied then how many zeros in the end of solution?
- (a) 19 (b) 22
(c) 7 (d) 0
(e) None of these
98. Number $1 \cdot 2 \cdot 3 \cdot 4 \cdots \cdots \cdot 98 \cdot 99 \cdot 100$ are multiplied then how many zeros in the end of solution?
- (a) 24 (b) 22
(c) 21 (d) 11
(e) None of these
99. If two numbers divide by same divisor then remainders are 3 and 4. If sum of the numbers divide by same divisor then remainder is 2. then find the divisor
- (a) 9 (b) 7
(c) 5 (d) 3
(e) None of these
100. If two numbers divided by 17 then the remainders are 13 and 11 then find the remainder if sum of the numbers divide by 17
- (a) 13 (b) 11
(c) 7 (d) 4
(e) None of these



□□□

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ANSWER KEY

- | | | | |
|--------------|--------------|--------------|---------------|
| 1. Ans. (b) | 26. Ans. (d) | 51. Ans. (c) | 76. Ans. (c) |
| 2. Ans. (a) | 27. Ans. (b) | 52. Ans. (a) | 77. Ans. (d) |
| 3. Ans. (b) | 28. Ans. (a) | 53. Ans. (d) | 78. Ans. (c) |
| 4. Ans. (c) | 29. Ans. (b) | 54. Ans. (d) | 79. Ans. (a) |
| 5. Ans. (d) | 30. Ans. (a) | 55. Ans. (a) | 80. Ans. (b) |
| 6. Ans. (d) | 31. Ans. (a) | 56. Ans. (b) | 81. Ans. (c) |
| 7. Ans. (d) | 32. Ans. (a) | 57. Ans. (b) | 82. Ans. (d) |
| 8. Ans. (b) | 33. Ans. (a) | 58. Ans. (c) | 83. Ans. (a) |
| 9. Ans. (a) | 34. Ans. (b) | 59. Ans. (d) | 84. Ans. (c) |
| 10. Ans. (c) | 35. Ans. (a) | 60. Ans. (d) | 85. Ans. (d) |
| 11. Ans. (d) | 36. Ans. (a) | 61. Ans. (a) | 86. Ans. (b) |
| 12. Ans. (b) | 37. Ans. (d) | 62. Ans. (c) | 87. Ans. (a) |
| 13. Ans. (d) | 38. Ans. (c) | 63. Ans. (b) | 88. Ans. (c) |
| 14. Ans. (b) | 39. Ans. (b) | 64. Ans. (d) | 89. Ans. (d) |
| 15. Ans. (c) | 40. Ans. (a) | 65. Ans. (c) | 90. Ans. (d) |
| 16. Ans. (a) | 41. Ans. (c) | 66. Ans. (b) | 91. Ans. (b) |
| 17. Ans. (d) | 42. Ans. (c) | 67. Ans. (a) | 92. Ans. (d) |
| 18. Ans. (b) | 43. Ans. (b) | 68. Ans. (c) | 93. Ans. (c) |
| 19. Ans. (c) | 44. Ans. (c) | 69. Ans. (d) | 94. Ans. (b) |
| 20. Ans. (b) | 45. Ans. (a) | 70. Ans. (d) | 95. Ans. (c) |
| 21. Ans. (a) | 46. Ans. (c) | 71. Ans. (c) | 96. Ans. (b) |
| 22. Ans. (c) | 47. Ans. (b) | 72. Ans. (c) | 97. Ans. (c) |
| 23. Ans. (a) | 48. Ans. (b) | 73. Ans. (d) | 98. Ans. (a) |
| 24. Ans. (a) | 49. Ans. (b) | 74. Ans. (d) | 99. Ans. (c) |
| 25. Ans. (b) | 50. Ans. (c) | 75. Ans. (a) | 100. Ans. (c) |



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OBJECTIVE QUESTIONS

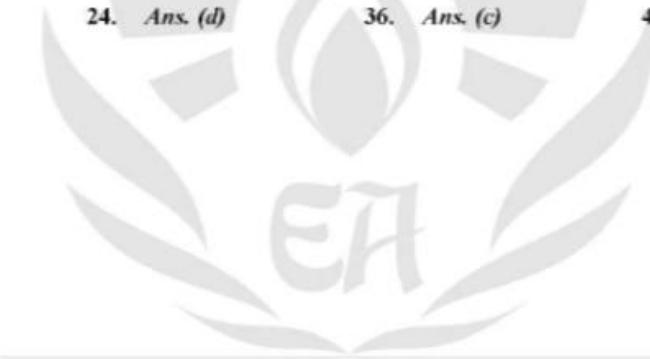
1. Find the HCF of 42, 70, 98 and 126
 (a) 7 (b) 2
 (c) 14 (d) 6
2. Find the HCF of 15, 30, 45, 60 and 75
 (a) 15 (b) 30
 (c) 45 (d) 60
3. Find the HCF of 2^3 , 3^2 , 4 and 15
 (a) 2^3 (b) 2^3
 (c) 1 (d) 360
4. Find the LCM of 24, 36, 40
 (a) 120 (b) 240
 (c) 360 (d) 480
5. Find the LCM of 22, 54, 108, 135, 198 ?
 (a) 3300 (b) 2000
 (c) 5940 (d) 6000
6. Find the ratio of LCM and HCF of 270 and 405 ?
 (a) 6 : 1 (b) 2 : 3
 (c) 3 : 2 (d) 1 : 6
7. Find the LCM of $\frac{5}{6}$, $\frac{7}{9}$ and $\frac{11}{12}$?
 (a) $128\frac{1}{3}$ (b) $125\frac{1}{6}$
 (c) $64\frac{1}{3}$ (d) $64\frac{1}{6}$
8. Find the HCF of $\frac{3}{16}$, $\frac{5}{16}$, $\frac{7}{18}$?
 (a) $\frac{105}{48}$ (b) $\frac{1}{144}$
 (c) $\frac{1}{48}$ (d) None of these
9. Find the HCF of $\frac{4}{7}$, $\frac{5}{21}$, $\frac{3}{28}$?
 (a) $\frac{5}{7}$ (b) $\frac{1}{84}$
 (c) $\frac{14}{5}$ (d) $\frac{14}{90}$
10. Find the HCF of 1.08, .36, .9 ?
 (a) 1.08 (b) .9
 (c) 10.8 (d) 0.18
11. Find the LCM of .54, 1.8, 7.2 ?
 (a) 21.6 (b) 2.16
 (c) 216 (d) .216
12. HCF of two numbers is 8 and LCM is 48 . if one number is 24 then second is ?
 (a) 48 (b) 24
 (c) 16 (d) 32
13. LCM of two number is 3456 and HCF is 48 if one number 432 then second is ?
 (a) 384 (b) 192
 (c) 108 (d) 320
14. Find a smallest number which completely divisible by 16, 24, 30, 42 ?
 (a) 1680 (b) 1650
 (c) 1540 (d) 1715
15. Find the smallest number which completely divisible by 15, 18, 27, 35 ?
 (a) 1800 (b) 1840
 (c) 1890 (d) 1820

16. A number is divided by 15, 20 and 35 then each time remainder is 8 then find that least number
(a) 428 (b) 427
(c) 328 (d) 338
(e) None of these
17. Find a smallest number if we divide by 4, 6, 8, 12 and 16 then remainder is 2 each time?
(a) 46 (b) 50
(c) 48 (d) 56
18. Find a smallest number if we add 5 in that number then it completely divisible by 24, 32, 36 and 54 ?
(a) 846 (b) 859
(c) 855 (d) 866
19. Find the largest 4 digit number which is completely divisible by 12, 15 & 18 ?
(a) 9950 (b) 9960
(c) 9990 (d) 9720
20. Find the smallest 5 digit number which completely divisible by 12, 15, 18 ?
(a) 10080 (b) 10070
(c) 10020 (d) 10030
21. Find the largest number of three digit which when divide by 6, 9 & 12 then 3 is remainder in each case.
(a) 920 (b) 950
(c) 960 (d) 975
22. Find the largest five digit number which when divide by 3, 5, 8, 12 then the remainder is 2 in each case?
(a) 99999 (b) 99958
(c) 99960 (d) 99962
23. Find the largest five digit number which when divide by 16, 24, 30 and 36 then the remainder 10 in each case?
(a) 99279 (b) 99370
(c) 99269 (d) 99350
(e) None of these
24. Find smallest number when it divide by 35,45,55 then the remainders are 17,27,37
(a) 3240 (b) 3047
(c) 3442 (d) 3447
25. When we arrange some marbles in group of 32-32 then 10 marbles remainder if we arrange them in group of 40-40 then 18 marbles remain or we arrange them in group of 72-72 then 50 marbles remain find the minimum number of marbles.
(a) 1450 (b) 1440
(c) 1418 (d) 1412
(e) None of these
26. Find a smallest number which when divide 9,15,21,27 then remainder is 1 but if we divide it by 11 there is no remainder?
(a) 945 (b) 946
(c) 950 (d) 920
27. A smallest multiple of 17, when we divide by 8,9,10 & 12 then remainder is 5 in each case.
(a) 1445 (b) 5219
(c) 3451 (d) 1265
28. A smallest number which is divided by 5,6,7 and 8 and gives 3 as remainder in each case but it is completely divisible by 9
(a) 1690 (b) 1685
(c) 1665 (d) 1683
29. Five bell ring after every interval of 6,8,12,18, and 45 sec. if they ring at 7 O' clock in the morning then after how much time they ring all together ?
(a) 5 minutes (b) 6 minutes
(c) $7\frac{1}{2}$ minutes (d) 10 minutes
30. The traffic light at three cross change after every interval of 24,48 and 72 sec. if all three change at 9:10:24 hour the next change all together will ?
(a) 9 : 12 : 25 hour (b) 9 : 10 : 48 hour
(c) 9 : 12 : 48 hour (d) 9 : 10 : 50 hour
31. Five bell start to ring simultaneously and they ring after every 6, 7, 8, 9 and 12 Second. after, how much time they will ring all together?
(a) 72 Second (b) 612 Second
(c) 504 Second (d) 318 Second

ANSWER KEY

- | | | | |
|--------------|--------------|--------------|--------------|
| 1. Ans. (c) | 13. Ans. (a) | 25. Ans. (c) | 37. Ans. (c) |
| 2. Ans. (a) | 14. Ans. (a) | 26. Ans. (b) | 38. Ans. (c) |
| 3. Ans. (c) | 15. Ans. (c) | 27. Ans. (a) | 39. Ans. (b) |
| 4. Ans. (c) | 16. Ans. (a) | 28. Ans. (d) | 40. Ans. (a) |
| 5. Ans. (c) | 17. Ans. (b) | 29. Ans. (b) | 41. Ans. (a) |
| 6. Ans. (a) | 18. Ans. (b) | 30. Ans. (c) | 42. Ans. (a) |
| 7. Ans. (a) | 19. Ans. (d) | 31. Ans. (c) | 43. Ans. (b) |
| 8. Ans. (b) | 20. Ans. (a) | 32. Ans. (c) | 44. Ans. (b) |
| 9. Ans. (b) | 21. Ans. (d) | 33. Ans. (a) | 45. Ans. (d) |
| 10. Ans. (d) | 22. Ans. (d) | 34. Ans. (c) | 46. Ans. (d) |
| 11. Ans. (a) | 23. Ans. (b) | 35. Ans. (a) | 47. Ans. (b) |
| 12. Ans. (c) | 24. Ans. (d) | 36. Ans. (c) | 48. Ans. (c) |

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ENGINEERS ACADEMY

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OBJECTIVE QUESTIONS

1. Find the square root of 0.09
 (a) 0.3 (b) 0.003
 (c) 0.03 (d) 3.0
2. Find the square root of $(0.\overline{4})$
 (a) $0.\overline{6}$ (b) $0.\overline{7}$
 (c) $0.\overline{8}$ (d) $0.\overline{9}$
3. Find the square root of $(272)^2 - (128)^2$
 (a) 256 (b) 200
 (c) 240 (d) 144
4. $\sqrt{5625} + ? = 11\%$ of 1000
 (a) 45 (b) 135
 (c) 25 (d) 35
5. $\sqrt{60 \div 0.06 \times 10} = ?$
 (a) 10 (b) 100
 (c) 1000 (d) 10000
6. $\sqrt{\frac{?}{196}} = \frac{32}{56}$
 (a) 64 (b) 84
 (c) 74 (d) 94
7. $\frac{\sqrt{0.0196}}{K} = 0.2$ therefore value of K is :
 (a) 4.9 (b) 0.7
 (c) 0.49 (d) 7
 (e) None of these
8. $\sqrt{\frac{0.25}{0.0009}} \times \sqrt{\frac{0.09}{0.36}}$ equals
 (a) $\frac{5}{6}$ (b) $7\frac{1}{6}$
 (c) $7\frac{1}{3}$ (d) $8\frac{1}{3}$
9. $\sqrt{\frac{48.4}{0.289}}$ equals
 (a) $129\frac{7}{17}$ (b) $1\frac{5}{17}$
 (c) $12\frac{16}{17}$ (d) $12\frac{1}{17}$
10. If $\sqrt{289} \div \sqrt{x} = \frac{1}{5}$ then value of x
 (a) 7225 (b) $\frac{17}{15}$
 (c) $\frac{25}{17}$ (d) 425
 (e) None of these
11. If $\frac{1120}{\sqrt{P}} = 80$ then value of P
 (a) 14 (b) 140
 (c) 196 (d) 225

12. If $\frac{P}{56} = \frac{\sqrt{784} \times \sqrt{49}}{4 P^2}$ then value of P
 (a) 16 (b) 28 (c) 7 (d) 14
13. $\frac{\sqrt[3]{8}}{\sqrt{16}} \div \sqrt[3]{\frac{100}{49}} \times \sqrt[3]{125}$ equals
 (a) 7 (b) $1\frac{3}{4}$
 (c) $\frac{7}{100}$ (d) $\frac{4}{7}$
14. Find the value of $\sqrt[3]{\frac{72.9}{0.4096}}$
 (a) 0.5626 (b) 5.625
 (c) 182 (d) 13.6
15. $\sqrt[3]{1 - \frac{91}{216}}$ equals
 (a) $\frac{1}{6}$ (b) $\frac{5}{6}$
 (c) $\frac{7}{6}$ (d) $\frac{11}{6}$
16. If $\sqrt{15} = 3.88$ then value of $\sqrt[3]{\frac{5}{3}}$
 (a) 1.293 (b) 2.2934
 (c) 1.45 (d) 1.795
17. If $\sqrt{2} = 1.4142$ then value of $\frac{7}{3 + \sqrt{2}}$
 (a) 1.5858 (b) 4.4142
 (c) 3.4852 (d) 3.5858
18. $\frac{\sqrt{24} + \sqrt{216}}{\sqrt{96}} = ?$
 (a) $\sqrt[3]{6}$ (b) $\sqrt[5]{2}$
 (c) 2 (d) $\frac{2}{\sqrt{6}}$
19. $\frac{\sqrt{32} + \sqrt{48}}{\sqrt{8} + \sqrt{12}} = ?$
 (a) 2 (b) 4
 (c) 8 (d) $\sqrt{2}$
20. If $\sqrt{4^n} = 1024$ then value of n = ?
 (a) 5 (b) 8
 (c) 12 (d) 10
21. If $(\sqrt{a} + \sqrt{b}) = 17$ and $(\sqrt{a} - \sqrt{b}) = 1$ then value of \sqrt{ab}
 (a) 17 (b) 18
 (c) 72 (d) None of these
22. If $8a^2b = 27ab^2 = 216$ then value of ab
 (a) 6 (b) 8
 (c) 27 (d) None of these
23. $\sqrt[3]{0.004096}$ equals
 (a) 4 (b) 0.4
 (c) 0.04 (d) 0.004
24. $\sqrt{0.01 + \sqrt{0.0064}} = ?$
 (a) 0.03 (b) 0.3
 (c) 0.42 (d) None of these
25. $\sqrt{10 + \sqrt{25 + \sqrt{108 + \sqrt{154 + \sqrt{225}}}}} = ?$
 (a) 4 (b) 6
 (c) 8 (d) 10
26. Find the value of :

$$\sqrt{5 + \sqrt{11 + \sqrt{19 + \sqrt{29 + \sqrt{49}}}}}$$

 (a) 3 (b) 9
 (c) 7 (d) 5
27. If $\sqrt{x\sqrt{45 - \sqrt{73 + \sqrt{64}}}} = 18$ then value of x
 (a) 24 (b) 54
 (c) 48 (d) 36

28. $\sqrt[3]{\sqrt[3]{1728} + 52} + \sqrt[3]{1 + \sqrt[3]{343}} = ?$
 (a) 4 (b) 5
 (c) 8 (d) None of these

29. Find the value of :

$$\sqrt{74 + \sqrt{700 \times \sqrt{42 + \sqrt{42 + \sqrt{42 + \dots}}}}}$$

(a) 12 (b) 15
 (c) 42 (d) 20

30. Find the square root of $\frac{9.5 \times 0.085}{0.017 \times 0.019}$
 (a) 0.5 (b) 5
 (c) 50 (d) 500

31. $\sqrt{\frac{.081 \times .484}{.0064 \times 6.25}} = ?$
 (a) 0.9 (b) 0.99
 (c) 9 (d) 99

32. $\sqrt{\frac{9.5 \times 0.0085 \times 18.9}{0.0017 \times 1.9 \times 2.1}} = ?$
 (a) 0.15 (b) 0.5
 (c) 15 (d) 250

33. If $\sqrt{1 + \frac{x}{169}} = \frac{14}{13}$ then value of x
 (a) 1 (b) 13
 (c) 27 (d) None of these

34. If $\sqrt{1 + \frac{x}{144}} = \frac{13}{12}$ then x equals
 (a) None of these (b) 1
 (c) 13 (d) 27

35. $\sqrt{\frac{1694}{?}} + 14 = 25$
 (a) 11 (b) 13
 (c) 12 (d) 14

36. If $\sqrt{1 + \frac{55}{729}} = \left(1 + \frac{x}{27}\right)$ then value of x

- (a) 1 (b) 3
 (c) 5 (d) 7

37. Find the value of

$$\sqrt{400} + \sqrt{0.0400} + \sqrt{0.000004}$$

(a) 0.222 (b) 20.22
 (c) 20.202 (d) 2.022

38. If $\sqrt{18225} = 135$ then value of

$$\left[\sqrt{182.25} + \sqrt{1.8225} + \sqrt{0.018225} + \sqrt{0.00018225} \right]$$

(a) 1.49985 (b) 14.9985
 (c) 149.985 (d) 1499.85

39. 56 is cube root of 175616 then value of

$$\sqrt[3]{175.616} + \sqrt[3]{0.175616} + \sqrt[3]{0.000175616}$$

(a) 0.168 (b) 62.16
 (c) 6.216 (d) 6.116

40. Find the value of $\sqrt{6 + \sqrt{6 + \sqrt{6 + \dots}}}$

- (a) $6^{2/3}$ (b) 6
 (c) $3\frac{1}{2}$ (d) 3

41. $\left(\sqrt{56 + \sqrt{56 + \sqrt{56 + \dots}}} \right) \div 2^4 = ?$

- (a) 1 (b) 1/2
 (c) 1/4 (d) 1/8

42. $\sqrt{6\sqrt{6\sqrt{6\sqrt{6}}}} = ?$

- (a) $\sqrt{6}$ (b) $6^{15/16}$
 (c) 6 (d) $6^{5/16}$

43. $\sqrt{8\sqrt{8\sqrt{8\sqrt{8\dots}}}} = ?$

- (a) 2 (b) 4
 (c) 16 (d) 8

44. Find the value of $\frac{\sqrt{9} + \sqrt{7}}{\sqrt{9} - \sqrt{7}} + \frac{\sqrt{9} - \sqrt{7}}{\sqrt{9} + \sqrt{7}}$
- (a) 24 (b) 16
 (c) 32 (d) 8

45. If $x = \frac{\sqrt{5} + \sqrt{3}}{\sqrt{5} - \sqrt{3}}$ and $y = \frac{\sqrt{5} - \sqrt{3}}{\sqrt{5} + \sqrt{3}}$ then $(x + y)$ equals
- (a) 8 (b) 16
 (c) $2\sqrt{15}$ (d) $2(\sqrt{5} + \sqrt{3})$

46. Find the value of $\left(\frac{\sqrt{5} + \sqrt{3}}{\sqrt{5} - \sqrt{3}}\right)^2 + \left(\frac{\sqrt{5} - \sqrt{3}}{\sqrt{5} + \sqrt{3}}\right)^2$
- (a) 64 (b) 62
 (c) 66 (d) 68

47. Find the value of

$$\frac{1}{\sqrt{3} + \sqrt{4}} + \frac{1}{\sqrt{4} + \sqrt{5}} + \frac{1}{\sqrt{5} + \sqrt{6}} + \frac{1}{\sqrt{6} + \sqrt{7}} \\ + \frac{1}{\sqrt{7} + \sqrt{8}} + \frac{1}{\sqrt{8} + \sqrt{9}} = ?$$

- (a) $\sqrt{3}$ (b) $3\sqrt{3}$
 (c) $(3 - \sqrt{3})$ (d) $5 - \sqrt{3}$

48. Find the value of

$$\frac{1}{3 - \sqrt{8}} - \frac{1}{\sqrt{8} - \sqrt{7}} + \frac{1}{\sqrt{7} - \sqrt{6}} \\ - \frac{1}{\sqrt{6} - \sqrt{5}} + \frac{1}{\sqrt{5} - \sqrt{4}}$$

- (a) 3 (b) 5
 (c) 0 (d) 1

49. Find the value of

$$\frac{1}{\sqrt{2} + 1} + \frac{1}{\sqrt{3} + \sqrt{2}} + \frac{1}{\sqrt{4} + \sqrt{3}} + \dots \\ + \frac{1}{\sqrt{100} + \sqrt{99}}$$

- (a) 9 (b) 10
 (c) 11 (d) None of these

50. Find the value of

$$\left(\frac{1}{\sqrt{16} - \sqrt{14}} - \frac{1}{\sqrt{14} - \sqrt{12}} + \frac{1}{\sqrt{12} - \sqrt{10}} \right. \\ \left. - \frac{1}{\sqrt{10} - \sqrt{8}} - \frac{1}{\sqrt{8} - \sqrt{6}} \right)$$

- (a) $\sqrt{16} + \sqrt{6}$ (b) $\frac{1}{2}(\sqrt{16} + \sqrt{6})$
 (c) 6 (d) 3

51. $\frac{3\sqrt{2}}{(\sqrt{6} - \sqrt{3})} - \frac{4\sqrt{3}}{(\sqrt{6} - \sqrt{2})} - \frac{6}{(\sqrt{8} - \sqrt{12})} = ?$

- (a) $(\sqrt{3} - \sqrt{2})$ (b) $(\sqrt{3} + \sqrt{2})$
 (c) $5\sqrt{3}$ (d) 1

52. Find the square root of $(5 - 2\sqrt{6})$

- (a) $2\sqrt{3} - \sqrt{2}$ (b) $\sqrt{3} - \sqrt{2}$
 (c) $2\sqrt{2} - \sqrt{3}$ (d) $\sqrt{3} + \sqrt{2}$

53. If $x = (7 - 4\sqrt{3})$ then value of $(x + \frac{1}{x})$

- (a) $3\sqrt{3}$ (b) $8\sqrt{3}$
 (c) 14 (d) $14 + 8\sqrt{3}$

54. Find the square root of $(7 + 3\sqrt{5})(7 - 3\sqrt{5})$

- (a) 4 (b) $\sqrt{5}$
 (c) $3\sqrt{5}$ (d) 2

55. If $x = 3 + \sqrt{8}$ then value of $(x^2 + \frac{1}{x^2})$

- (a) 34 (b) 24
 (c) 38 (d) 36

56. If $a = 5 + 2\sqrt{6}$ then value of $(\sqrt{a} - \frac{1}{\sqrt{a}})$

- (a) $2\sqrt{2}$ (b) $3\sqrt{2}$
 (c) $2\sqrt{3}$ (d) $3\sqrt{3}$

57. Find the value of $\sqrt{11+2\sqrt{30}} - \frac{1}{\sqrt{11+2\sqrt{30}}}$
- (a) $2\sqrt{5}$ (b) $2\sqrt{6}$
 (c) $1+\sqrt{6}$ (d) $1+\sqrt{5}$
58. By how much does $5\sqrt{7} - 2\sqrt{5}$ exceed $3\sqrt{7} - 4\sqrt{5}$?
- (a) $5(\sqrt{7} + \sqrt{5})$ (b) $\sqrt{7} + \sqrt{5}$
 (c) $2(\sqrt{7} + \sqrt{5})$ (d) $7(\sqrt{2} + \sqrt{5})$
59. Find the value of
- $$\sqrt{(0.798)^2 + 0.404 \times 0.798 + (0.202)^2} + 1 = ?$$
- (a) 0 (b) 2
 (c) 1.596 (d) 0.404
60. If $P = 999$ then value of $\sqrt[3]{P(p^2 + 3p + 3) + 1}$
- (a) 1000 (b) 999
 (c) 998 (d) 1002
61. If $x = 0.5$ and $y = 0.2$ then value of $\sqrt{0.6} \times (3y)^x$
- (a) 1.0 (b) 0.5
 (c) 0.6 (d) 1.1
62. If $\sqrt{.05 \times .5 \times a} = .5 \times .05 \times \sqrt{b}$ then value of $\frac{a}{b}$
- (a) .025 (b) .25
 (c) .0025 (d) None of these
63. $\frac{1}{3}$ part of square root of which number is 0.001
- (a) 0.0009 (b) 0.000001
 (c) 0.000009 (d) None of these
64. Which of the following number results 240 after adding square of that number ?
- (a) 15 (b) 16
 (c) 18 (d) 20
65. The least number to be added with 920 to make it perfect square ?
- (a) 31 (b) 39
 (c) 41 (d) 49
66. What is the number which should be added with 1901 to make resultant a perfect square ?
- (a) 35 (b) 32
 (c) 30 (d) 29
 (e) None of these
67. What is the smallest number which should be subtracted from 1000 to make resultant a perfect square?
- (a) 37 (b) 38
 (c) 39 (d) 40
68. What is the least number which should be multiplied by 980 to make it perfect square ?
- (a) 7 (b) 5
 (c) 3 (d) 6
69. What is the least number which should be divided by 3600 to make it perfect cube ?
- (a) 9 (b) 50
 (c) 300 (d) 450
70. The least perfect square number divisible by 3,4,5,6 and 8 is :
- (a) 900 (b) 1600
 (c) 2500 (d) 3600

□□□

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ANSWER KEY

- | | | | |
|--------------|--------------|--------------|--------------|
| 1. Ans. (a) | 21. Ans. (c) | 41. Ans. (b) | 61. Ans. (c) |
| 2. Ans. (a) | 22. Ans. (d) | 42. Ans. (b) | 62. Ans. (a) |
| 3. Ans. (c) | 23. Ans. (b) | 43. Ans. (d) | 63. Ans. (c) |
| 4. Ans. (d) | 24. Ans. (b) | 44. Ans. (b) | 64. Ans. (a) |
| 5. Ans. (b) | 25. Ans. (a) | 45. Ans. (a) | 65. Ans. (c) |
| 6. Ans. (a) | 26. Ans. (a) | 46. Ans. (a) | 66. Ans. (a) |
| 7. Ans. (d) | 27. Ans. (b) | 47. Ans. (c) | 67. Ans. (c) |
| 8. Ans. (a) | 28. Ans. (d) | 48. Ans. (b) | 68. Ans. (b) |
| 9. Ans. (c) | 29. Ans. (a) | 49. Ans. (a) | 69. Ans. (d) |
| 10. Ans. (a) | 30. Ans. (c) | 50. Ans. (b) | 70. Ans. (d) |
| 11. Ans. (c) | 31. Ans. (b) | 51. Ans. (a) | |
| 12. Ans. (d) | 32. Ans. (c) | 52. Ans. (b) | □□□ |
| 13. Ans. (b) | 33. Ans. (c) | 53. Ans. (c) | |
| 14. Ans. (b) | 34. Ans. (a) | 54. Ans. (d) | |
| 15. Ans. (b) | 35. Ans. (d) | 55. Ans. (a) | |
| 16. Ans. (a) | 36. Ans. (a) | 56. Ans. (c) | |
| 17. Ans. (a) | 37. Ans. (c) | 57. Ans. (a) | |
| 18. Ans. (c) | 38. Ans. (c) | 58. Ans. (c) | |
| 19. Ans. (a) | 39. Ans. (c) | 59. Ans. (b) | |
| 20. Ans. (d) | 40. Ans. (d) | 60. Ans. (a) | |

AVERAGE

OBJECTIVE QUESTIONS

1. Find the average of first 50 natural numbers ? 9.
- (a) 25.30 (b) 25.50
 (c) 25.00 (d) 12.25
2. Find the average of odd numbers upto 100 ?
- (a) 30 (b) 50
 (c) 20 (d) 10
3. Find the average of first 5 multiples of 3 ?
- (a) 9 (b) 15
 (c) 7 (d) 6
4. Find the average of first ten even numbers ?
- (a) 10 (b) 12.5
 (c) 9 (d) 11
5. The mean of $1^2, 2^2, 3^2, 4^2, 5^2, 6^2, 7^2$
- (a) 40 (b) 20
 (c) 30 (d) 10
6. The average of 4 consecutive even numbers is 27. Find the largest of these numbers ?
- (a) 36 (b) 32
 (c) 30 (d) 28
7. The average of seven consecutive numbers is 20. Find the largest of these numbers ?
- (a) 24 (b) 23
 (c) 22 (d) 20
8. The average of 30 results is 20 and average of next 20 results is 30, then average of all results is :
- (a) 24 (b) 48
 (c) 25 (d) 50
9. Three numbers are in ratio 4 : 5 : 6 and their average is 27. Find the largest of these numbers ?
- (a) 42 (b) 36
 (c) 30 (d) 32
10. The average of 11 numbers is 60. If the average of first five is 58 and that the last five is 56. Find the sixth result ?
- (a) 90 (b) 110
 (c) 85 (d) 100
11. The average of 9 numbers is 30. If the average of first five numbers is 25 and that the last three is 35. Find the sixth result ?
- (a) 20 (b) 30
 (c) 40 (d) 50
12. The average age of a class of 20 boys is 12 years. If the age of the teacher be included then the average increases by 1 years. Find the age of the teacher ?
- (a) 36 (b) 35
 (c) 34 (d) 33
13. The average age of 6 men is 25 years. If a man is removed from this group whose age is 45 years, then average age of the group is -
- (a) 21 years (b) 19 years
 (c) 18 years (d) 25 years
14. A team of 12 players have the average age of 25 years, if the age of the captain is also included in this, then average age increases to 1. What is the age of the Captain ?
- (a) 25 years (b) 38 years
 (c) 36 years (d) 26 years

15. The average weight of 25 men is increased by 1 kg. When a man with 60 kg weight is replaced by a new man, The weight of new man is -
 (a) 50 Kg. (b) 61 Kg.
 (c) 86 Kg. (d) 85 Kg.
16. The average age of 8 men is increased by 2 years when two of them whose age are 21 years and 23 years are replaced by two new men. The average age of the two new men is -
 (a) 22 years (b) 24 years
 (c) 28 years (d) 30 years
17. In a school, from 10 teacher ,a teacher is retired and it is replaced by new appointed teacher of 25 years in age. In this way average age of teachers reduces to 3 years ,age of the retired teacher is :
 (a) 50 years (b) 55 years
 (c) 58 years (d) 60 years
18. A man climbs from point A to B with scooter at the speed of 24 kmph and returns to point A at 36 kmph. Average speed in whole journey -
 (a) 28 Kmph (b) 28.8 Kmph
 (c) 30 Kmph (d) 32.6 Kmph
19. A cyclist travels a certain distance at 50 kmph and returns back with the speed of 60 kmph. Find his average speed ?
 (a) 42 Kmph (b) 56 Kmph
 (c) 54.5 Kmph (d) 48.6 Kmph
20. The average of 10 numbers is 12, if each number is multiplied by 3, then what is new average ?
 (a) 30 (b) 36
 (c) 42 (d) 15
21. The average of 5 numbers is 15, if 5 is added to each number, then what is new average ?
 (a) 10 (b) 12
 (c) 15 (d) 20
22. The average of n numbers is x, if 36 is subtracted from each two numbers, then new average becomes $(x - 8)$. The value of n is :
 (a) 6 (b) 8
 (c) 9 (d) 72
23. Average of five consecutive numbers is n, if two next numbers are also taken then average of all numbers is-
 (a) Increase of 1 (b) Increase of 2
 (c) Increase of 1.4 (d) No increase
24. Of the three numbers, first is twice the second and is also thrice the third number. If average of three numbers is 44, then find the largest of theses numbers ?
 (a) 24 (b) 36
 (c) 17 (d) 72
25. Of the three numbers, first is twice the second and is also half the third number. If average of three numbers is 56, then the difference of first and third number is-
 (a) 12 (b) 20
 (c) 24 (d) 48
26. Average marks of five students in maths is 50. After that it was found that marks of a student is taken 84 instead of 48, correct average is-
 (a) 40.2 (b) 40.8
 (c) 42.8 (d) 48.2
27. By mistake two numbers 32 and 12 are taken instead of 23 and 11 and average of 100 numbers resulted as 30. Correct average is :
 (a) 29.4 (b) 29.5
 (c) 29.8 (d) 29.9
28. The average of 50 numbers is 36. After that it was found that 84 be taken instead of 48 and 32 is written as 23, then find correct average-
 (a) 35.46 (b) 35.64
 (c) 36.44 (d) 36.54
29. 8 persons joins in a shooting competition. The best marksman scored 85 points, if he had scored 92 points, the average score for the team would have been 84. The number of points, the team scored was-
 (a) 588 (b) 645
 (c) 665 (d) 672

30. The average runs of a cricket player of 19 innings was exact. In 20 th innings he scores 100 runs and then his average increases to 2 more .The average of 20 innings is -
 (a) 60 (b) 61
 (c) 42 (d) 62
 (e) None of these
31. There was some average of cricket player scored in 64 innings. He was out on zero on his 65th innings, in this way his average run score reduces to 2 runs, his average new score is -
 (a) 130 (b) 128
 (c) 70 (d) 68
32. The average mathematics marks of two sections A & B of class X in the annual examination is 74. The average marks of section A is 77.5 and B is 70. The ratio of the number of students of section A & B is :
 (a) 7 : 8 (b) 7 : 5
 (c) 8 : 5 (d) 8 : 7
33. The batting average for 40 innings of a cricket player is 50 runs. His highest score exceeds his lowest score by 172 runs. If these two innings are excluded, then the average of remaining 38 innings is 48 runs. The highest score of the player is -
 (a) 165 runs (b) 170 runs
 (c) 172 runs (d) 174 runs
34. The average temperature from Monday to Thursday is 48°C and from Thursday to Friday is 52°C , if temperature of Monday is 42°C , then temperature on Friday is -
 (a) 51° (b) 52°
 (c) 55° (d) 58°
35. The average temperature from Monday to Wednesday is 37°C and from Tuesday to Thursday is 34°C , if temperature of Thursday $\frac{4}{5}$ of Monday, then temperature on Thursday is-
 (a) 36.5°C (b) 36°C
 (c) 35.5°C (d) 34°C
36. 7 years ago, the average age of husband and his wife was 25 years at the time of their marriage. Now the average age of man ,his wife and the child which was born in this period is 22 years, Present age of the child is-
 (a) 2 years (b) 3 years
 (c) 4 years (d) 1 years
37. The average age of husband ,wife and their child 3 years ago was 27 years and that of wife and the child 5 years ago was 20 years .The present age of the husband is-
 (a) 35 years (b) 40 years
 (c) 50 years (d) None of these
38. Four years ago, the average age of A, B and C was 25 years. Before four years, the average age of B and C was 20 years ,then present age of A is :
 (a) 60 (b) 37
 (c) 62 (d) 15
39. Average age of A and B is 30 years , B and C is 32 years and C and A is 34 years respectively, What is age of C ?
 (a) 33 years (b) 34 years
 (c) 35 years (d) 36 years
40. The average age of students of a class is 15.8 years. The average age of boys in the class is 16.4 years and that of the girls is 15.4 years. The ratio of the number of boys to girls are
 (a) 1 : 2 (b) 2 : 3
 (c) 3 : 4 (d) 3 : 5
41. The average marks of 120 students was 35, if average of passed students was 39 and failed students was 15 ,then what is the number of passed students ?
 (a) 100 (b) 110
 (c) 120 (d) 150
42. There are 10 balls in a bag from which some are Red and remaining are white. The average price of each ball is Rs. 28 per ball, if average price of red balls is Rs. 25 per ball and Rs. 30 per balls white balls ,then number of white balls are-
 (a) 3 (b) 5
 (c) 6 (d) 7

43. If average wage of X, Y and Z is Rs. 120 of each day. If Y earns Rs. 40 more than X and X earns twice of Z, then daily wage of X is -
 (a) Rs. 80 (b) Rs. 120
 (c) Rs. 160 (d) Rs. 100
 (e) None of these
44. The average of eight numbers is 20. The average of first two numbers is 15.5 and next of three is $21\frac{1}{3}$, if the sixth number be less than the seventh and eighth number by 4 and 7 respectively, then eighth number is -
 (a) 20 (b) 25
 (c) 21.6 (d) 25.3
45. The average weight of three men A ,B and C is 84 kg. Another man D joins the group and the average now becomes 80 kg. If the another man E ,whose weight is 3 kg more than that of D, replaced A, then the average weight of B, C, D and E is 79 kg then find the weight of A?
 (a) 70 Kg. (b) 72 Kg.
 (c) 75 Kg. (d) 80 Kg.
 (e) None of these
46. Monthly salary of Ganpati is Rs. 2000 where upendra's monthly income is 20% more than him and Jaichand's income is $\frac{4}{5}$ part of total income of Ganpati and Upendra. Average income of three is how much more than the Ganpati's income ?
 (a) 680 (b) 640
 (c) 720 (d) 320
47. The average age of 30 boys in a class is 15 years. A boy whose age is 20 years left out and the new two students arrived, in that a difference of 5 years in their ages .now average age of all boys becomes 15 years, then what is the age of younger from the new students ?
 (a) 20 years (b) 15 years
 (c) 10 years (d) 8 years
48. Average of four positive numbers is 72.5, 117 is the largest and 15 is the smallest number in these and difference of two numbers remaining is 12. Largest number from remaining two is -
 (a) 70 (b) 73
 (c) 84 (d) Can't determined
 (e) None of these
49. The average marks in an examination was 50. To avoid errors during revaluation, from 100 candidates, marks of each is replaced with 90 to 60 marks and average remains 45. What was total number of candidates appeared in the exam?
 (a) 600 (b) 300
 (c) 200 (d) 150
50. Six persons went to a hotel for taking their meals. Five of them spent Rs. 32 each on their meals and the sixth spent Rs. 80 more than the average expenditure of all the six. What was the total money spent by them ?
 (a) Rs. 192 (b) Rs. 240
 (c) Rs. 288 (d) Rs. 336



ANSWER Key

- | | | | |
|---------------------|---------------------|---------------------|---------------------|
| 1. <i>Ans. (b)</i> | 16. <i>Ans. (d)</i> | 31. <i>Ans. (b)</i> | 46. <i>Ans. (b)</i> |
| 2. <i>Ans. (b)</i> | 17. <i>Ans. (b)</i> | 32. <i>Ans. (d)</i> | 47. <i>Ans. (b)</i> |
| 3. <i>Ans. (a)</i> | 18. <i>Ans. (b)</i> | 33. <i>Ans. (d)</i> | 48. <i>Ans. (e)</i> |
| 4. <i>Ans. (d)</i> | 19. <i>Ans. (c)</i> | 34. <i>Ans. (d)</i> | 49. <i>Ans. (a)</i> |
| 5. <i>Ans. (b)</i> | 20. <i>Ans. (b)</i> | 35. <i>Ans. (b)</i> | 50. <i>Ans. (c)</i> |
| 6. <i>Ans. (c)</i> | 21. <i>Ans. (d)</i> | 36. <i>Ans. (a)</i> | |
| 7. <i>Ans. (b)</i> | 22. <i>Ans. (c)</i> | 37. <i>Ans. (b)</i> | |
| 8. <i>Ans. (a)</i> | 23. <i>Ans. (a)</i> | 38. <i>Ans. (b)</i> | |
| 9. <i>Ans. (c)</i> | 24. <i>Ans. (d)</i> | 39. <i>Ans. (d)</i> | |
| 10. <i>Ans. (a)</i> | 25. <i>Ans. (d)</i> | 40. <i>Ans. (b)</i> | |
| 11. <i>Ans. (c)</i> | 26. <i>Ans. (c)</i> | 41. <i>Ans. (a)</i> | |
| 12. <i>Ans. (d)</i> | 27. <i>Ans. (d)</i> | 42. <i>Ans. (c)</i> | |
| 13. <i>Ans. (a)</i> | 28. <i>Ans. (a)</i> | 43. <i>Ans. (c)</i> | |
| 14. <i>Ans. (b)</i> | 29. <i>Ans. (c)</i> | 44. <i>Ans. (b)</i> | |
| 15. <i>Ans. (d)</i> | 30. <i>Ans. (d)</i> | 45. <i>Ans. (c)</i> | |



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CHAPTER**5****PROBLEMS ON AGES****OBJECTIVE QUESTIONS**

1. The ratio of ages of A and B is 3 : 11 and difference between their ages is 24 years. What is the ratio of their ages after three years?
 (a) 1 : 3 (b) 2 : 3
 (c) 3 : 5 (d) 2 : 5
 (e) None of these
2. Sachin is 4 years younger than Rahul. The ratio of their present age is 7 : 9. What is Sachin's present age ?
 (a) 16 Years (b) 18 Years
 (c) 28 Years (d) Can't Determined
 (e) None of these
3. The age of A and B is 36 year and 16 year respectively. After how many year the age of A is twice of B's age ?
 (a) 1 (b) 2
 (c) 3 (d) 4
 (e) None of these
4. Harsh's age is 40 years and Sonu's age is 60 year, before how many years their ratio of age was 3 : 5?
 (a) 10 Years (b) 20 Years
 (c) 37 Years (d) 5 Years
 (e) None of these
5. The product of naveen's age (in years) former 5 year and later 9 year is 15. What is Naveen's present age ?
 (a) 6 (b) 8
 (c) 9 (d) 10
 (e) None of these
6. The ratio of the father's age and his son's age is 4 : 1. The product of their ages is 196. The ratio of their ages after 5 years is ?
 (a) 10 : 5 (b) 14 : 5
 (c) 11 : 4 (d) 3 : 1
 (e) None of these
7. The sum of present age of A, B and C is 90 years. 6 years ago their ratio of ages was 1 : 2 : 3. What is C's present age ?
 (a) 45 Years (b) 36 Years
 (c) 42 Years (d) 40 Years
 (e) None of these
8. Sum of four brother's age is 56 year. The difference of their ages is 4 years respectively. What is the age of elder brother ?
 (a) 16 Years (b) 32 Years
 (c) 24 Years (d) 20 Years
 (e) None of these
9. Arvind is as younger from Sekhar as he is elder from vikash. If the sum of Sekhar and vikash age is 48 years, than what is the age of Arvind ?
 (a) 20 (b) 24
 (c) 30 (d) None of these
10. A is as younger from B as it is elder from B. If sum of age of B and C is 50 year, than what is difference between age of B and A ?
 (a) 1 Years (b) 2 Years
 (c) 25 Years (d) Data Inadequate
 (e) None of these

24. A person was asked to state his age in years. His reply was, "Take my age three years hence, multiply it by 3 and then subtract three times my age three years ago and you will now old I am." What was the age of the person ?
(a) 24 Years (b) 20 Years
(c) 32 Years (d) 18 Years
(e) None of these
25. The sum of the ages of a father and his son is 45 years. Five years ago the product of their ages was 34. The age of the son and the father respectively.
(a) 6 & 39 (b) 7 & 38
(c) 7 & 36 (d) 11 & 34

□□□

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ANSWER KEY

- | | | | |
|-------------|--------------|--------------|--------------|
| 1. Ans. (a) | 8. Ans. (d) | 15. Ans. (a) | 22. Ans. (b) |
| 2. Ans. (e) | 9. Ans. (b) | 16. Ans. (a) | 23. Ans. (a) |
| 3. Ans. (d) | 10. Ans. (d) | 17. Ans. (c) | 24. Ans. (d) |
| 4. Ans. (a) | 11. Ans. (a) | 18. Ans. (c) | 25. Ans. (a) |
| 5. Ans. (a) | 12. Ans. (a) | 19. Ans. (d) | |
| 6. Ans. (c) | 13. Ans. (e) | 20. Ans. (b) | □ □ □ |
| 7. Ans. (c) | 14. Ans. (c) | 21. Ans. (c) | |



OBJECTIVE QUESTIONS

1. $(0.01024)^{\frac{1}{5}} = ?$
- (a) 0.00004 (b) 0.04
 (c) 0.4 (d) 4
2. $\sqrt[4]{10000} = (100)^?$
- (a) $\frac{1}{2}$ (b) $\frac{1}{4}$
 (c) $\frac{1}{8}$ (d) 2
3. $(1000)^9 \div (10)^{24} = ?$
- (a) 10 (b) 100
 (c) 1000 (d) 10000
 (e) None of these
4. $\left(\frac{1}{2}\right)^{-1/2} = ?$
- (a) $\frac{1}{\sqrt{2}}$ (b) $2\sqrt{2}$
 (c) $-\sqrt{2}$ (d) $\sqrt{2}$
5. $\left(\frac{32}{243}\right)^{-4/5} = ?$
- (a) $\frac{4}{9}$ (b) $\frac{9}{4}$
 (c) $\frac{16}{81}$ (d) $\frac{81}{16}$
6. $\frac{1}{(216)^{-\frac{2}{3}}} + \frac{1}{(256)^{-\frac{3}{4}}} + \frac{1}{(243)^{-\frac{1}{5}}} = ?$
- (a) 103 (b) 105
 (c) 107 (d) None of these
7. $\left(\frac{1}{2}\right)^{-2} \times \left(\frac{1}{3}\right)^{-2} \times \left(\frac{1}{4}\right)^{-2}$ equals to-
- (a) -576 (b) 576
 (c) 376 (d) -288
8. $(64x^3 \div 27a^{-3})^{-\frac{2}{3}} = ?$
- (a) $\frac{9ax}{16}$ (b) $\frac{9}{16ax}$
 (c) $\frac{3}{4}x^{-2}a^{-2}$ (d) $\frac{9}{16x^2a^2}$
9. The simplest form of $(16^{3/2} + 16^{-3/2})$
- (a) 0 (b) $\frac{4097}{64}$
 (c) 1 (d) $\frac{16}{4097}$
10. Find the value of $(64)^{-\frac{2}{3}} \times \left(\frac{1}{4}\right)^{-2}$
- (a) $\frac{1}{16}$ (b) $\frac{1}{2}$
 (c) 1 (d) 2

11. Find the value of $[1 - 2(1 - 2)^{-1}]^{-1}$

- (a) $\frac{1}{3}$ (b) $-\frac{1}{3}$
 (c) -1 (d) $\frac{1}{2}$

12. $\left[\left\{ \left(-\frac{1}{2} \right)^2 \right\}^{-2} \right]^{-1}$ equals to-

- (a) $\frac{1}{16}$ (b) 16
 (c) $-\frac{1}{16}$ (d) -16

13. $\{(-2)^{(-2)}\}^{(-2)} = ?$

- (a) -16 (b) -8
 (c) 8 (d) 16

14. $(16)^{0.16} \times (16)^{0.04} \times 2^{0.2} = ?$

- (a) 1 (b) 2
 (c) 4 (d) 16

15. $9^{8.6} \times 8^{3.9} \times (72)^{4.4} \times 9^{5.9} \times 8^{8.6} = (72)^?$

- (a) 15.1 (b) 17.9
 (c) 20.9 (d) 29.4
 (e) None of these

16. $6^{1.2} \times (36)^7 \times (30)^{2.4} \times (25)^{1.3} = (30)^5$

- (a) 0.1 (b) 0.7
 (c) 1.4 (d) 2.6

17. If $8^{x+1} = 64$ then find the value of 3^{2x+1}

- (a) 1 (b) 9
 (c) 27 (d) 81

18. If $5^x = 3125$ then find the value of $5^{(x-3)}$

- (a) 25 (b) 125
 (c) 625 (d) 1625

19. $2^{2x} = 256$ then find the value of x

- (a) 4 (b) 3
 (c) 2 (d) 8

20. If $(64)^{(2x-5)} = 4 \times 8^{(x-4)}$ then find the value of x

- (a) 2 (b) 11
 (c) $\frac{10}{7}$ (d) $\frac{20}{9}$

21. If $5^{x+3} = (25)^{(3x-4)}$ then find the value of x

- (a) $\frac{5}{11}$ (b) $\frac{11}{3}$
 (c) $\frac{11}{5}$ (d) $\frac{13}{5}$

22. If $\left(\frac{9}{4}\right)^x \cdot \left(\frac{8}{27}\right)^{(x-1)} = \frac{2}{3}$ then find the value of x

- (a) 1 (b) 2
 (c) 3 (d) 4

23. If $\frac{(x^3)^2 \times x^4}{x^{10}} = x^p$ then find the value of p

- (a) 26 (b) 2
 (c) 1 (d) 0

24. $\{5(8^{1/3} + 27^{1/3})^3\}^{1/4} = ?$

- (a) 5 (b) 25
 (c) 125 (d) 625

25. If $1.5x = 0.04y$ then find the value of $\frac{y-x}{y+x}$

- (a) $\frac{730}{77}$ (b) $\frac{73}{77}$
 (c) $\frac{73}{770}$ (d) $\frac{703}{770}$

26. The simplest form of $\left[\left(\sqrt[3]{x^{-3/5}} \right)^{-5/3} \right]^5$
- (a) x^5
 (b) x^{-5}
 (c) x
 (d) $\frac{1}{x}$
27. Find the value of $\frac{(243)^{\frac{n}{5}} \cdot 3^{2n+1}}{9^n \cdot 3^{n-1}}$
- (a) 1
 (b) 9
 (c) 3
 (d) 3^n
28. Find the value of $\frac{2^{n+4} - 2 \cdot 2^n}{2 \cdot 2^{n+3}} + 2^{-3} = ?$
- (a) 8
 (b) 4
 (c) 2
 (d) 1
29. Find the value of $\frac{(2^n + 2^{n-1})}{(2^{n+1} - 2^n)}$
- (a) $\frac{1}{2}$
 (b) $\frac{3}{2}$
 (c) $2^{\left(\frac{n-1}{n+1}\right)}$
 (d) None of these
30. Which of the following is biggest number :
 $\sqrt{3}, \sqrt[3]{4}, \sqrt[4]{6}, \sqrt[6]{8}$
- (a) $\sqrt{3}$
 (b) $\sqrt[3]{4}$
 (c) $\sqrt[4]{6}$
 (d) $\sqrt[6]{8}$
31. Which of the following is biggest number
 $\sqrt{2}, \sqrt[3]{3}, \sqrt[4]{4}, \sqrt[6]{6}$
- (a) $\sqrt{2}$
 (b) $\sqrt[3]{3}$
 (c) $\sqrt[4]{4}$
 (d) $\sqrt[6]{6}$
32. Which of the following is biggest number
 $(\sqrt{7} - \sqrt{5}), (\sqrt{5} - \sqrt{3}), (\sqrt{9} - \sqrt{7}), (\sqrt{11} - \sqrt{9})$
- (a) $(\sqrt{7} - \sqrt{5})$
 (b) $(\sqrt{5} - \sqrt{3})$
 (c) $(\sqrt{9} - \sqrt{7})$
 (d) $(\sqrt{11} - \sqrt{9})$
33. $\sqrt{a^{-1}b} \cdot \sqrt{b^{-1}c} \cdot \sqrt{c^{-1}a} = ?$
- (a) abc
 (b) \sqrt{abc}
 (c) $\frac{1}{abc}$
 (d) 1
34. $(x^{b+c})^{(b-a)} \cdot (x^{a+b})^{(c-a)} \cdot (x^{a+b})^{(a-b)} = ?$
- (a) 0
 (b) 1
 (c) x
 (d) $x^{(a^2+b^2+c^2)}$
35. $\frac{1}{1+a^{n-m}} + \frac{1}{1+a^{m-n}} = ?$
- (a) 0
 (b) $\frac{1}{2}$
 (c) 1
 (d) a^{m+n}
36. $\left(\frac{x^a}{x^b} \right)^{ab} \cdot \left(\frac{x^b}{x^c} \right)^{bc} \cdot \left(\frac{x^c}{x^a} \right)^{ca} = ?$
- (a) 1
 (b) $\frac{1}{x^{abc}}$
 (c) $x^{\frac{1}{(ab+bc+ca)}}$
 (d) 0
37. If $x = y^a, y = z^b$ and $z = x^c$ then $s \ abc = ?$
- (a) 1
 (b) 2
 (c) 3
 (d) 4
38. If $a^x = b^y = c^z$ and $b^2 = ac$ then $y = ?$
- (a) $\frac{xz}{x+y}$
 (b) $\frac{xz}{2(x+z)}$
 (c) $\frac{xz}{2(z-x)}$
 (d) $\frac{2xz}{(z+x)}$
39. If $2^x = 3^y = 6^{-z}$ then find the value of s
- $$\left(\frac{1}{x} + \frac{1}{y} + \frac{1}{z} \right)$$
- (a) 0
 (b) 1
 (c) $-\frac{1}{2}$
 (d) $\frac{3}{2}$

40. If $10^{48} = x$, $10^{70} = y$ and $x^z = y^2$ then the approximate value of z
- (a) 1.45 (b) 1.88 (c) 2.9 (d) 3.7
41. If $2^{x+4} - 2^{x+2} = 3$ then find the value of x
- (a) 0 (b) 2 (c) -1 (d) -2
42. If $2^x - 2^{x-1} = 16$ then find the value of x
- (a) 1 (b) 5 (c) 3 (d) 2
43. If $2^a + 3^b = 17$ and $2^{a+2} - 3^{b+1} = 5$ then value of a and b respectively is :
- (a) 2, 3 (b) -2, 3 (c) 2, -3 (d) 3, 2
44. After solving $9^x - 10 \times 3^x + 9 = 0$, the value of x ?
- (a) 1 (b) 1 and 2 (c) 0 and 2 (d) -2 and 2
45. Which of the following is biggest numbers
- $(2.89)^{0.5}$, $2 - (0.5)^2$, $1 + \frac{0.5}{1 - \frac{1}{2}}$, $\sqrt{3}$
- (a) $(2.89)^{0.5}$ (b) $2 - (0.5)^2$
- (c) $1 + \frac{0.5}{1 - \frac{1}{2}}$ (d) $\sqrt{3}$
46. If $x = 5 + 2\sqrt{6}$ then $\frac{x-1}{\sqrt{x}}$ is equal to
- (a) $\sqrt{2}$ (b) $2\sqrt{2}$ (c) $\sqrt{3}$ (d) $2\sqrt{3}$
47. $2 + \frac{6}{\sqrt{3}} + \frac{1}{2 + \sqrt{3}} + \frac{1}{\sqrt{3} - 2}$ is equal to
- (a) 1 (b) 2 (c) $-(2 + \sqrt{3})$ (d) $2\sqrt{3}$



ANSWER KEY

- | | | | |
|--------------|--------------|--------------|--------------|
| 1. Ans. (c) | 13. Ans. (d) | 25. Ans. (b) | 37. Ans. (a) |
| 2. Ans. (a) | 14. Ans. (b) | 26. Ans. (c) | 38. Ans. (d) |
| 3. Ans. (c) | 15. Ans. (e) | 27. Ans. (b) | 39. Ans. (a) |
| 4. Ans. (d) | 16. Ans. (b) | 28. Ans. (d) | 40. Ans. (c) |
| 5. Ans. (d) | 17. Ans. (c) | 29. Ans. (b) | 41. Ans. (d) |
| 6. Ans. (a) | 18. Ans. (a) | 30. Ans. (a) | 42. Ans. (b) |
| 7. Ans. (b) | 19. Ans. (b) | 31. Ans. (b) | 43. Ans. (d) |
| 8. Ans. (d) | 20. Ans. (d) | 32. Ans. (b) | 44. Ans. (c) |
| 9. Ans. (b) | 21. Ans. (c) | 33. Ans. (d) | 45. Ans. (c) |
| 10. Ans. (c) | 22. Ans. (d) | 34. Ans. (b) | 46. Ans. (b) |
| 11. Ans. (a) | 23. Ans. (d) | 35. Ans. (c) | 47. Ans. (b) |
| 12. Ans. (a) | 24. Ans. (a) | 36. Ans. (a) | |



OBJECTIVE QUESTIONS

1. $8\frac{1}{3}\% \text{ of } x = 150$
 (a) 1250 (b) 1500
 (c) 1800 (d) 1400
2. 40% of ? = 12.8
 (a) 32 (b) 36
 (c) 42 (d) 51.2
3. ?% of 130 = 11.7
 (a) 90 (b) 9
 (c) .9 (d) .09
4. 180% of ? $\div 2 = 504$
 (a) 600 (b) 560
 (c) 400 (d) 480
5. (? % of 360) = 129.6
 (a) 36 (b) 64
 (c) 72 (d) 77
6. ? % of 6144 = 2.5×245.76
 (a) 16 (b) 20
 (c) 5 (d) 10
7. $\frac{30\% \text{ of } 80}{?} = 24$
 (a) $\frac{3}{10}$ (b) $\frac{3}{17}$
 (c) 1 (d) 2
8. x% of 1400 = 119, then x equals to-
 (a) 17 (b) 28
 (c) 8.5 (d) 7.5
9. if 40% of 40% x = 40 then x = ?
 (a) 100 (b) 400
 (c) 250 (d) 1000
10. x% of x = 36, then x equals to-
 (a) 15 (b) 60
 (c) 600 (d) 3600
11. 0.01 is what percent of 0.1 ?
 (a) 0.1% (b) 0.01%
 (c) 10% (d) 100%
12. 240 is what percent of 90 ?
 (a) $37\frac{1}{2}\%$ (b) $26\frac{2}{3}\%$
 (c) $133\frac{1}{3}\%$ (d) $266\frac{2}{3}\%$
13. $\frac{1}{35}$ is what percent of $\frac{2}{7}$?
 (a) 10 (b) 2.5
 (c) .25 (d) .025
14. $(45\% \text{ of } 1500) + (35\% \text{ of } 1700) = (\% \text{ of } 3175)$
 (a) 30 (b) 35
 (c) 45 (d) 40
15. $(50 \text{ of } 860\%) + (860 \text{ of } 50\%) = ?$
 (a) 730 (b) 516
 (c) 860 (d) 960
16. $(45 \% \text{ of } ?) + (30 \% \text{ of } 90) = (30 \% \text{ of } 210)$
 (a) 120 (b) 80
 (c) 90 (d) 60

17. $(12\% \text{ of } 980) - (?\% \text{ of } 450) = 30\% \text{ of } 227$
- (a) 14 (b) 17
(c) 11 (d) 8
18. $(5.6\% \text{ of } 240) \div (0.3\% \text{ of } 480)$
- (a) 12 (b) 9.33
(c) 7.53 (d) 8.33
19. If 8% of x is same as 4% of y then 20% of x is same as
- (a) y of 10% (b) y of 16%
(c) y of 80 % (d) y of 80 %
20. If 10% of x = 20% of y then x : y = ?
- (a) 10 : 1 (b) 2 : 1
(c) 1 : 2 (d) 5 : 1
21. If 75 % of a number is greater than 40% of the same number by 304.5, then what is 25% of that number ?
- (a) 220 (b) 217.5
(c) 219.4 (d) 215
22. The difference between of a 55% and 25% of a same number is 11.10 then what is 75 % of that number ?
- (a) 45 (b) 37
(c) 21.25 (d) 27.75
23. If the numerator of a fraction is increased by 350% and denominator is increased by 300%, then new fraction becomes $\frac{9}{22}$ then what was actual fraction?
- (a) $\frac{3}{4}$ (b) $\frac{5}{12}$
(c) $\frac{7}{9}$ (d) $\frac{4}{11}$
24. If the numerator increased by 20% and denominator decreased by 5%, then the fraction becomes $\frac{5}{2}$, then find the original fraction ?
- (a) $\frac{24}{19}$ (b) $\frac{1}{6}$
(c) $\frac{95}{48}$ (d) $\frac{48}{95}$
25. If twice of numerator is increased by 20% and thrice of denominator is decreased by 30% of a fraction, then we get $\frac{16}{21}$ of 24%, then what is fraction?
- (a) $\frac{1}{25}$ (b) $\frac{3}{25}$
(c) $\frac{2}{25}$ (d) $\frac{4}{25}$
(e) None of these
26. In a school 70% are girls of total number of students. If the boys are 510 then how many students are in school ?
- (a) 850 (b) 1830
(c) 1700 (d) 1900
27. In a school boys are 60% of total students and girls are 972 then how many boys are in school ?
- (a) 1258 (b) 1458
(c) 1324 (d) 1620
28. The population of a village increased 4000 to 6000, then what percent increased ?
- (a) 50% (b) 100%
(c) 25% (d) 75%
29. The price of the sugar decreased to 12 rs per kg from 16 rs per kg then how much percent decrease in the price of sugar ?
- (a) 25% (b) 50%
(c) 75% (d) 100%
30. One batsman score 110 runs, in that 3 fours and 8 sixes are included, than batsman score, how much percent runs by running?
- (a) 45% (b) $45\frac{5}{11}\%$
(c) $54\frac{6}{11}\%$ (d) 55%
(e) None of these
31. Price of the oranges decreased from 40 rs per kg to 30 rs per kg, then how much consumption increased so that expenditure remains same ?
- (a) $33\frac{1}{3}\%$ (b) $22\frac{1}{3}\%$
(c) 33% (d) 30%

49. In a library there are 40% books of English, 40% of the remaining are Hindi and remaining are in local language if books of Hindi are 4800, then what is the total number of books in the library
 (a) 12000 (b) 24000
 (c) 28000 (d) 20000
50. A man gives 20% income to their elder son and 30% of the remaining to his younger son, then after 10% of the remaining to the trust, then he has Rs. 10080 then find his total income ?
 (a) Rs 50000 (b) Rs 40000
 (c) Rs 30000 (d) Rs 20000
51. Radha spent 40% on food, 20% on house rent, 10% on entertainment and 10% on transportation of her income, if she saves Rs. 1500 in the end of the month, then what is her monthly income ?
 (a) Rs. 8000 (b) Rs. 7500
 (c) Rs. 6000 (d) Rs. 10000
52. One man spent 76% of his income, if his income increased by 20% and he increased his expenditure 15%. His savings increase approximately how much percent ?
 (a) 20% (b) 35%
 (c) $17\frac{1}{2}\%$ (d) $33\frac{1}{3}\%$
53. A's 5% income is equal to 15% of B's and 10% of B's income is equals to 20% of C's income, if C's income is Rs 2000 then what is A's income?
 (a) 12000 (b) 4000
 (c) 18000 (d) 1600
54. A's income is 40% of B and B's income is 25% of C, than A's income is what percent of C ?
 (a) 5% (b) 10%
 (c) 15% (d) 20%
 (e) None of these
55. Due to decrease of 10 % price of sugar ,a customer got 6.2 kg more in Rs 837 then what is decrease price of sugar ?
 (a) 12.50 (b) 13
 (c) 13.50 (d) 14.50
56. Due to decrease of 20% in price of wheat a person can get 10 kg more in Rs. 600 then what is the price of wheat after decrease in price of wheat?
 (a) 11.50 (b) 12.50
 (c) 12 (d) 15
57. In an exam 80% General knowledge and 85 % students failed in English. If 73% of students failed in both subjects, then how many students passed the exam ?
 (a) 8 (b) 15
 (c) 27 (d) 35
58. In a class 72% of students take Biology and 44% take Maths. if every student take atleast one subject from Biology and Maths and 40 students take both subjects, then what is total number of students in the class?
 (a) 200 (b) 240
 (c) 250 (d) 320
59. In an exam 60% and 70% students passed in English and maths respectively. If 20% of students failed in both subjects and 2500 students passed in both subjects, then what is total number of students ?
 (a) 5000 (b) 7000
 (c) 4000 (d) 1500
60. In an exam a candidate require 48 % marks to pass. He got only 48 marks and he failed by 48 marks then what is total number ?
 (a) 100 (b) 200
 (c) 300 (d) 400
61. To pass an exam a candidate should got 40% marks. If a candidate got 220 marks and failed by 20 marks then what is maximum marks in that exam ?
 (a) 1200 (b) 800
 (c) 600 (d) 450

ANSWER KEY

- | | | | |
|--------------|--------------|--------------|--------------|
| 1. Ans. (c) | 21. Ans. (b) | 41. Ans. (b) | 61. Ans. (c) |
| 2. Ans. (a) | 22. Ans. (d) | 42. Ans. (d) | 62. Ans. (d) |
| 3. Ans. (b) | 23. Ans. (d) | 43. Ans. (d) | 63. Ans. (a) |
| 4. Ans. (b) | 24. Ans. (c) | 44. Ans. (d) | 64. Ans. (d) |
| 5. Ans. (a) | 25. Ans. (d) | 45. Ans. (d) | 65. Ans. (b) |
| 6. Ans. (d) | 26. Ans. (c) | 46. Ans. (b) | 66. Ans. (c) |
| 7. Ans. (c) | 27. Ans. (b) | 47. Ans. (c) | 67. Ans. (a) |
| 8. Ans. (c) | 28. Ans. (a) | 48. Ans. (a) | 68. Ans. (c) |
| 9. Ans. (c) | 29. Ans. (a) | 49. Ans. (d) | 69. Ans. (c) |
| 10. Ans. (b) | 30. Ans. (b) | 50. Ans. (d) | 70. Ans. (c) |
| 11. Ans. (c) | 31. Ans. (a) | 51. Ans. (b) | 71. Ans. (a) |
| 12. Ans. (d) | 32. Ans. (c) | 52. Ans. (b) | 72. Ans. (e) |
| 13. Ans. (a) | 33. Ans. (d) | 53. Ans. (a) | 73. Ans. (b) |
| 14. Ans. (d) | 34. Ans. (c) | 54. Ans. (b) | 74. Ans. (a) |
| 15. Ans. (c) | 35. Ans. (b) | 55. Ans. (c) | |
| 16. Ans. (b) | 36. Ans. (c) | 56. Ans. (c) | |
| 17. Ans. (c) | 37. Ans. (b) | 57. Ans. (a) | |
| 18. Ans. (b) | 38. Ans. (b) | 58. Ans. (c) | |
| 19. Ans. (a) | 39. Ans. (a) | 59. Ans. (a) | |
| 20. Ans. (b) | 40. Ans. (a) | 60. Ans. (b) | |



PROFIT AND LOSS

OBJECTIVE QUESTIONS

1. A Radio set is sold for Rs 1840, there is a loss of Rs. 280. Find the cost price of Radio set ?
(a) Rs. 2120 (b) Rs. 2100
(c) Rs. 2130 (d) Rs. 2500
(e) None of these
2. A man purchased an article for Rs. 55 and sold for Rs. 57.20, find the gain percent ?
(a) 4% (b) 5%
(c) 3% (d) 9%
(e) None of these
3. By selling an article for Rs. 460, there is a profit of Rs. 60, then find gain percent ?
(a) 12% (b) 15%
(c) 10% (d) 25%
4. A man purchased an old Scooter for Rs. 6000 and spends Rs. 500 for repairing it. He sold that in Rs. 7020, find his gain percent ?
(a) 12.5% (b) 9.6%
(c) 8% (d) 5%
5. By selling a table for Rs. 517, there is a profit of 10%. Find the cost price of the table ?
(a) Rs. 470 (b) Rs. 450
(c) Rs. 570 (d) Rs. 670
(e) None of these
6. A fruit seller purchased oranges at the rate of 7 for Rs. 10 and sold them with 40% profit. A customer get how many oranges in Rs 10 ?
(a) 4 (b) 5
(c) 10 (d) 7
(e) None of these
7. Oranges are bought at the rate of 7 for Rs. 3. At what rate per hundred oranges are sold out in order to get a profit of 33% ?
(a) Rs. 56 (b) Rs. 60
(c) Rs. 58 (d) Rs. 57
8. A vegetable seller bought lemons at the rate of 6 for Rs. 1. In order to earn 20% profit on these, how many lemons be sold at Rs. 1 ?
(a) 10 (b) 15
(c) 5 (d) 20
(e) None of these
9. The ratio of cost price and selling price is 5 : 4, loss percent is :
(a) 20% (b) 25%
(c) 40% (d) 50%
10. If selling price of a article is $\frac{4}{3}$ times of its cost price, then profit percent is-
(a) $20\frac{1}{3}\%$ (b) $20\frac{1}{2}\%$
(c) $25\frac{1}{4}\%$ (d) $33\frac{1}{3}\%$
11. Oranges are bought at the rate of 10 for Rs. 25 and sold at the rate of 9 for Rs. 25. The profit is :
(a) $9\frac{1}{11}\%$ (b) 10%
(c) $11\frac{1}{9}\%$ (d) $12\frac{1}{2}\%$

12. A vegetable seller bought lemons at the rate of 1 for Rs. 2 and sell them at the rate of 5 for Rs. 3. What is his profit percent ?
 (a) 10% (b) 15%
 (c) 20% (d) 25%
13. Cost price of 18 articles is equal to selling price of 15 articles, find gain percent ?
 (a) 15% (b) 20%
 (c) 25% (d) 18%
14. If cost price of 50 oranges is equal to selling price of 40 oranges, find gain percent ?
 (a) 5% (b) 10%
 (c) 20% (d) 25%
15. If cost price of 15 tables is equal to selling price of 20 tables, find loss percent ?
 (a) 20% (b) 30%
 (c) 25% (d) 37.5%
16. If cost price of a article is equal to 80% of selling price of it, then gain percent is-
 (a) 20% (b) $22\frac{1}{2}\%$
 (c) 24% (d) 25%
 (e) None of these
17. By selling 100 pencils a shopkeeper gets a profit equals to selling price of 20 pencils, find his gain percent ?
 (a) 25% (b) 20%
 (c) 15% (d) 12%
 (e) None of these
18. A fruit seller sold 36 oranges with a loss equals to cost price of 4 oranges. What is loss percent ?
 (a) 10% (b) $12\frac{1}{2}\%$
 (c) $11\frac{1}{9}\%$ (d) None of these
19. By selling 44 articles a shopkeeper earn a profit equals to selling price of 11 articles .His profit percent is :
 (a) 20% (b) 25%
 (c) $30\frac{2}{3}\%$ (d) $33\frac{1}{3}\%$
 (e) None of these
20. By selling a pen for Rs. 18, a person losses $\frac{1}{10}$ of its cost price. What is its cost price ?
 (a) Rs. 16.20 (b) Rs. 19.80
 (c) Rs. 20 (d) None of these
21. A seller sold a Gas-Tandoor for Rs. 750 with a profit of $1/4$ of its cost price .What is its cost price?
 (a) Rs. 563.50 (b) Rs. 600
 (c) Rs. 625 (d) Rs. 700
 (e) None of these
22. Ram sells a certain article for Rs. 9000 with a loss of $1/4$ of cost price, What was cost price of the article ?
 (a) Rs. 9600 (b) Rs. 10000
 (c) Rs. 11000 (d) Rs. 12000
23. If a certain article is sold for Rs. 178 with a loss of 11%, then in order to earn 11% profit what should be cost price of it ?
 (a) Rs. 222.50 (b) Rs. 267
 (c) Rs. 222 (d) Rs. 220
24. By selling a toy for Rs. 21.60, there is a loss of 10%.What is the cost price of it in order to earn a profit of 20% ?
 (a) Rs. 24 (b) Rs. 25.92
 (c) Rs. 28.80 (d) None of these
25. By selling a watch for Rs. 1,140 a man loses 5%, in order to earn 5% profit watch should be sold at what price ?
 (a) Rs. 1311 (b) Rs. 1197
 (c) Rs. 1254 (d) Rs. 1260
26. By selling a certain article for Rs. 69, there is a loss of 8%. If that articles sold for Rs 78, then loss or gain percent is :
 (a) No loss no profit (b) 4% profit
 (c) 4% loss (d) 40% profit
27. By selling a tape-recorder for Rs. 950 I got a loss of 8%. If i sell it for Rs. 1040 .What is my profit percent ?
 (a) 5% (b) 4%
 (c) 4.5% (d) 9%

28. By selling 12 copies of book for Rs. 1800, there is a profit equals to cost price of 3 copies, then what is cost price of a single copy ?
 (a) Rs. 120 (b) Rs. 150
 (c) Rs. 1200 (d) Rs. 1500
29. By selling 17 balls for Rs. 720, there is a loss equals to cost price of 5 balls. Cost price of one ball is :
 (a) Rs. 45 (b) Rs. 50
 (c) Rs. 60 (d) Rs. 55
30. A book seller purchased 200 books for Rs. 12,000. He wants to sell them in this way so that he got 20 books free. He has to sell them at what percent of profit ?
 (a) 10% (b) 11%
 (c) 11.5% (d) 12%
31. A trader sells a article for Rs. 6000 from two articles. By selling first article he gains 20% but he loses 20% on second article. What is his profit or loss percent ?
 (a) 5% Profit (b) 4% Profit
 (c) 5% loss (d) 4% loss
32. A man sells a article for Rs. 99 from two articles. But he loses 10% on first and 10% gain on second article. What is his profit or loss percent in whole transaction ?
 (a) loss 1% (b) loss 1.5%
 (c) Profit 1% (d) Profit 1.5%
33. A sells a bicycle to B with a profit of 20%, after that B sells it with a profit of 25% to C, if C invest Rs. 225, then what was cost price for A?
 (a) Rs. 110 (b) Rs. 125
 (c) Rs. 120 (d) Rs. 150
34. A sells a watch to B with a profit of 20% and B sells it to C with 10% loss. If C buys this watch for Rs. 216, then in how much Rs. A buys this watch ?
 (a) Rs. 200 (b) Rs. 216
 (c) Rs. 100 (d) Rs. 250
35. A sells a box to B with 10% profit and B sells it to C for Rs. 924 and earns 5% profit, then what was cost price of box for A ?
 (a) Rs. 840 (b) Rs. 800
 (c) Rs. 820 (d) Rs. 780
36. If 5% more is loss by selling a table for Rs. 400 to Rs. 350. The cost price of the table is :
 (a) Rs. 435 (b) Rs. 417.50
 (c) Rs. 1000 (d) Rs. 1050
 (e) None of these
37. If 5% more is loss by selling a table for Rs. 1200 to Rs. 1125. The cost price of the table is :
 (a) Rs. 1350 (b) Rs. 1600
 (c) Rs. 1500 (d) Rs. 1460
38. The profit earned by selling an article for Rs. 575 is equal to loss incurred by selling the same article for Rs. 385. What is the cost price of the article ?
 (a) Rs. 496 (b) Rs. 400
 (c) Rs. 475 (d) Rs. 480
39. The profit earned by selling an article for Rs. 524 is equal to loss incurred by selling the same article for Rs. 452. What is the cost price of the article ?
 (a) Rs. 480 (b) Rs. 500
 (c) Rs. 488 (d) Rs. 485
40. The profit earned by selling an article Rs. 138 is twice than the selling at Rs. 156. What is the cost price of the article ?
 (a) Rs. 112 (b) Rs. 147
 (c) Rs. 120 (d) None of these
41. The profit earned by selling an article Rs. 116 is thrice than the selling at Rs. 92. What is the cost price of the article ?
 (a) Rs. 68 (b) Rs. 72
 (c) Rs. 78 (d) Rs. 80
42. A dishonest dealer professes to sell his goods at the cost price but uses a weight of 950 gm for a kg weight. Find the gain percent ?
 (a) 5% (b) 5.26%
 (c) 6.5% (d) 6%

- 43.** By selling goods at cost price a shopkeeper gains 25%, then how much he weighs in a kg ?
 (a) 800 gm (b) 900 gm
 (c) 850 gm (d) 950 gm
 (e) None of these
- 44.** A dishonest dealer professes 10% to sell and buy goods ,then find his total profit ?
 (a) 10% (b) 20%
 (c) $22\frac{2}{9}\%$ (d) 22%
 (e) None of these
- 45.** A man sells his typewriter at 5% loss ,if he sells it Rs. 80 more he gains 5%,what is cost price of the typewriter ?
 (a) Rs. 1600 (b) Rs. 1200
 (c) Rs. 1000 (d) Rs. 800
- 46.** A dealer sells an article at 20% loss, if selling price of article be Rs 100 more then he gains 5%. Find the cost price of the article ?
 (a) Rs. 200 (b) Rs.25
 (c) Rs. 400 (d) Rs. 250
- 47.** An article sold out at 20% profit , Rs. 35 be given more when it was sold at 25%. Cost price of the article is :
 (a) Rs. 650 (b) Rs. 700
 (c) Rs. 750 (d) Rs. 800
- 48.** Yogesh buys two radios in Rs. 6400. He sold a radio at 25% profit and other at 25% loss. If selling price of the both radios are same, then selling price of each radio is :
 (a) Rs. 3200 (b) Rs. 3120
 (c) Rs. 3280 (d) Rs. 3000
- 49.** A horse and a cow was sold in Rs 12000 each. Horse was sold at 20% loss where cow was sold at 20% profit, result of the whole transaction :
 (a) Rs. 1000 loss (b) No loss no profit
 (c) Rs. 1000 Profit (d) Rs. 2000 Profit
- 50.** A man bought two horses in Rs 500 each and he sold a horse at 15% profit. Second horse falls ill and it was sold at a loss. If in whole transaction there is a loss of Rs 45 ,then selling price of second horse is :
 (a) Rs. 477 (b) Rs. 380
 (c) Rs. 277 (d) Rs. 240
- 51.** Cost price of two watches is rs 840 .If first watch is sold at 16% profit and second at 12% loss, then there is no loss or profit in this deal. What was the cost price of the watch which was sold at profit ?
 (a) 360 (b) 370
 (c) 380 (d) 390
- 52.** Mukesh sells a cow at 18% profit. If he purchase it at 5% less and sell at Rs. 25 less, then he gain 20%. Cost price of cow is :
 (a) Rs. 650 (b) Rs. 625
 (c) Rs. 675 (d) Rs. 700
- 53.** A man sells an article at 10% loss. If he buys it 20% less and sells at Rs. 55 more, the profit percent be 40%,then cost price of the article is :
 (a) Rs. 200 (b) Rs. 225
 (c) Rs. 250 (d) None of these
- 54.** Successive discounts of 10% and 20% amount to a single discount of :
 (a) 30% (b) 15%
 (c) 28% (d) 72%
- 55.** Successive discounts of 30%, 20% and 10% amount to a single discount of :
 (a) 50% (b) 49.6%
 (c) 49.4% (d) 51%
- 56.** In a showroom the list price of an article is Rs 2000 and it was sold at two successive discounts of 20% and 10% ,then selling price is :
 (a) Rs. 19000 (b) Rs.17000
 (c) Rs. 1440 (d) Rs. 1400
- 57.** The marked price of an article is Rs 500 and it was sold at two successive discounts of 20% and 10%,then selling price of the article (in Rs.) is
 (a) 350 (b) 375
 (c) 360 (d)400

58. A trader gives two successive discounts on an 20% and 10% article. If he gets Rs. 108 for article, then marked price of that article is :
 (a) Rs. 160 (b) Rs. 144
 (c) Rs. 148 (d) Rs. 150
59. A silver plate of Rs 6300 was sold at two successive discounts of $12\frac{1}{2}\%$ and 10%, marked price of this plate was :
 (a) Rs. 8000 (b) Rs. 7800
 (c) Rs. 7500 (d) Rs. 8600
60. A trader sold his goods at 10% discount of marked price, what price he marked to that article in order to earn 10% and he got Rs 900.
 (a) Rs. 1275 (b) Rs. 1250
 (c) Rs. 1175 (d) Rs. 1100
61. A shopkeeper gave a discount of 10% on a cycle whose marked price is 1100 and still gain 10%. Cost price of cycle is :
 (a) Rs. 1100 (b) Rs. 900
 (c) Rs. 1089 (d) Rs. 1250
62. A shopkeeper gave a discount of 10% on marked price of an article and still earns a gain of 20%, if marked price is Rs. 800, then cost price of the article is :
 (a) Rs. 900 (b) Rs. 800
 (c) Rs. 700 (d) Rs. 600
63. A trader decides 20% more than the cost price of a Radio and gives a discount of 10% on cash, then he got how much percent profit :
 (a) 18% (b) 12%
 (c) 10% (d) 8%
64. A trader marks 20% more than cost price of his articles, he gives 8% discount on marked price to a customer, then he got how much percent profit ?
 (a) 12% (b) 10.4%
 (c) 8.6% (d) 8.2%
65. A trader marks 20% more than the cost price, after that he gives discount and earns a gain of 8%. Discount rate is-
 (a) 12% (b) 10%
 (c) 6% (d) 4%
 (e) None of these
66. A trader marked the price of his commodity so as to include a profit of 25%. He allowed discount of 16% on the marked price. His actual profit was :
 (a) 5% (b) 9%
 (c) 16% (d) 25%
67. A shopkeeper decides the selling price 20% more than cost price of his goods, if he also gave 30% discount, then he total loss is :
 (a) 8% (b) 10%
 (c) 16% (d) 20%
68. A trader marked the selling price of an article at 10% above the cost price. At the time of selling, he allows certain discount and suffers loss of 1%. He allowed a discount of :
 (a) 11% (b) 10%
 (c) 9% (d) 10.5%
69. The marked price of a watch was Rs. 720. A man bought the same for Rs 550.80 after getting two successive discount, the first being 10%. What was the second discount ?
 (a) 12% (b) 14%
 (c) 15% (d) 18%
70. The marked price of a watch was Rs. 1000. A man bought the same for Rs 810 after getting two successive discount, the first being 10%, and second is unknown. What is the rate of second discount ?
 (a) 15% (b) 10%
 (c) 8% (d) 6.5%

ANSWER KEY

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|--------------|--------------|--------------|--------------|
| 1. Ans. (a) | 21. Ans. (b) | 41. Ans. (d) | 61. Ans. (b) |
| 2. Ans. (a) | 22. Ans. (d) | 42. Ans. (b) | 62. Ans. (d) |
| 3. Ans. (b) | 23. Ans. (c) | 43. Ans. (a) | 63. Ans. (d) |
| 4. Ans. (c) | 24. Ans. (c) | 44. Ans. (c) | 64. Ans. (b) |
| 5. Ans. (e) | 25. Ans. (d) | 45. Ans. (d) | 65. Ans. (b) |
| 6. Ans. (b) | 26. Ans. (b) | 46. Ans. (c) | 66. Ans. (a) |
| 7. Ans. (d) | 27. Ans. (b) | 47. Ans. (b) | 67. Ans. (c) |
| 8. Ans. (c) | 28. Ans. (a) | 48. Ans. (d) | 68. Ans. (b) |
| 9. Ans. (a) | 29. Ans. (c) | 49. Ans. (a) | 69. Ans. (c) |
| 10. Ans. (d) | 30. Ans. (a) | 50. Ans. (b) | 70. Ans. (b) |
| 11. Ans. (c) | 31. Ans. (d) | 51. Ans. (a) | |
| 12. Ans. (c) | 32. Ans. (a) | 52. Ans. (b) | |
| 13. Ans. (b) | 33. Ans. (d) | 53. Ans. (c) | |
| 14. Ans. (d) | 34. Ans. (a) | 54. Ans. (c) | |
| 15. Ans. (c) | 35. Ans. (b) | 55. Ans. (b) | |
| 16. Ans. (d) | 36. Ans. (c) | 56. Ans. (c) | |
| 17. Ans. (a) | 37. Ans. (c) | 57. Ans. (c) | |
| 18. Ans. (c) | 38. Ans. (d) | 58. Ans. (d) | |
| 19. Ans. (d) | 39. Ans. (c) | 59. Ans. (a) | |
| 20. Ans. (c) | 40. Ans. (c) | 60. Ans. (d) | |

**ENGINEERS ACADEMY**

RATIO & PROPORTION**OBJECTIVE QUESTIONS**

1. If $A : B = 5 : 7$ and $B : C = 6 : 7$ then $A : B : C$ is-
 - (a) $30 : 42 : 49$
 - (b) $35 : 49 : 42$
 - (c) $42 : 35 : 49$
 - (d) $55 : 77 : 66$
2. If $A : B = 3 : 4$ and $B : C = 2 : 3$ then $A : B : C$ is-
 - (a) $3 : 4 : 6$
 - (b) $3 : 4 : 12$
 - (c) $4 : 3 : 6$
 - (d) None of these
3. If $A : B = 3 : 4$ and $B : C = 6 : 5$ then $A : (A+C)$ equals -
 - (a) $9 : 10$
 - (b) $10 : 9$
 - (c) $9 : 19$
 - (d) $19 : 9$
4. If $A : B = 2 : 3$ and $B : C = 5 : 7$ then find $A : C$
 - (a) $11 : 12$
 - (b) $10 : 21$
 - (c) $9 : 21$
 - (d) $8 : 20$
5. If $a : b = 2 : 3$ and $b : c = 4 : 5$ then $(a+b) : (b+c) = ?$
 - (a) $3 : 4$
 - (b) $4 : 3$
 - (c) $20 : 27$
 - (d) $27 : 20$
6. If $2A = 3B = 4C$ then $A : B : C$ equals
 - (a) $2 : 4 : 3$
 - (b) $6 : 4 : 3$
 - (c) $5 : 2 : 10$
 - (d) None of these
7. If $\frac{A}{3} = \frac{B}{4} = \frac{C}{5}$ then $A : B : C = ?$
 - (a) $3 : 4 : 5$
 - (b) $4 : 3 : 5$
 - (c) $5 : 4 : 3$
 - (d) $20 : 15 : 12$
8. If $2A = 3B$ and $4B = 5C$ then $A : C$ is-
 - (a) $4 : 3$
 - (b) $8 : 15$
 - (c) $15 : 8$
 - (d) $3 : 4$
9. If $A = \frac{B}{3}$ and $B = \frac{C}{2}$ then $A : B : C = ?$
 - (a) $1 : 3 : 6$
 - (b) $3 : 1 : 2$
 - (c) $2 : 3 : 6$
 - (d) $3 : 2 : 6$
10. If $A = B$ of $\frac{4}{5}$ and $B = C$ of $\frac{5}{2}$ then $A : C$ is in ratio-
 - (a) $1 : 2$
 - (b) $2 : 1$
 - (c) $2 : 3$
 - (d) $1 : 3$
11. If 30% of $A = 0.25$ of $B = \frac{1}{5}$ of C then $A : B : C = ?$
 - (a) $12 : 15 : 10$
 - (b) $10 : 12 : 15$
 - (c) $10 : 15 : 12$
 - (d) $15 : 12 : 10$
12. A of $33\frac{1}{3}\% = B$ of $1.5 = C$ of $\frac{1}{8}$ then $A : B : C$ equals -
 - (a) $24 : 2 : 9$
 - (b) $2 : 9 : 24$
 - (c) $9 : 2 : 24$
 - (d) $9 : 24 : 2$
13. If $A : B = 3 : 4$, $B : C = 5 : 7$ and $C : D = 8 : 9$ then $A : D = ?$
 - (a) $3 : 7$
 - (b) $7 : 3$
 - (c) $10 : 21$
 - (d) $21 : 10$

- 14.** If $A : B = \frac{1}{2} : \frac{3}{8}$, $B : C = \frac{1}{3} : \frac{5}{9}$ and $C : D = \frac{5}{6} : \frac{3}{4}$ then $A : B : C : D = ?$
- (a) $4 : 6 : 8 : 10$ (b) $8 : 6 : 10 : 9$
 (c) $6 : 8 : 9 : 10$ (d) $6 : 4 : 8 : 10$
- 15.** If $a : b = \frac{2}{9} : \frac{1}{3}$, $b : c = \frac{2}{7} : \frac{5}{14}$ and $d : c = \frac{7}{10} : \frac{3}{5}$ then $a : b : c : d = ?$
- (a) $4 : 6 : 7 : 9$ (b) $8 : 12 : 15 : 7$
 (c) $16 : 24 : 30 : 35$ (d) $30 : 35 : 24 : 16$
- 16.** If $\frac{x}{5} = \frac{y}{8}$ then $(x+5) : (y+8)$ equals-
- (a) $\frac{7}{8}$ (b) $\frac{3}{5}$
 (c) $\frac{8}{5}$ (d) $\frac{5}{8}$
- 17.** If $a : b = 7 : 4$ then find the ratio of $(5a - 6b) : (3a + 11b)$
- (a) $24 : 19$ (b) $11 : 18$
 (c) $13 : 24$ (d) $11 : 65$
- 18.** If $\frac{a}{3} = \frac{b}{4} = \frac{c}{7}$ then $\frac{a+b+c}{2} = ?$
- (a) 7 (b) 2
 (c) 1/2 (d) 1/7
- 19.** If m of 15% = n of 20% then $m : n = ?$
- (a) $3 : 4$ (b) $4 : 3$
 (c) $17 : 16$ (d) $16 : 17$
- 20.** If $A : B : C = 2 : 3 : 4$ then $\frac{A}{B} : \frac{B}{C} : \frac{C}{A} = ?$
- (a) $4 : 9 : 16$ (b) $8 : 9 : 24$
 (c) $8 : 9 : 12$ (d) $8 : 9 : 16$
- 21.** If $a : b = 5 : 7$ and $c : d = 2 : 3$ than $ac : bd$
- (a) 20:38 (b) 50:147
 (c) 10:21 (d) 50:151a
- 22.** If $p : q = r : s = t : u = 2 : 3$ then $(mp + nr + ot) : (mq + ns + ou) = ?$
- (a) $3 : 2$ (b) $2 : 3$
 (c) $1 : 3$ (d) $1 : 2$
- 23.** If $\frac{b}{a} = 0.25$ then find the value of $\frac{2a-b}{2a+b} + \frac{2}{9} = ?$
- (a) 1 (b) $\frac{4}{9}$
 (c) $\frac{5}{9}$ (d) 2
- 24.** If $x : y = y : z$ then $(x^2 : y^2)$ equals-
- (a) $x : z$ (b) $8x^3 : z^3$
 (c) $x^2 : 4z^2$ (d) $x^4 : 4z^4$
 (e) None of these
- 25.** If $(3a + 5b) : (3a - 5b) = 5 : 1$ then $a : b = ?$
- (a) $2 : 1$ (b) $5 : 3$
 (c) $3 : 2$ (d) $5 : 2$
- 26.** If $(x+y) : (x-y) = 4 : 1$ then $(x^2 + y^2) : (x^2 - y^2) = ?$
- (a) $25 : 9$ (b) $16 : 1$
 (c) $8 : 17$ (d) $17 : 8$
- 27.** If $5 : 8 = 150 : x$ then value of x?
- (a) 180 (b) 190
 (c) 200 (d) 240
- 28.** If $0.75 : x :: 5 : 8$ then value of x = ?
- (a) 1.12 (b) 1.20
 (c) 1.25 (d) 1.30

29. If $x : \frac{1}{8} = \frac{1}{5} : \frac{1}{2}$ then value of x
 (a) $\frac{1}{10}$ (b) $\frac{1}{20}$
 (c) $\frac{1}{30}$ (d) $\frac{1}{40}$
30. If $\sqrt{2} : (1 + \sqrt{3}) :: \sqrt{6} : x$, then find the value of x-
 (a) $\sqrt{3} - 3$ (b) $1 + \sqrt{3}$
 (c) $1 - \sqrt{3}$ (d) $\sqrt{3} + 3$
31. The mean proportional of 0.02 and 0.32 is-
 (a) 0.34 (b) 0.08
 (c) 0.16 (d) 0.3
32. The fourth proportional of 0.12 0.21, 8 is-
 (a) 8.9 (b) 56
 (c) 14 (d) 17
33. what will be added to each number of 7 : 13 so that the new numbers will become in 2 : 3 ?
 (a) 5 (b) 1
 (c) 2 (d) 3
34. what will be added to each number of 3 : 5 so that the new numbers will become in 5 : 6 ?
 (a) 13 (b) 7
 (c) 12 (d) 6
35. Two numbers are in 3 : 5, if 9 will be subtracted from each ,than they will become in 12 : 23, then what is first number ?
 (a) 27 (b) 33
 (c) 55 (d) 49
36. Two numbers are in 3 : 5, and L.C.M. of these numbers is 300. What is the smaller number ?
 (a) 30 (b) 50
 (c) 60 (d) 75
37. From 21, 38, 55, 106 what will be subtracted so that new numbers are in equal proportion ?
 (a) 2 (b) 4
 (c) 6 (d) 8
38. From 6, 7, 15, 17 following which number should be added so that these numbers in equal proportion?
 (a) 6 (b) 5
 (c) 4 (d) 3 (e) None of these
39. In a farm, the ratios of hens, pigs and horses are 10 : 2 : 3, if there are 120 hens in farm, then what is the number of horses ?
 (a) 25 (b) 36
 (c) 40 (d) 24
40. A money is divided among A, B, C in $\frac{1}{2} : \frac{1}{3} : \frac{1}{4}$ ratio, A got Rs. 400 more from B, then total amount is ?
 (a) Rs. 2000 (b) Rs. 2500
 (c) Rs. 2700 (d) Rs. 2600
41. Three friends divide Rs. 624 in $\frac{1}{2} : \frac{1}{3} : \frac{1}{4}$ ratio, then what is the part of third friend ?
 (a) Rs. 150 (b) Rs. 192
 (c) Rs. 148 (d) Rs. 144
42. Rs. 900 is divide among in A, B and C in 4 : 5 : 6 ratio, what is the difference of money got by A and C ?
 (a) Rs. 25 (b) Rs. 120
 (c) Rs. 130 (d) Rs. 150
43. Three numbers are in 3 : 2 : 5 ratio, the sum of square of these is 1862, then which is smallest number ?
 (a) 24 (b) 21
 (c) 14 (d) 35
44. The number got by anshu in English is twice of science, Secured marks in English, science and Maths are 180. is the ratio of secured marks in English and maths is 2 : 3, then how many marks he secured in science ?
 (a) 15 (b) 30
 (c) 60 (d) 46

45. The ratio of money between mukesh and surendra is in 7 : 17 and between surendra and yogesh is 7 : 17. if mukesh has Rs. 490,then yogesh has how many rupees ?
 (a) Rs. 2890 (b) Rs. 2330
 (c) Rs. 1190 (d) Rs. 2680
46. The ratio of money of A and B is in 4 : 5. if A has Rs. 800 then C has ?
 (a) Rs. 1000 (b) Rs. 2200
 (c) Rs. 1500 (d) Rs. 4000
47. The sum of three numbers is 98 . if ratio of first and second number is 2 : 3 and second and third is 5 : 8. then second number is ?
 (a) 22 (b) 30
 (c) 32 (d) 42
48. Two numbers are respectively 20% and 50% more than the third number. The ratio of the two numbers is :
 (a) 2:5 (b) 3:5
 (c) 4:5 (d) 6:7
49. The ratio of two persons income is in 9 : 7 and their expenditures are in 4 : 3. if everyone saves 200 rupees per month, then what is monthly income of the person who earn more income ?
 (a) Rs. 2200 (b) Rs. 1800
 (c) Rs. 1400 (d) Rs. 1200
50. The ratio of income of A and B is in 3 : 2 and their expenditures are in 5 : 3. if everyone saves 200 rupees per month then what is income of A?
 (a) Rs. 800 (b) Rs. 1600
 (c) Rs. 1200 (d) Rs. 2000
51. The ratio of income of A and B is in 5 : 3 , the expenditures of A, B and C are in 8 : 5 : 2 ratio. if C spends Rs. 2000 and B saves Rs. 700,then what is the saving of A ?
 (a) Rs. 1500 (b) Rs. 1000
 (c) Rs. 2500 (d) Rs. 500
52. The ratio of incomes of X, Y and Z are in 3 : 5 : 7 ratio respectively. If there is an increase of 50%, 60% and 50% respectively in their income, then what is their new ratios of income ?
 (a) 3 : 6 : 7 (b) 4 : 5 : 7
 (c) 4 : 5 : 8 (d) Data Inadequate
 (e) None of these
53. 27 will be divided in this way so that first part of 5 times and second part 11 times will become equals to 195 ?
 (a) 17, 10 (b) 18, 9
 (c) 15, 12 (d) 16, 11
54. Rs. 2430 will be divided among three persons in such way, if their part are subtracted in Rs. 5, Rs. 10 and Rs. 15 respectively,then ratio of remaining become 3 : 4 : 5. C's part is ?
 (a) Rs. 1015 (b) Rs. 605
 (c) Rs. 810 (d) Rs. 1415
55. A sum of Rs. 53 is divided among A, B, C in such a way that A gets Rs. 7 more than what B gets and B gets Rs. 8 more than what C gets . The ratio of their shares is :
 (a) 16 : 9 : 18 (b) 25 : 18 : 10
 (c) 18 : 25 : 10 (d) 15 : 8 : 30
56. Rs. 56250 will be divided among X, Y, Z so that X gets half of total of Y and Z and Y gets one fourth of total of X and Z, then find X's part is how much more than Y's part ?
 (a) Rs. 7500 (b) Rs. 7750
 (c) Rs. 15000 (d) Rs. 16000
57. In a bag 1 rupee, 50 paise, 10 paise coins are in 3 : 4 : 10 ratio. If total of these is Rs. 102 then what is the number of 10 paise coins ?
 (a) 340 (b) 60
 (c) 80 (d) 170
58. In a bag 25 paise, 10 paise and 5 paise coins are in 1 : 2 : 3 ratio. if there are total Rs. 30 in bag, then how many of 5 paise coins are there ?
 (a) 50 (b) 100
 (c) 150 (d) 200

59. A man has Rs. 1560 in form of 1, 2 and Rs. 5 note, if these notes in $2 : 5 : 8$ ratio, then find the numbers of Rs. 2 notes ?
 (a) Rs. 100 (b) Rs. 125
 (c) Rs. 200 (d) Rs. 150
60. 378 coins of 1 rupee, 50 paise and 25 paise are in $13 : 11 : 7$ ratio, the numbers of 50 paise are ?
 (a) 128 (b) 1320
 (c) 133 (d) 136
61. The ratio of students in three class are $2 : 3 : 4$. If there is an increase of 12 students in each class, then the ratio changes to $8 : 11 : 14$, then what is the total number of students in three class in starting ?
 (a) 162 (b) 108
 (c) 96 (d) 54
62. A money is divided by among P, Q, R in the ratio of $6:19:7$, if R give Rs. 200 to Q from his part, then the ratio of amount becomes $3:10:3$, then total amount is ?
 (a) Rs. 3200 (b) Rs. 6400
 (c) Rs. 12800 (d) Rs. 13000
 (e) None of these
63. There are three utensils of same material. In first utensil of sulphur of have acid and water in $3 : 2$ ratio. In second utensil this ratio is $7 : 3$ and in third utensils this ratio is $11 : 4$. If these are combined in a mixture, then acid and water is in ratio?
 (a) $61 : 29$ (b) $61 : 28$
 (c) $60 : 29$ (d) $59 : 29$
 (e) None of these
64. In four mixtures milk and water are in $1 : 2$, $2 : 3$, $3 : 2$, and $7 : 8$. If these are mixed in equal quantity, then what is ratio of milk and water in mixture ?
 (a) $13 : 15$ (b) $7 : 9$
 (c) $9 : 11$ (d) $11 : 9$
65. A man invests total 1810 rs on purchasing 200 rs per bedsheet and 70 rs per pillow. When he purchase maximum number of bedsheets, then what is the ratio of numbers of bedsheet and pillow ?
 (a) $3 : 8$ (b) $8 : 3$
 (c) $9 : 1$ (d) $1 : 9$ (e) None of these
66. The ratio of income of A, B, C is $7 : 9 : 12$ and their expenditures ratios are in $8 : 9 : 15$, If A's saving is $\frac{1}{4}$ part of his income, then what is the ratio of savings of A, B, C ?
 (a) $56 : 99 : 69$ (b) $99 : 56 : 69$
 (c) $69 : 56 : 99$ (d) $99 : 69 : 56$
67. x is directly proportional to square of y. If $x = 4$ then $y = 2$, then find the value of x for $y = 3$?
 (a) 12 (b) 16
 (c) 10 (d) 9
68. From the three numbers the first number is twice of second and second number is twice of third. If sums of all the numbers is 77 then what is the first number?
 (a) 11 (b) 22
 (c) 44 (d) 66
69. The present salary of B is 80% of A. If salary of A & B is increases by 10% & 20% respectively then what is the ratio of increased salary?
 (a) $4 : 5$ (b) $3 : 4$
 (c) $15 : 11$ (d) $55 : 48$

□□□

ANSWER KEY

- | | | | |
|--------------|--------------|--------------|--------------|
| 1. Ans. (a) | 21. Ans. (c) | 41. Ans. (d) | 61. Ans. (a) |
| 2. Ans. (a) | 22. Ans. (b) | 42. Ans. (b) | 62. Ans. (b) |
| 3. Ans. (c) | 23. Ans. (a) | 43. Ans. (c) | 63. Ans. (a) |
| 4. Ans. (b) | 24. Ans. (a) | 44. Ans. (b) | 64. Ans. (c) |
| 5. Ans. (c) | 25. Ans. (d) | 45. Ans. (a) | 65. Ans. (b) |
| 6. Ans. (b) | 26. Ans. (d) | 46. Ans. (c) | 66. Ans. (a) |
| 7. Ans. (a) | 27. Ans. (d) | 47. Ans. (b) | 67. Ans. (d) |
| 8. Ans. (c) | 28. Ans. (b) | 48. Ans. (c) | 68. Ans. (c) |
| 9. Ans. (a) | 29. Ans. (b) | 49. Ans. (b) | 69. Ans. (d) |
| 10. Ans. (b) | 30. Ans. (d) | 50. Ans. (c) | |
| 11. Ans. (b) | 31. Ans. (b) | 51. Ans. (a) | |
| 12. Ans. (c) | 32. Ans. (c) | 52. Ans. (e) | |
| 13. Ans. (c) | 33. Ans. (a) | 53. Ans. (a) | |
| 14. Ans. (b) | 34. Ans. (b) | 54. Ans. (a) | |
| 15. Ans. (c) | 35. Ans. (b) | 55. Ans. (b) | |
| 16. Ans. (d) | 36. Ans. (c) | 56. Ans. (a) | |
| 17. Ans. (d) | 37. Ans. (b) | 57. Ans. (d) | |
| 18. Ans. (a) | 38. Ans. (d) | 58. Ans. (c) | |
| 19. Ans. (b) | 39. Ans. (b) | 59. Ans. (d) | |
| 20. Ans. (b) | 40. Ans. (d) | 60. Ans. (b) | |

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COMPOUND PROPORTION

10

OBJECTIVE QUESTIONS

1. If 51 persons can eat some food in 50 days then same food will be eaten by 50 persons in how many days?
(a) 50 days (b) 51 days
(c) 52 days (d) 60 days
2. A fort has a provision of food for 40 persons for 12 days, same provision for 30 persons is enough for how many days ?
(a) 9 days (b) 10 days
(c) 16 days (d) 20 days
3. If 9 men complete a work in 16 days, then to complete same work in 24 days, how many men are required ?
(a) 3 men (b) 4 men
(c) 5 men (d) 6 men
4. If 72 persons made a 280 meter long wall in 21 days, then in same way 100 meter long wall will be made in how many days required with the help of 18 persons ?
(a) 30 days (b) 10 days
(c) 18 days (d) 18 days
5. Some persons complete a work in 12 days, then twice of these persons can complete half work in how many days ?
(a) 6 days (b) 12 days
(c) 4 days (d) 3 days
6. If 4 examiners examine a certain number of answer books in 8 days ,working 5 hours a day, for how many hours a day would 2 examiners have to work in order to examine twice the number of answer books in 20 days?
(a) 6 hours (b) $7\frac{1}{2}$ hours
(c) 8 hours (d) 9 hours
7. If 6 person work 8 hours per day and earn Rs 8400 per week, then 9 person earn how many Rs in next week by working 6 hours per day ?
(a) Rs 8400 (b) Rs 16800
(c) Rs 9450 (d) Rs 16200
8. If 5 engines consume 6 metric tonnes of coal when each is running 9 hours a day, how many metric tonnes of coal will be needed for 8 engines, each running 10 hours a day, it being given that 3 engines of the former type consume as much as 4 engines of the latter type ?
(a) $3\frac{1}{8}$ metric tonnes (b) $6\frac{12}{25}$ metric tonnes
(c) 8 metric tonnes (d) $8\frac{8}{9}$ metric tonnes
9. Some men complete a work in 60 days ,if 8 more men are their then same work will be completed in 10 day less ,then find the number of men in starting?
(a) 40 men (b) 42 men
(c) 45 men (d) 50 men
10. Some persons can complete a work in 55 days , if 6 more people arrived ,then same work will be completed in 11 days less ,then how many persons are in starting ?
(a) 17 men (b) 24 men
(c) 30 men (d) 22 men
11. Some work can be completed in 30 days by some men. If 5 more men arrived then same work will be completed in 10 less days, then tell how many men are in starting
(a) 10 men (b) 15 men
(c) 20 men (d) 25 men

12. If 3 men or 4 women can plough a field in 43 days, then 7 men and 5 women take how many days to plough same field ?
 (a) 10 days (b) 11 days
 (c) 9 days (d) 12 days
13. If 3 men or 4 women harvest some crop in 57 days, then 6 men and 11 women can harvest same crop in how many days ?
 (a) 9 days (b) 10 days
 (c) 11 days (d) 12 days
14. 6 men or 12 women can complete a work in 20 days, then 8 men and 16 women can complete twice of same work in how many days ?
 (a) 2 days (b) 5 days
 (c) 15 days (d) 10 days
15. In a soldier's camp, 95 soldiers had a provision for 200 days. After 5 days, 30 soldier move to another camp. For how many days remaining food is enough?
 (a) $136\frac{16}{19}$ days (b) 280 days
 (c) 285 days (d) 375 days
16. In a soldier's camp, 500 soldiers had a provision for 27 days. After 3 days 300 more soldiers arrived. Than for how many days remaining food is enough?
 (a) 15 days (b) 16 days
 (c) $17\frac{1}{2}$ days (d) 18 days
17. In a camp 2000 people had provisions for 54 days. After 15 days some more people arrived and food last in 20 days more, then how many people arrived in the camp ?
 (a) 1675 (b) 1900
 (c) 2250 (d) 2500
18. There is a provision of food for 50 days. If after 10 days due to arrival of 500 more people remaining food is enough for only 35 days, then how many people are in beginning ?
 (a) 3500 (b) 3000
 (c) 2500 (d) 4000
19. A contractor undertakes 12 men to complete a certain work in 10 days. He finds half of work has completed in 6 days. Then to complete contract he take to employed how many more men ?
 (a) 8 men (b) 12 men
 (c) 4 men (d) 6 men
20. A contractor take a contract of road to finish it in 40 days and employed 25 men, After 24 days he found that only one third road is constructed then contractor employed how many more people so that road will be constructed 4 days earlier ?
 (a) 100 men (b) 60 men
 (c) 75 men (d) 150
21. A work had been completed by 60 persons in 62 days. They work 32 days with each other and complete $\frac{2}{3}$ part of the work. then how many more people are required to complete remaining work ?
 (a) 32 men (b) 30 men
 (c) 36 men (d) 40 men
22. A contractor undertakes to do a piece of work in 40 days. He engages 100 men at the beginning and 100 more after 35 days and completes the work in stipulated time. If he had not employed additional men, then work will be completed. How many more days?
 (a) 3 days (b) 5 days
 (c) 6 days (d) 9 days
23. A contractor undertakes to do a piece of work in 38 days and engages 30 men. After 25 days he engages 5 more men and completes the work in stipulated time. If he had not engaged the additional men, then work will be completed. How many more days?
 (a) 1 days (b) $1\frac{1}{2}$ days
 (c) $1\frac{1}{4}$ days (d) 2 days

24. 60 men can complete a work in 250 days. They work each other till 200 days. After that due to bad climate the work has been stopped for 10 days. How many more men are required to complete work in stipulated time ?

- (a) 10 men (b) 15 men
(c) 18 men (d) 20 men

25. A man covers a certain distance in 50 days by resting 9 hours per day .If he rests twice and moves twice ,then he completes twice of distance in how many days ?

- (a) $112\frac{1}{2}$ days (b) 125 days
(c) 225 days (d) 250 days



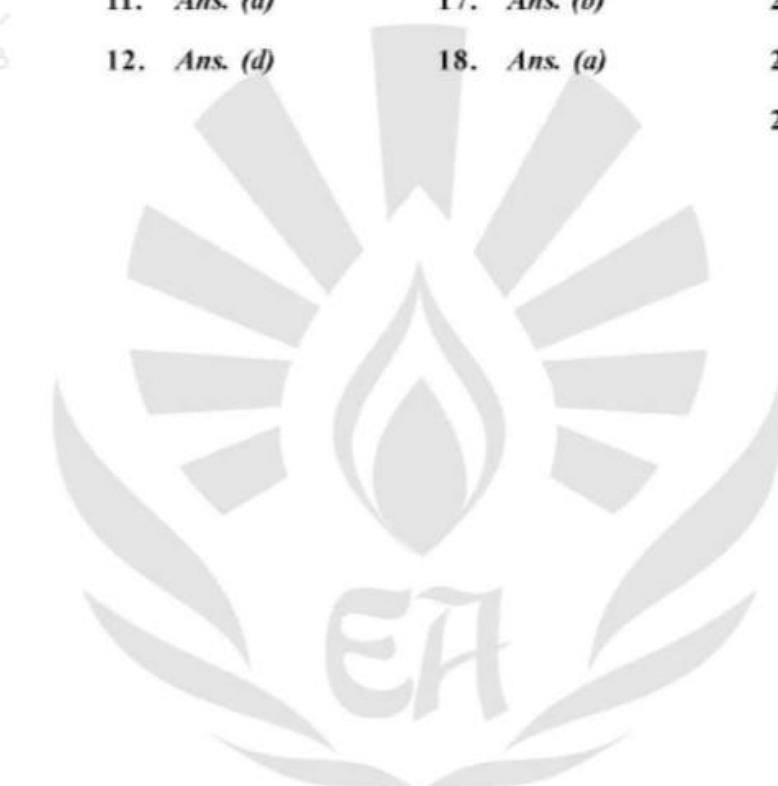
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ENGINEERS ACADEMY

ANSWER KEY

- | | | | |
|--------------------|---------------------|---------------------|---------------------|
| 1. <i>Ans. (b)</i> | 7. <i>Ans. (c)</i> | 13. <i>Ans. (d)</i> | 19. <i>Ans. (d)</i> |
| 2. <i>Ans. (c)</i> | 8. <i>Ans. (c)</i> | 14. <i>Ans. (c)</i> | 20. <i>Ans. (c)</i> |
| 3. <i>Ans. (d)</i> | 9. <i>Ans. (a)</i> | 15. <i>Ans. (c)</i> | 21. <i>Ans. (a)</i> |
| 4. <i>Ans. (a)</i> | 10. <i>Ans. (b)</i> | 16. <i>Ans. (a)</i> | 22. <i>Ans. (b)</i> |
| 5. <i>Ans. (d)</i> | 11. <i>Ans. (a)</i> | 17. <i>Ans. (b)</i> | 23. <i>Ans. (a)</i> |
| 6. <i>Ans. (c)</i> | 12. <i>Ans. (d)</i> | 18. <i>Ans. (a)</i> | 24. <i>Ans. (b)</i> |
| | | | 25. <i>Ans. (b)</i> |



ENGINEERS ACADEMY

TIME AND WORK

11

OBJECTIVE QUESTIONS

1. A does a work in 10 days and B does the same work in 15 days. In how many days they together will do the same work ?
(a) 5 days (b) 6 days
(c) 8 days (d) 10 days
2. X and Y can made a machine in 12 days and Y alone can made this in 48 days, then X alone made same machine in how many days ?
(a) 40 days (b) 32 days
(c) 24 days (d) 16 days
3. A, B and C can complete a work in 6 hours, 4 hours and 12 hours respectively. In how many hours they together complete same work ?
(a) 2 hours (b) 5 hours
(c) 6 hours (d) 8 hours
4. One man, one woman and one child together complete a work in 3 days. If one man alone complete same work in 6 days and one child in 18 days, then woman take how many days to complete same work ?
(a) 9 days (b) 21 days
(c) 24 days (d) 27 days
5. A and B can do a certain work in 18 days, B and C can do the same work in 24 days, A and C in 36 days. If they work together, they will complete the work in how many days ?
(a) 12 days (b) 13 days
(c) 16 days (d) 26 days
6. A and B can do a work in 8 days, B and C can do it in 12 days and A and C can complete it in 15 days. In what time can C alone do it ?
(a) 80 days (b) 120 days
(c) 75 days (d) 90 days
7. A can do of a work $\frac{2}{5}$ part in 10 days and B can do $\frac{1}{3}$ part of the same work in 5 days, In how many days A and B together complete this work ?
(a) $8\frac{4}{5}$ days (b) $9\frac{3}{8}$ days
(c) $9\frac{4}{5}$ days (d) 10 days
8. A ploughs $\frac{2}{5}$ part of a certain field in 6 days and $\frac{1}{3}$ part of same filed was ploughed by B in 10 days. A and B can plough $\frac{4}{5}$ part of filed in how many days ?
(a) 4 days (b) 5 days
(c) 8 days (d) 10 days
9. A completes $\frac{7}{10}$ part of a certain work in 15 days, after that with the help of B he completes remaining work in 4 days, A and B together completes the whole work in how many days?
(a) $10\frac{1}{3}$ days (b) $12\frac{2}{3}$ days
(c) $13\frac{1}{3}$ days (d) $8\frac{1}{4}$ days
10. A and B can complete a certain work in 20 days and 12 days respectively. A started the work alone and then after 4 days B joined him till completion of the work. In how long did the work last ?
(a) 10 days (b) 20 days
(c) 15 days (d) 6 days

11. X and Y can do a piece of a work in 12 and 16 days. Both works for 3 days ,after that X left ,In how many days alone Y complete the remaining work ?
 (a) 9 days (b) 10 days
 (c) 12 days (d) 15 days
12. A completes a work in 24 days , B it in 9 days and C it in 12 days, B and C starts work but after 3 days they have to leave this work, to complete remaining work A takes how many time ?
 (a) 5 days (b) 6 days
 (c) 10 days (d) $10\frac{1}{2}$ days
13. A can do a work in 60 days, he works for 15 days and remaining work will be completed by B alone in 30 days. Both can complete the same work in how many days ?
 (a) 24 days (b) 25 days
 (c) 30 days (d) 32 days
14. A is thrice as good a workman as B and A do a certain work takes 10 days less than B. In how many days B can complete same work ?
 (a) 12 days (b) 15 days
 (c) 20 days (d) 30 days
15. A works twice as fast as B. If both work together and complete that work in 12 days, then In how many days B alone can complete same work ?
 (a) 48 days (b) 36 days
 (c) 27 days (d) 24 days
16. A can do certain work in 9 days. If B's work efficiency is 50 % more than A, then in how many days B alone can complete same work ?
 (a) 3 days (b) $4\frac{1}{2}$ days
 (c) 6 days (d) $13\frac{1}{2}$ days
17. To complete a certain work A takes twice of B and thrice of C time. By working together they complete same work in 2 days .To complete same work B can take how many days ?
 (a) 4 days (b) 6 days
 (c) 8 days (d) 12 days
18. A can do a certain work in 10 days, where B alone can do in 15 days. If they work on alternate days and A started work, then work will be completed in how many days ?
 (a) 6 days (b) 12 days
 (c) 13 days (d) 18 days
19. A, B, C can complete a certain work in 11 days, 20 days and 55 days. If A works with B and then next day with C, works on alternate days, then work will be completed in how many days ?
 (a) 7 days (b) 8 days
 (c) 9 days (d) 10 days
20. A, B, C can do a piece of a work in 20, 30 and 60 days respectively, working alone. In how many days A can do the work if he is assisted by B and C on every third day ?
 (a) 12 days (b) 15 days
 (c) 16 days (d) 18 days
21. Manisha can do a work in 3 days and Archana can do the same work in 2 days. Both of them finish the work together are paid Rs. 150. What is the share of Manisha ?
 (a) Rs. 30 (b) Rs. 60
 (c) Rs. 70 (d) Rs. 75
22. 10 women can complete a work in 8 days and 10 children can complete same work in 12 days. If 6 women and 3 children work together, in how many days will the same work get completed ?
 (a) 7 days (b) 8 days
 (c) 9 days (d) 10 days
23. 4 men and 6 women can complete a work in 8 days. 3 men and 7 women can complete the same work in 10 days. 10 women can complete same work in how many days?
 (a) 35 days (b) 40 days
 (c) 45 days (d) 50 days

24. 1 man or 2 women or 3 children can complete a certain work in 55 days. 1 man, 1 woman and 1 child can complete same work in how many days when they work together ?
 (a) 27 days (b) 30 days
 (c) 36 days (d) 42 days
25. A do B's half work and C do half of work done by A and B together. If C alone complete a work in 12 days, then in how many days will be taken by them when they work together ?
 (a) 6 days (b) 7 days
 (c) 4 days (d) 5 days
26. A and B together do a certain work in 12 days. A alone can do same work in 20 days. If now B daily works half a day, then A and B together can complete that work in how many days?
 (a) 15 days (b) 11 days
 (c) 20 days (d) 10 days
27. A and B can do a piece of a work in 45 days and 40 days respectively. They began to do the work together but A leaves after some days and then B completed the remaining work in 23 days. The number of days after which A left the work was ?
 (a) 20 days (b) 15 days
 (c) 12 days (d) 9 days
28. A and B can do a piece of work in 12 days, which B and C together can do in 16 days. After A has been working at it for 5 days and B for 7 days, C finishes remaining work in 13 days. In how many days C alone will do the work ?
 (a) 16 days (b) 24 days
 (c) 36 days (d) 48 days
 (e) None of these
29. A, B and C can do a piece of work in 36 days, 54 days and 72 days respectively. They started the work but A left 8 days before the completion of the work while B left 12 days before the completion. The number of days for which C worked is ?
 (a) 4 days (b) 8 days
 (c) 12 days (d) 24 days
30. A and B together can complete a work in 16 days and B and C can complete same work in 24 days. If A is thrice more efficient than C, then work will be completed in how many days by working together ?
 (a) $\frac{96}{7}$ days (b) $\frac{48}{7}$ days
 (c) $\frac{24}{3}$ days (d) $\frac{48}{5}$ days
31. A can do a piece of work in 4 hours. B and C can do it in 3 hours. A and C can do it in 2 hours. How long will B along take to do it ?
 (a) 10 hours (b) 12 hours
 (c) 8 hours (d) 24 hours
32. C can do a job in 6 hrs. B and C can do it in 4 hrs and A, B and C in $2\frac{2}{3}$ hrs. in how many hrs can A and B do it?
 (a) $4\frac{4}{5}$ hrs. (b) $4\frac{5}{4}$
 (c) $3\frac{4}{5}$ hrs. (d) 4 hrs.
33. Two men A and B, working separately can do a work in 8 and 12 hrs. If they work on alternate beginning with a at 9.am, when will be work finished ?
 (a) 6.30pm (b) 6.40pm
 (c) 4.30pm (d) 3.35pm
34. A and B working separately can do a piece of work in 9 and 12 days respectively. If they work for a day alternately with B beginning, the work would be completed in
 (a) $10\frac{2}{3}$ days (b) $10\frac{1}{2}$ days
 (c) $10\frac{1}{4}$ days (d) $10\frac{1}{3}$ days
35. A, B and C alone can complete a work in 20 days, 30 days and 60 days respectively. A works alone, however on every third day, he takes the help of B and C. In how many days will the work be completed ?
 (a) 10 days (b) 12 days
 (c) 15 days (d) 18 days

ANSWER KEY

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|-------------|--------------|--------------|--------------|--------------|
| 1. Ans. (b) | 8. Ans. (c) | 15. Ans. (b) | 22. Ans. (d) | 29. Ans. (d) |
| 2. Ans. (d) | 9. Ans. (c) | 16. Ans. (c) | 23. Ans. (b) | 30. Ans. (a) |
| 3. Ans. (a) | 10. Ans. (a) | 17. Ans. (b) | 24. Ans. (b) | 31. Ans. (b) |
| 4. Ans. (a) | 11. Ans. (a) | 18. Ans. (b) | 25. Ans. (c) | 32. Ans. (a) |
| 5. Ans. (c) | 12. Ans. (c) | 19. Ans. (b) | 26. Ans. (a) | 33. Ans. (a) |
| 6. Ans. (a) | 13. Ans. (a) | 20. Ans. (b) | 27. Ans. (d) | 34. Ans. (d) |
| 7. Ans. (b) | 14. Ans. (b) | 21. Ans. (b) | 28. Ans. (b) | 35. Ans. (a) |



PIPE AND CISTERN**CHAPTER****12****OBJECTIVE QUESTIONS**

1. Tap A can fill cistern in 8 hours and tap B can empty full cistern in 16 hours. If both tap will be opened in a cistern, then cistern take how many time to fill?
(a) 8 hours (b) 10 hours
(c) 16 hours (d) 24 hours
2. X tap can fill a cistern in 25 minute and Y tap can empty in 50 minutes. If both tap are opened together, then cistern will fill in how many time ?
(a) 20 minutes (b) 30 minutes
(c) 40 minutes (d) 50 minutes
3. A pipe can empty certain cistern in 40 minutes. If diameter of the pipe is twice of pipe used for empty. Both pipe takes how much time to empty full cistern ?
(a) 8 minutes (b) $13\frac{1}{3}$ minutes
(c) 30 minutes (d) 38 minutes
4. A tap can fill a cistern in 8 hours, but because hole in cistern it takes 2 hours more. To empty full cistern hole takes how much time ?
(a) 15 hours (b) 20 hours
(c) 24 hours (d) 40 hours
5. A cistern fill in 9 hours, but due to a hole in the bottom it takes one hour more. If cistern is full, then hole takes how much time empty cistern ?
(a) 30 hours (b) 90 hours
(c) 45 hours (d) 60 hours
6. A cistern was filled by two tap X and Y in 4 hours and 6 hours respectively and tap Z can empty full cistern in 8 hours. If all three are opened together in a empty cistern, it takes how much time to fill cistern ?
(a) $3\frac{3}{10}$ hours (b) $3\frac{3}{7}$ hours
(c) $3\frac{7}{10}$ hours (d) $3\frac{4}{5}$ hours
7. A pipe can fill an empty cistern in 3 hours. Two outlet pipes can empty cistern in 6 hours and 10 hours respectively. If all three are opened together in an empty cistern, it takes how much time to fill cistern ?
(a) 18 hours (b) 9 hours
(c) 16 hours (d) 15 hours
8. Two pipes P and Q fill a cistern in 60 minute and 75 minute respectively and third pipe R is an outlet pipe. If three pipes are opened together in an empty cistern ,then it will full in 50 minutes. In how much time Pipe R can empty full cistern ?
(a) 90 minute (b) 100 minute
(c) 110 minute (d) 120 minute
9. Two taps A and B takes 20 minute and 1 hours to fill a cistern. Both tap are opened for 10 minutes. After that A tap has closed. Now B takes how much time to fill remaining cistern ?
(a) 10 minute (b) 12 minute
(c) 15 minute (d) 20 minute

10. Three tap X, Y, Z can fill a cistern in 6 minute, 8 minute and 24 minute respectively. All three taps are opened in a cistern and tap Z is closed just 2 minutes before full of cistern. Cistern takes how much time to full?
- (a) 4 minute 20 sec. (b) 5 minute
(c) 3 minute15 sec. (d) 3 minute 40 sec.
11. Three taps A, B and C can fill a cistern in 12 ,15 and 20 hours respectively, if tap A has opened whole time and B and C are opened one hours alternately.
- (a) 6 hours (b) $6\frac{2}{3}$ hours
(c) 7 hours (d) $7\frac{1}{2}$ hours
12. A leak in the bottom of a tank can empty the full tank in 8 hours. An inlet pipe fills water at the rate of 6 litres a minute. When the tank is full ,the inlet is opened and due to leak, the tank is empty in 12 hours. how many litres does the cistern hold ?
- (a) 4560 litres (b) 8640 litres
(c) 9000 litres (d) 10000 litres
13. Speed of a pipe is thrice of second pipe. If both together can fill a empty cistern in 36 minutes ,then slower speed pipe can fill cistern in how many time ?
- (a) 81 minutes (b) 108 minutes
(c) 144 minutes (d) 192 minutes
14. Bucket A has thrice the capacity of bucket B. It takes 60 turns for bucket A to fill the empty cistern. How many turns it will take for both the buckets A and B, having each together to fill the empty cistern ?
- (a) 30 (b) 40
(c) 45 (d) 90
15. Two pipes can fill certain cistern in 15 hours and 12 hours respectively and third pipe can empty a full tank in 4 hours. if these pipes are opened at 8 o' clock ,9 o' clock and 11 o' clock, then cistern will be empty at what time ?
- (a) 11 : 40 PM (b) 12 : 40 AM
(c) 1 : 40 AM (d) 2 : 40 AM
16. Two pipes P and Q can fill a cistern in $37\frac{1}{2}$ minute and 45 minutes respectively. Both pipes are opened. The cistern will be filled in just half an hour, if the pipe Q is turned off after ?
- (a) 15 minutes (b) 10 minutes
(c) 5 minutes (d) 9 minutes
17. Three taps A, B , C can fill a tank in 6 hours. After working together for 2 hours. C closed and A and B can fill remaining part in 7 hours. The number of hours taken by C alone to fill the tank is ?
- (a) 10 hours (b) 12 hours
(c) 14 hours (d) 16 hours
18. A tanker can be filled by two pipes A and B in 60 minutes and 40 minutes respectively. If B is used for half the time and A and B fill it together for the other half ,then cistern take how much time to full ?
- (a) 15 minutes (b) 20 minutes
(c) $27\frac{1}{2}$ minutes (d) 30 minutes
19. Two pipe can fill a tank in 20 & 24 minute and third pipe can empty a full tank at the rate of 3 Gallon per minute. If these are opened then tank will be filled in 15 minute. Find the capacity of tank?
- (a) 60 Gallon (b) 100 Gallon
(c) 120 Gallon (d) 180 Gallon

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ANSWER KEY

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|--------------------|---------------------|---------------------|---------------------|
| 1. <i>Ans. (c)</i> | 6. <i>Ans. (b)</i> | 11. <i>Ans. (c)</i> | 16. <i>Ans. (d)</i> |
| 2. <i>Ans. (d)</i> | 7. <i>Ans. (d)</i> | 12. <i>Ans. (b)</i> | 17. <i>Ans. (c)</i> |
| 3. <i>Ans. (a)</i> | 8. <i>Ans. (b)</i> | 13. <i>Ans. (c)</i> | 18. <i>Ans. (d)</i> |
| 4. <i>Ans. (d)</i> | 9. <i>Ans. (d)</i> | 14. <i>Ans. (c)</i> | 19. <i>Ans. (c)</i> |
| 5. <i>Ans. (b)</i> | 10. <i>Ans. (c)</i> | 15. <i>Ans. (d)</i> | |

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TIME AND DISTANCE

OBJECTIVE QUESTIONS

CHAPTER

13

1. A car moves at the speed of the 80 km/hr. What is the speed of the car in metres per second ?
 (a) 22 m /sec. (b) $22\frac{2}{9}$ m /sec.
 (c) 25 m /sec. (d) $25\frac{3}{9}$ m /sec.
2. A car moves at the speed of the 10 m/sec. What is the speed of the car in km per hour ?
 (a) 32 km/hr (b) 36 km/hr
 (c) 40 km/hr (d) 50 km/hr
3. A train cover 713 km in 11 hours 30 minutes. What is average speed of the train ?
 (a) 52 km/hr (b) 55 km/hr
 (c) 62 km/hr (d) 75 km/hr
4. A man walking at the rate of 5 km/hr and cover a bridge 15 minutes, what is the length of bridge (in metres) ?
 (a) 600 m (b) 750 m
 (c) 1000 m (d) 1250 m
5. An athlete runs 200 metres race in 24 second. His speed in km/hr?
 (a) 20 km/hr (b) 24 km/hr
 (c) 28.5 km/hr (d) 30 km/hr
6. A man climbs a certain distance of mountain with 24 km/hr and returns back to the starting point at the rate of 36 km/hr. What was average speed in whole journey ?
 (a) 30 km/hr (b) 32.6 km/hr
 (c) 28.8 km/hr (d) None of these
7. A man covers first 240 km at the rate of 40 km/hr and second part of 240 km with 60 km/hr of his journey. Average speed during 480 km is :
 (a) 48 km/hr (b) 50 km/hr
 (c) 52.4 km/hr (d) 49.2 km/hr
8. A train runs first 12 minutes with 30 km/hr and next 8 minutes with the speed of 45 km/hr. Average speed of the train in this duration is :
 (a) $37\frac{1}{2}$ km/hr (b) 36 km/hr
 (c) 48 km/hr (d) 30 km/hr
9. A and B start to move from same point with the speed of 40 km/hr and 50 km/hr respectively. If to complete journey A takes 15 minutes more than B, then distance of the journey is :
 (a) 46 km (b) 48 km
 (c) 50 km (d) 52 km
10. A student walks from his house at speed of 3 km/hr to reach school and returns back with 2 km/hr. If takes 5 hours to come and back ,then distance between school and his house is :
 (a) 6 km (b) 5 km
 (c) 5.5 km (d) 6.5 km
11. A student walks at the speed of $2\frac{1}{2}$ km/hr and reaches his school 6 minutes late. If he walks 3 km/hr and reaches the school 10 minutes early. How far is the school from his house ?
 (a) 2 km (b) 4 km
 (c) 5 km (d) 7 km

12. Sharad covers half of a certain distance with the rate of 4 km/hr and remaining half with 5 km/hr. If he take total 42 minutes, then approx distance is :
- 2.5 km
 - 4.6 km
 - 4 km
 - 3 km
13. Walking of $\frac{3}{4}$ th the usual speed, a man is 20 minutes too late. The usual time taken by him to cover that distance is :
- 1 hour
 - 2 hour
 - 3 hour
 - 4 hour
14. Walking of $\frac{6}{7}$ th the usual speed, a man is take 25 minutes more to cover a certain distance. The usual time taken by him to cover that distance is :
- 2 Hours 48 Minutes
 - $2\frac{1}{2}$ Hours
 - 2 Hours 35 Minutes
 - None of these
15. The ratio of speed of three cars is 2 : 3 : 4. What is the ratio of time to cover a particular distance ?
- 2 : 3 : 4
 - 4 : 3 : 2
 - 4 : 3 : 6
 - 6 : 4 : 3
16. Ratio of speed of A and B is 3 : 4. B covers a certain distance in 24 minutes. To complete this distance A takes how much time ?
- 18 minutes
 - 32 minutes
 - $10\frac{6}{7}$ minutes
 - $13\frac{5}{7}$ minutes
17. The ratio of speed of A and B is 2 : 3. From a certain point they starts to move and reach to a point A takes 10 minutes more than B. If A travels with twice of his usual speed, then to complete this distance he take how much time ?
- 15 minutes
 - 13 minutes
 - 20 minutes
 - None of these
18. A is twice as fast as B and B is thrice as fast as C is .The journey covered by C in 42 minutes will be covered by A in :
- 7 minutes
 - 14 minutes
 - 28 minutes
 - 63 minutes
19. The speed of a bus is 54 km/hr without any stoppage, but due to arrival of new passenger and stoppage at many place speed of bus becomes 45 km/hr. In every hour bus stops for how many minutes ?
- 9 minutes
 - 10 minutes
 - 12 minutes
 - 20 minutes
20. Ram covers a distance from patna to lucknow with 60 km/hr without any stoppage and with stoppage covers with 40 km/hr ,then time spent during per hour is :
- 20 minutes
 - 30 minutes
 - 35 minutes
 - 50 minutes
21. A thief is spotted by a policeman from a distance of 100 metres. If the speed of the policeman and the thief is in ratio of 5 : 4, how far the thief will have run before he is overtaken ?
- 80 metre
 - 200 metre
 - 400 metre
 - 600 metre
22. A thief steals a car at 2.30 p.m. and drives it at 60 km/hr. The theft is discovered at 3 p.m. and the owner sets off in another car at 75 km/hr. When will he overtake the thief ?
- Evening 4:30
 - Evening 4:45
 - Evening 5
 - Evening 5:15
23. Two trains starts apart from same time to station A and B with speed of 50 km/hr and 60 km/hr respectively. When they meet together ,then second train covered 120 km more than first train. Distance between A and B is :
- 990 km
 - 1200 km
 - 1320 km
 - 1440 km

24. A certain distance is covered by a cyclist at the certain speed. If a jogger covers half the distance in double the time, the ratio of the speed of the jogger to that of the cyclist is :
- (a) 1 : 2 (b) 2 : 1
(c) 1 : 4 (d) 4 : 1
25. A man covers certain distance of 75 km in 7 hours. Some distance is covered with 12 km/hr and remaining with 10 km/hr. How much distance covered by him with 12 km/hr ?
- (a) 35 km (b) 40 km
(c) 30 km (d) 20 km
26. A car covers a certain distance in 10 hours with the speed of 48 km/hr. If that distance will be covered in 8 hours ,then how much speed of car should be increased ?
- (a) 6 km/hr (b) 7.5 km/hr
(c) 12 km/hr (d) 15 km/hr
27. A man wants to cover 50 km of distance by his cycle. If he moves with 12.5 km/hr. After every 12.5 km he takes rest of 20 minutes, he takes how much time to cover whole distance ?
- (a) 4 hours 20minutes (b) 5 hours 20 minutes
(c) 5 hours (d) 6 hours
28. I walk a certain distance and ride back taking a total time of 37 minutes .I could walk both ways in 55 minutes .How long would it take me ride both ways ?
- (a) 9.5 minutes (b) 19 minutes
(c) 18 minutes (d) 20 minutes
29. A thief is noticed by a policeman from a distance of 200 m. The thief starts running and the policeman chases him. The thief and the policeman run at the rate of 10 km/hr and 11 km/hr respectively. What is the distance between them after 6 minutes ?
- (a) 100 metre (b) 190 metre
(c) 200 metre (d) 150 metre
30. A man covered a certain distance at some speed had he moved 3 km/hr faster, he would have taken 40 minutes less. If he had moved 2 km/hr ,slower, he would have taken 40 minutes more. The distance (in km) is :
- (a) 20 km (b) 35 km
(c) $36\frac{2}{3}$ km (d) 40 km

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ANSWER KEY

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|-------------|--------------|--------------|--------------|
| 1. Ans. (b) | 9. Ans. (c) | 17. Ans. (a) | 25. Ans. (c) |
| 2. Ans. (b) | 10. Ans. (a) | 18. Ans. (a) | 26. Ans. (c) |
| 3. Ans. (c) | 11. Ans. (b) | 19. Ans. (b) | 27. Ans. (c) |
| 4. Ans. (d) | 12. Ans. (d) | 20. Ans. (a) | 28. Ans. (b) |
| 5. Ans. (d) | 13. Ans. (a) | 21. Ans. (c) | 29. Ans. (a) |
| 6. Ans. (c) | 14. Ans. (b) | 22. Ans. (c) | 30. Ans. (d) |
| 7. Ans. (a) | 15. Ans. (d) | 23. Ans. (c) | |
| 8. Ans. (b) | 16. Ans. (b) | 24. Ans. (c) | |

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CHAPTER

14

PROBLEMS ON TRAINS

OBJECTIVE QUESTIONS

1. A train 100 m long is running at the speed of 30 km/hr. Find the time taken by it to pass a man standing near the railway line.
 (a) 12 Seconds (b) 15 Seconds
 (c) 10 Seconds (d) 11 Seconds
2. A train 150 metres long cross an electric pole in 12 seconds, then what is the speed of train in km/hr ?
 (a) 60 km/hr (b) 50 km/hr
 (c) 75 km/hr (d) 45 km/hr
3. In what time will a train 100 metres long cross an electric pole, if its speed be 144 km /hr ?
 (a) 2.5 Seconds (b) 5 Seconds
 (c) 12.5 Seconds (d) $3\frac{5}{4}$ Seconds
4. In what time will a train 171 metres long cross a bridge of length 229 meter, if its speed be 45 km/hr ?
 (a) 30 Seconds (b) 35 Seconds
 (c) 32 Seconds (d) 40 Seconds
5. A train 180 metres long train cross a platform of same length in 18 seconds. What is speed of train ?
 (a) 20 m/sec. (b) 10 m/sec.
 (c) 15 m/sec. (d) 18 m/sec.
6. A train 150 metres long crosses a tunnel of length 300 metres in 40.5 seconds. What is speed of train?
 (a) 13.33 km/hr (b) 26.67 km/hr
 (c) 40 km/hr (d) 80 km/hr
7. A train 500 metres long crosses a platform of length 900 metres in 1 minutes 12 seconds. What is speed of train in km /hr ?
 (a) 45 km/hr (b) 5 km/hr
 (c) 54 km/hr (d) 70 km/hr
8. A train 800 metres long is travelling at a speed of 78 km/hr. If it crosses a tunnel in 1 minute, then length of tunnel (in metres) is :
 (a) 77200 metre (b) 500 metre
 (c) 1300 metre (d) 13 metre
9. A train crosses a man in 8 seconds standing on platform and crosses 264 metre platform in 20 seconds. What is the length of train ?
 (a) 188 metre (b) 176 metre
 (c) 175 metre (d) 96 metre
10. A train crosses a platform of length in 162 metres in 18 seconds while other platform of length 120 metres in 15 seconds. Length of this train is :
 (a) 70 metre (b) 80 metre
 (c) 90 metre (d) 105 metre
 (e) None of these
11. If a train moving with constant speed crosses a 96 metres long platform in 12 seconds and 141 metre long platform in 15 seconds. What is the length and speed of the train ?
 (a) 64 m and 44 km/hr
 (b) 64 m and 54 km/hr
 (c) 84 m and 54 km/hr
 (d) 84 m and 60 km/hr

12. Two trains of length 127 metres and 98 metres are travelling in opposite direction with the speed of 35 km/hr and 55 km/hr respectively. How long time they take to cross each other when they meet each other ?
- (a) 12 seconds (b) 10 seconds
 (c) 9 seconds (d) 6 seconds
13. Two trains of length 140 metres and 160 metres are travelling in opposite direction with the speed of 60 km/hr and 40 km/hr respectively. How long time they take to cross each other when they meet each other ?
- (a) 9 seconds (b) 9.6 seconds
 (c) 10 seconds (d) 10.8 seconds
 (e) None of these
14. Two trains travel in opposite directions at 56 km/hr and 29 km/hr and a man sitting in slower train passes the faster train in 16 seconds. The length of the faster train is :
- (a) 100 metre (b) 102 metre
 (c) 120 metre (d) 125 metre
15. If speed of train is 63 km/hr and speed of man walking in same direction is 3 km/hr, then 500 metres long train takes how much time to pass the walking man ?
- (a) 25 seconds (b) 30 seconds
 (c) 40 seconds (d) 45 seconds
16. Two trains 160 metre and 140 metre long run on parallel rails at the rate of 77 km/hr and 67 km/hr respectively in opposite directions on parallel tracks. The time which they take to cross each other, is :
- (a) 7 seconds (b) $7\frac{1}{2}$ seconds
 (c) 6 seconds (d) 10 seconds
17. Two trains are running in opposite directions with the same speed. If the length of each train is 120 metres and they cross each other in 12 seconds, then the speed of each train (in km/hr) is :
- (a) 72 km/hr (b) 10 km/hr
 (c) 36 km/hr (d) 18 km/hr
18. The average speed of a train is 90 km/hr without any stoppage, but due to stoppage its average speed becomes 80 km/hr ,then how long (in minutes) train stops in per hour ?
- (a) $13\frac{1}{3}$ minutes (b) $6\frac{2}{3}$ minutes
 (c) 8 minutes (d) 12 minutes
19. The average speed of a train is 90 km/hr to cover a certain distance without any stoppage, but due to stoppage its average speed becomes 72 km/hr, then how long (in minutes) train stops in per hour ?
- (a) 18 minutes (b) 15 minutes
 (c) 12 minutes (d) 10 minutes
20. An aeroplane covers a certain distance at a speed of 240 km/hr in 5 hours. To cover the same distance in $1\frac{2}{3}$ hours, It must travel at a speed of
- (a) 300 km/hr (b) 660 km/hr
 (c) 720 km/hr (d) 600 km/hr
21. A passenger train overtakes goods train after 6 hours with 80 km/hr which starts 4 hours early than passenger train, speed of goods train is :
- (a) 32 km /hr (b) 50 km /hr
 (c) 45 km /hr (d) 64 km /hr
22. Two trains A and B after starting from same point travels in same direction at 60 km/hr and 72 km/hr respectively. If length of each train is 240 metres then B takes how much time to pass A ?
- (a) 1 minute 12 sec (b) 1 minute 24 sec
 (c) 2 minute 12 sec (d) 2 minute 24 sec
 (e) None of these
23. A certain train takes 3 hours to travel from station one to second station, if speed of the train decreased by 12 km/hr ,then it takes 45 minutes more to travel, distance between stations is-
- (a) 220 Km (b) 210 Km
 (c) 180 Km (d) 160 Km

24. A train travels with 60 km/hr from jaipur and arrived delhi in 4 hours. If its speed is 80 km/hr then its takes how much time to arrived ?
 (a) 2 hours 30 minutes
 (b) 2 hours
 (c) 3 hours 30 minutes
 (d) 3 hours
25. Two stations A and B are 330 km part on a straight line. One train starts from A at 8 a.m. and travels towards B at 60 km/hr. Another train starts from B at 9 a.m. and travels towards A at a speed of 75 km/hr. At what time they meet ?
 (a) 10 a.m. (b) 10.30 a.m.
 (c) 11 a.m. (d) 11.30 a.m.
26. A train 320 metres long crosses a train moving with 24 metre /second in 16 seconds. Speed of this train is :
 (a) 20 metre/sec. (b) 24 metre/sec.
 (c) 30 metre/sec. (d) Data Inadequate
 (e) None of these
27. By moving with a speed of 36 km/hr a train crosses a pole in 22 seconds. How much time it takes to cross a tunnel of length 350 meter ?
 (a) 56 seconds (b) 57 seconds
 (c) 54 seconds (d) 60 seconds
 (e) None of these
28. Two trains runs to Chandigarh from delhi at 6 p.m. and 6.30 p.m. and their speed is 60 km/hr and 75 km/hr respectively. How far they meet from delhi ?
 (a) 67.5 km (b) 150 km
 (c) 75 km (d) 60 km
29. X covers $\frac{1}{3}$ rd of his journey at the speed of 10 km/hr and half of the rest at the speed of 20 km/h and rest at the speed of 30 km/hr. What is the average speed of X?
 (a) $6\frac{2}{11}$ km/hr (b) $6\frac{4}{11}$ km/hr
 (c) $16\frac{4}{11}$ km/hr (d) None of these
30. A train starts from a certain station with some number of passengers. In first halt half of the passenger left out and 135 more passengers arrived, in second halt $\frac{1}{3}$ left and 110 arrived, then train takes 350 passengers to the way. What was number of passengers when it starts ?
 (a) 1200 (b) 1600
 (c) 450 (d) None of these



ANSWER KEY

- | | | | |
|-------------|--------------|--------------|--------------|
| 1. Ans. (a) | 9. Ans. (b) | 17. Ans. (c) | 25. Ans. (c) |
| 2. Ans. (d) | 10. Ans. (c) | 18. Ans. (b) | 26. Ans. (d) |
| 3. Ans. (a) | 11. Ans. (c) | 19. Ans. (c) | 27. Ans. (b) |
| 4. Ans. (c) | 12. Ans. (c) | 20. Ans. (c) | 28. Ans. (b) |
| 5. Ans. (a) | 13. Ans. (d) | 21. Ans. (a) | 29. Ans. (c) |
| 6. Ans. (c) | 14. Ans. (c) | 22. Ans. (a) | 30. Ans. (c) |
| 7. Ans. (d) | 15. Ans. (b) | 23. Ans. (c) | |
| 8. Ans. (b) | 16. Ans. (b) | 24. Ans. (d) | |

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ENGINEERS ACADEMY

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BOATS AND STREAMS

OBJECTIVE QUESTIONS

1. A man can rows a boat downstream at 14 km/hr and upstream at 9 km/hr. The speed of the man in still water ?
 - (a) 5 km/hr
 - (b) 23 km/hr
 - (c) 11.5 km/hr
 - (d) None of the above
2. A man can rows downstream at 15.5 km/hr and upstream at 8.5 km/hr. The speed of the stream is:
 - (a) 3.5 km/hr
 - (b) 5.75 km/hr
 - (c) 6.5 km/hr
 - (d) 7 km/hr
3. A boat running downstream covers a distance of 36 km in 6 hours while for covering the 40 km. distance upstream it takes 8 hours. What is the speed of the boat in still water ?
 - (a) 6.5 km/hr
 - (b) 5.5 km/hr
 - (c) 6 km/hr
 - (d) 5 km/hr
4. A man rows a boat 18 km in 4 hours with the current and takes 12 hours against the current, speed of the current (in km /hr) is :
 - (a) 1 km/hr
 - (b) 1.5 km/hr
 - (c) 2 km/hr
 - (d) 0.75 km/hr
5. A boat goes 8 km in one hour with the flow of current and covers 2 km against the current in same distance. What is the speed of the current ?
 - (a) 5.6 km/hr
 - (b) 3 km/hr
 - (c) 6 km/hr
 - (d) Data Inadequate
 - (e) None of the above
6. A boat takes 4 hours to cover a distance of 24 km and covers same distance in 6 hours against the current. The speed of boat in still water is :
 - (a) 3.5 km/hr
 - (b) 5.5 km/hr
 - (c) 6 km/hr
 - (d) Data Inadequate
 - (e) None of the above
7. A swimmer takes 675 second to cover 750 metre against current and takes $7\frac{1}{2}$ minutes to return back at the starting point. Speed of the swimmer in still water is :
 - (a) 3 km/hr
 - (b) 4 km/hr
 - (c) 5 km/hr
 - (d) 6 km/hr
8. A boat goes 8 km against the current of the stream in 1 hour and goes 6 km along the current in 2 hour. Speed of current is :
 - (a) 2 km/hr
 - (b) 3 km/hr
 - (c) 4 km/hr
 - (d) 2.5 km/hr
9. A man can row three quarter of kilometer against the stream in $11\frac{1}{4}$ minutes and take $7\frac{1}{2}$ minutes to return back. The speed (in km /hr) of the man in the still water is :
 - (a) 2 km/hr
 - (b) 3 km/hr
 - (c) 4 km/hr
 - (d) 5 km/hr
10. A boat rows 1 km in 10 minutes with the direction of current but it takes 20 minutes to cover 1 km against the current. Speed of boat in still water is :
 - (a) 1.5 km/hr
 - (b) 3 km/hr
 - (c) 3.4 km/hr
 - (d) 4.5 km/hr

11. A boatman takes 3 hours 45 minutes to cover a distance of 15 km downstream and 2 hours 30 minutes to cover 5 km in upstream, then speed of current in km/hour is :
 (a) 1 km/hr (b) 2 km/hr
 (c) 3 km/hr (d) None of the above
12. If a man goes 13 km against the current of river and 28 km with the current of the river, and takes 5 hours in is cases, then speed of the current of river is :
 (a) 0.5 km/hr (b) 1 km/hr
 (c) 1.5 km/hr (d) 2 km/hr
13. A boat rows 6 km in one hour in still water, but due to moving against the current it takes thrice of time to cover same distance, then speed of current is :
 (a) 9 km/hr (b) 4 km/hr
 (c) 5 km/hr (d) 6 km/hr
14. The speed of a boat in still water is 13 km/hr and speed of current is 4 km/hr. How much time will be taken by boat to cover 68 km with the direction of current ?
 (a) 2 hours (b) 3 hours
 (c) 4 hours (d) 5 hours
15. A boat goes from a point A to B with current and returns back to A against the current and takes 4 hours. If speed of current is 2 km/hr and speed of still water is 4km/hr, then distance between A and B is-
 (a) 8 Km (b) 9 Km
 (c) 4 Km (d) 6 Km
16. The speed of current in a river is 1km/hr. A motorboat in still water goes 35 km downstream and comes back in a total of 12 hours. The speed of the motorboat in still water is :
 (a) 6 km/hr (b) 7 km/hr
 (c) 8 km/hr (d) 5 km/hr
17. A swimmer can swims in still water at the rate of 5 km/hr. If speed of the current is 1 km/hr then he takes 75 minutes to swim to reach a certain point to starting point. How far he is from that point ?
 (a) 2.5 km (b) 3 km
 (c) 4 km (d) 5 km
18. A swimmer can swims in still water at the rate of 5 km/hr. If speed of the current is 1km/hr then he takes 1 hour to swim from one point to another point and to reach at the starting point. How far he is from the starting point ?
 (a) 2.4 km (b) 2.5 km
 (c) 3 km (d) 3.6 km
19. A boat running upstream takes 8 hours 48 minutes to cover a certain distance, while it takes 4 hours to cover the same distance running downstream. What is the ratio between the speed of the boat and the speed of the water current respectively ?
 (a) 2 : 1
 (b) 3 : 2
 (c) 8 : 3
 (d) Data Inadequate
 (e) None of the above
20. A boat covers a certain distance downstream in 1 hour, while it comes back in $1\frac{1}{2}$ hours. If the speed of the stream be 3km/hr, what is the speed of the boat in still water ?
 (a) 12 km/hr
 (b) 13 km/hr
 (c) 14 km/hr
 (d) 15 km/hr
 (e) None of the above

ANSWER KEY

- | | | | |
|--------------------|---------------------|---------------------|---------------------|
| 1. <i>Ans. (c)</i> | 6. <i>Ans. (e)</i> | 11. <i>Ans. (a)</i> | 16. <i>Ans. (a)</i> |
| 2. <i>Ans. (a)</i> | 7. <i>Ans. (c)</i> | 12. <i>Ans. (c)</i> | 17. <i>Ans. (b)</i> |
| 3. <i>Ans. (b)</i> | 8. <i>Ans. (d)</i> | 13. <i>Ans. (b)</i> | 18. <i>Ans. (a)</i> |
| 4. <i>Ans. (b)</i> | 9. <i>Ans. (d)</i> | 14. <i>Ans. (c)</i> | 19. <i>Ans. (c)</i> |
| 5. <i>Ans. (b)</i> | 10. <i>Ans. (d)</i> | 15. <i>Ans. (d)</i> | 20. <i>Ans. (d)</i> |



CHAPTER

16

OBJECTIVE QUESTIONS

12. The milk and water in two vessels A and B in the ratio $5 : 3$ and $2 : 3$ respectively .Find the ratio in which these mixtures be mixed to obtain a new mixture in vessel containing half milk and half water ?
 (a) $2 : 5$ (b) $3 : 5$
 (c) $4 : 5$ (d) $7 : 3$
13. The milk and water in two vessels A and B in the ratio $4 : 1$ and $5 : 2$ respectively .Find the ratio in which these mixtures be mixed to obtain a new mixture in the ratio $7 : 2$?
 (a) $20 : 7$ (b) $5 : 2$
 (c) $15 : 7$ (d) $9 : 5$
14. There was 40 litre of milk in a bucket, 4 litre of milk was taken out and replace with water and this process was done two times. In the last mixture, quantity of milk is-
 (a) 27.36 litres (b) 26.34 litres
 (c) 28 litres (d) 29.16 litres
15. There was 100 litre of milk in a vessel , 10 litre of milk was taken out and replace with water and this process was done more two times. In the last mixture, quantity of milk is-
 (a) 72.9 litre (b) 72 litre
 (c) 71.9 litre (d) 73 litre
16. 70 litre mixture of milk and water contain 60% milk. How much more milk should be mixed so that milk becomes 80% ?
 (a) 50 litre (b) 65 litre
 (c) 70 litre (d) 55 litre
17. 176 litre mixture of milk and water has 20% water, then how much water should be evaporated so that quantity of it remains 12 % ?
 (a) 19 litre (b) 15 litre
 (c) 20 litre (d) 16 litre
18. The ratio of milk and water is $3 : 2$ in a mixture of 80 litre .How much more milk should be added so that milk becomes twice of water?
 (a) 16 litre (b) 12 litre
 (c) 20 litre (d) 14 litre
19. The ratio of milk and water is $4 : 1$ in 35 litre. If 7 litre water is mixed in it ,then ratio of milk and water is-
 (a) $3 : 2$ (b) $2 : 1$
 (c) $4 : 3$ (d) $5 : 4$
20. The ratio of milk and water is $7 : 2$ in a mixture of 729 milliliter and how much more water should be added so that ratio of milk and water becomes $7 : 3$?
 (a) 61 ml. (b) 90 ml.
 (c) 70 ml. (d) 81 ml.



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ANSWER KEY

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|--------------------|---------------------|---------------------|---------------------|
| 1. <i>Ans. (c)</i> | 6. <i>Ans. (d)</i> | 11. <i>Ans. (d)</i> | 16. <i>Ans. (c)</i> |
| 2. <i>Ans. (b)</i> | 7. <i>Ans. (c)</i> | 12. <i>Ans. (c)</i> | 17. <i>Ans. (d)</i> |
| 3. <i>Ans. (a)</i> | 8. <i>Ans. (a)</i> | 13. <i>Ans. (a)</i> | 18. <i>Ans. (a)</i> |
| 4. <i>Ans. (a)</i> | 9. <i>Ans. (c)</i> | 14. <i>Ans. (d)</i> | 19. <i>Ans. (b)</i> |
| 5. <i>Ans. (b)</i> | 10. <i>Ans. (c)</i> | 15. <i>Ans. (a)</i> | 20. <i>Ans. (d)</i> |

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PARTNERSHIP

OBJECTIVE QUESTIONS

1. A, B, C enter into a partnership investing Rs. 35,000, Rs. 45,000 and Rs. 55,000 respectively. The respective shares of A, B, C in an annual profit of Rs. 40,500 are:
- Rs. 13,500, Rs. 16,500, Rs. 10,500
 - Rs. 10,500, Rs. 13,500, Rs. 16,500
 - Rs. 13,500, Rs. 10,500, Rs. 16,500
 - None of the above
2. A invests Rs. 3000 for one year in a business. How much B should invest in order that the profit after 1 year may be divided into ratio of 2 : 3 ?
- Rs. 2000
 - Rs. 1800
 - Rs. 3600
 - Rs. 4500
3. A, B and C invested their capital in the ratio 5 : 6 : 8. At the end of the business they received the profits in the ratio 5 : 3 : 1. Find the ratio of time for which they contributed their capital.
- 12 : 9 : 7
 - 25 : 18 : 8
 - 5 : 6 : 8
 - 8 : 4 : 1
4. A and B contribute $\frac{1}{2}$ and $\frac{1}{3}$ of the capital and C contributes the remaining capital. A, B and C will share the profit in the proportion :
- 3 : 2 : 1
 - 1 : 2 : 5
 - 5 : 6 : 8
 - 8 : 4 : 1
5. A and B started a business with Rs. 3000 and Rs. 4000 respectively. After 8 months A withdraws Rs. 1000 and B deposits Rs. 1000 more. At the end of the year, their profits amounted to Rs. 630. Then the share of A is :
- Rs. 180
 - Rs. 360
 - Rs. 200
 - Rs. 240
6. A, B and C enter into a partnership and their shares are in the ratio $\frac{1}{2} : \frac{1}{3} : \frac{1}{4}$ after 2 months, A withdraws half of his capital and after 12 months a profit of Rs. 378 is divided among them. What is B's share ?
- Rs. 129
 - Rs. 144
 - Rs. 156
 - Rs. 168
7. A, B and C entered into a partnership. A invested $\frac{2}{5}$ th of the capital for 8 months. B invested $\frac{1}{5}$ th of the capital for 9 months and C invested the rest of the capital for 12 months. Find the share of C in annual profit of Rs. 24,500.
- Rs. 9,000
 - Rs. 10,000
 - Rs. 12,000
 - None of these
8. A and B started a business jointly. A's investment was thrice the investment of B and the period of his investment was two times the period of investment of B. If B received Rs. 4000 as profit, then their total profit is :
- Rs. 16000
 - Rs. 24000
 - Rs. 20000
 - Rs. 28000
9. A began a business with an investment of Rs. 4500 and B was joined afterwards with Rs. 5400. When did B join if the profit at the end of the year were divided in the ratio 2 : 1 ?
- After 4 months
 - After 5 months
 - After 6 months
 - After 7 months

10. A, B and C rent a pasture. A puts 10 cows for 7 months, B puts 12 cows for 5 months and C puts 15 cows for 3 months for grazing. If the rent of the pasture is Rs. 175, how much must C pay as his share of rent?
- (a) Rs. 45 (b) Rs. 50
 (c) Rs. 55 (d) Rs. 60
11. A, B and C entered into a partnership by investing Rs. 28,000, Rs. 22,000 and Rs. 18,000 respectively. A is also a working partner and getting 15% of the annual profit for the work. Find the share of B in annual profit of Rs. 40,000.
- (a) Rs. 11,000 (2) Rs. 22,000
 (3) Rs. 20,000 (4) None of these
12. A starts a business with an investment of Rs. 3500 and after 5 months, B joins A as his partner. After a year, the profit is divided in the ratio 2 : 3. What is B's contribution in the capital?
- (a) Rs. 8000 (2) Rs. 8500
 (3) Rs. 9000 (4) Rs. 9200
13. A, B & C invested Rs. 50,000 for a business. A invests Rs. 4000 more than B and B Rs. 5000 more than C. Out of a total profit of Rs. 35,000, A receives :
- (a) Rs. 8,400 (b) Rs. 11,900
 (c) Rs. 13,600 (d) Rs. 14,700
14. If $A'S$ capital = $6(Bs$ capital) = $10(C's$ capital), then out of a profit of Rs. 4650, C will receive :
- (a) Rs. 465 (b) Rs. 900
 (c) Rs. 1550 (d) Rs. 2250
15. A, B and C start a business, A invests some money at the beginning, B invests double the amount after 6 months and C invests thrice the amount after 8 months. If the annual profit be Rs. 27,000 C's share is :
- (a) Rs. 8625 (b) Rs. 9000
 (c) Rs. 10,800 (d) Rs. 11,250
16. A, B and C start a business their share are in the ratio of $\frac{7}{2} : \frac{4}{3} : \frac{6}{5}$. After 4 months, A increases his share by 50%. If the total profit at the end of one year be Rs. 21,600, then B's share in the profit is :
- (a) Rs. 2100 (b) Rs. 2400
 (c) Rs. 3600 (d) Rs. 4000
17. A & B start a business with capitals in the ratio 4 : 5. After 3 months, A withdrew $\frac{1}{4}$ of his capital and B withdrew $\frac{1}{5}$ of his capital. The gain at the end of 10 months was Rs. 760. A's share in this profit is :
- (a) Rs. 330 (b) Rs. 360
 (c) Rs. 380 (d) Rs. 430
18. Three persons shared the profit in a business in the ratio 5 : 7 : 8. They had partnered for 14 months, 8 months and 7 months respectively. What was the ratio of their investments?
- (a) 5 : 7 : 8 (b) 28 : 49 : 64
 (c) 38 : 28 : 21 (d) None of these
19. A and B started a business. A invest $\frac{1}{4}$ part of the total capital for 15 months and B received $\frac{2}{3}$ part of the profit. For how long B's money was used?
- (a) 6 months (b) 9 months
 (c) 10 months (d) 1 year

□□□

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ANSWER KEY

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|-------------|--------------|--------------|--------------|
| 1. Ans. (b) | 6. Ans. (b) | 11. Ans. (a) | 16. Ans. (d) |
| 2. Ans. (d) | 7. Ans. (c) | 12. Ans. (c) | 17. Ans. (a) |
| 3. Ans. (d) | 8. Ans. (d) | 13. Ans. (d) | 18. Ans. (d) |
| 4. Ans. (a) | 9. Ans. (d) | 14. Ans. (b) | 19. Ans. (c) |
| 5. Ans. (d) | 10. Ans. (a) | 15. Ans. (b) | |

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SIMPLE INTEREST

OBJECTIVE QUESTIONS

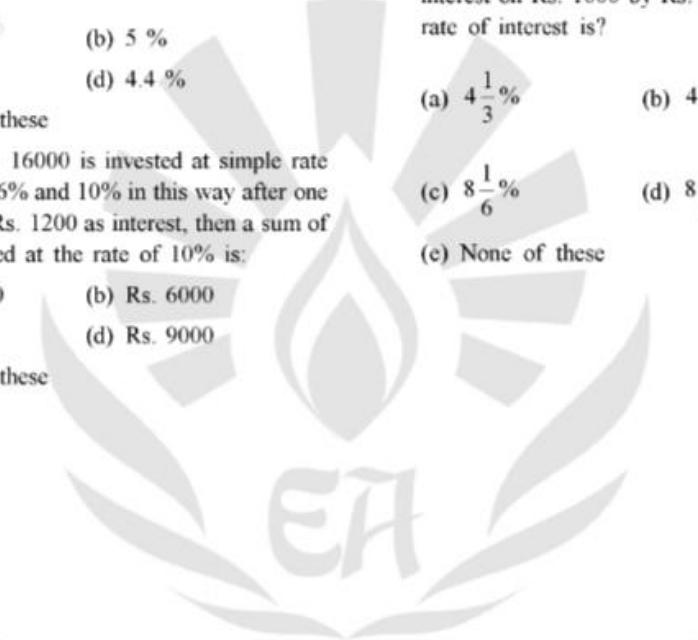
CHAPTER
18

- 1.** A sum of Rs 1600 gives a interest of Rs 252 in 2 year and 3 months. The rate of interest per annum is :
- (a) $5\frac{1}{2}\%$ (b) 8%
 (c) 6% (d) 7%
- 2.** Simple interest of a money is 40% of principal. If time is 5 year then find rate of interest per annum?
- (a) 4% (b) 6%
 (c) 8% (d) 10%
- 3.** If Rs. 1 becomes Rs. 9 in 60 years at a certain rate of simple interest. The rate per annum is?
- (a) $13\frac{1}{3}\%$ (b) 14%
 (c) 15% (d) $12\frac{1}{2}\%$
- 4.** How long it takes a sum of Rs. 72 amounts to Rs. 81 at the rate of $6\frac{1}{2}\%$ per annum of simple interest?
- (a) 2 years (b) 2 years 6 months
 (c) 3 years (d) None of these
- 5.** A sum of money becomes Rs. 4200 at the rate of 8% per annum of simple interest, then what is principal.
- (a) Rs. 3000 (b) Rs. 2000
 (c) Rs. 2500 (d) Rs. 1500
 (e) None of these
- 6.** A man lent a loan from bank at the rate of 12% per annum. After 3 years he returns Rs. 5,400 as interest for particular duration. Money lent as loan was?
- (a) Rs. 2000 (b) Rs. 10000
 (c) Rs. 20000 (d) Rs. 15000
- 7.** How long it takes, simple interest becomes $\frac{2}{5}$ part of principal at the rate of 8% per annum,
- (a) 8 years (b) 7 years
 (c) 5 years (d) 6 years
 (e) None of these
- 8.** A sum of money becomes $\frac{41}{40}$ of itself in $\frac{1}{4}$ years at a certain rate of simple interest. The rate per annum is:
- (a) 10% (b) 1%
 (c) 2.5% (d) 5%
 (e) 5%
- 9.** A sum of money becomes $\frac{7}{6}$ of itself in 3 years at a certain rate of simple interest. The rate per annum is.
- (a) $5\frac{5}{9}\%$ (b) 18%
 (c) $6\frac{5}{9}\%$ (d) 25%
 (e) None of these

- 10.** A sum of money becomes Rs. 2100 in 2 years and Rs. 2250 in 5 years at a certain rate of simple interest, then find rate of interest?
- 4%
 - 6%
 - $5\frac{2}{3}\%$
 - $\frac{5}{2}\%$
 - None of these
- 11.** How long it takes, a sum of money becomes $5\frac{1}{2}$ of itself at the rate of 15% per annum simple interest?
- 30 years
 - 25 years
 - 20 years
 - 15 years
 - None of these
- 12.** At a certain rate of SI a sum becomes three times in 5 years find the rate of interest ?
- 25%
 - 35%
 - 40%
 - 45%
 - None of these
- 13.** If a sum of money at simple interest becomes double in 16 years. The rate per annum is,
- 10%
 - $6\frac{1}{4}\%$
 - 8%
 - 16%
 - None of these
- 14.** At what rate percent of simple interest was a sum of money, double itself in 20, years?
- 4%
 - 5%
 - 6.66%
 - 3.33%
 - None of these
- 15.** At what rate percent of simple interest will a sum of money four times itself in 15 years?
- 10%
 - 15%
 - 20%
 - 9%
 - None of these
- 16.** If a sum of money at simple interest becomes double in 10 years, it becomes three times in.
- 25 years
 - 20 years
 - 30 years
 - 15 years
 - None of these
- 17.** If a sum of money at simple interest becomes 3 times in 10 years, it becomes 5 times in:
- 20 years
 - 10 years
 - 5 years
 - 25 years
 - None of these
- 18.** If a sum of money at simple interest becomes double in 6 years, it becomes four times in,
- 12 years
 - 14 years
 - 16 years
 - 18 years
 - None of these
- 19.** If a sum of money at simple interest becomes double in 7 years, it becomes 4 times in,
- 28 years
 - 35 years
 - 14 years
 - 21 years
 - None of these
- 20.** Simple interest on a certain amount is $\frac{9}{16}$ of the principal. If the number representing the rate of interest in percent and time in years be equal, then time, for when the principal is lent out
- 6.25 years
 - 7.25 years
 - 7.5 years
 - 7 years
 - None of these
- 21.** Simple interest on a certain sum at a certain annual rate is $\frac{4}{9}$ of the sum. If the numbers representing rate percent and time in years be equal, then the rate of interest is.
- 5%
 - $6\frac{2}{3}\%$
 - 6%
 - $7\frac{1}{5}\%$
 - None of these
- 22.** The simple interest on a sum of money be equal to the principal in 5 years. Find the rate of interest per annum?
- 40%
 - 20%
 - 16%
 - 10%
 - None of these

23. A man losses of Rs 55.50 per year when simple rate of interest decrease from 11.5% to 10%, his capital is?
 (a) Rs. 3700 (b) Rs. 7400
 (c) Rs. 8325 (d) Rs. 11100
 (e) None of these
24. The difference between the simple interest received from two different sources on Rs 1500 for 3 years is Rs 13.50. The difference between their rate of interest is:
 (a) 0.1% (b) 0.2%
 (c) 0.3% (d) 0.4%
 (e) None of these
25. Simple interest of a certain sum of money at the rate of 4% per annum for 8 months is Rs. 129 less of same money at the rate of 5% per annum for 15 months, amount is:
 (a) Rs. 2580 (b) Rs. 2400
 (c) Rs. 2529 (d) Rs. 3600
 (e) None of these
26. If the annual rate of simple interest increase from 10% to $12\frac{1}{2}\%$, a man's yearly income increase by Rs 1250. His principal (in Rs) is:
 (a) Rs. 50000 (b) Rs. 45000
 (c) Rs. 60000 (d) Rs. 65000
 (e) None of these
27. A money lender finds that due to a fall in the annual rate of interest from 8% to $7\frac{3}{4}\%$ his yearly income diminishes by Rs. 61.50. His capital is:
 (a) Rs. 22400 (b) Rs. 23800
 (c) Rs. 24600 (d) Rs. 26000
 (e) None of these
28. Mohan gives a certain sum of money at the rate of 9% per annum and also money equals to that lent at 10% pert annum for 2 years. Total money Rs. 760 will be got as interest, money given on each lent is:
 (a) Rs. 1700 (b) Rs. 1800
 (c) Rs. 1900 (d) Rs. 2000
 (e) None of these
29. A man gives a certain money on lent in this : way, 4% per annum for first 5 years and 5% per annum for lent 8 years, if money lent for much more times then rate of interest becomes 10%. If after 14 years he got Rs. 3500 as interest, then sum of money lent was
 (a) Rs. 4500 (b) Rs. 5000
 (c) Rs. 5500 (d) Rs. 6000
 (e) None of these
30. Which money at simple interest amounts to Rs. 520 in 5 years and to Rs. 568 in 7 years?
 (a) Rs. 400 (b) Rs. 120
 (c) Rs. 510 (d) Rs. 220
 (e) None of these
31. A certain sum of money at simple interest amounts to Rs 1012 in $2\frac{1}{2}$ years and to Rs. 1067.20 in 4 years. The rate of interest per annum is:
 (a) 2.5% (b) 3%
 (c) 4% (d) 5%
 (e) None of these
32. A certain sum of money at simple interest amounts to Rs. 720 in 2 years and to Rs. 1020 in 5 more years. That sum of money is:
 (a) Rs. 500 (b) Rs. 600
 (c) Rs. 700 (d) Rs. 710
 (e) None of these
33. What annual installment will discharge a debt of Rs. 848 in 4 years at 4% per annum?
 (a) Rs. 200 (b) Rs. 230
 (c) Rs. 320 (d) Rs. 300
 (e) None of these
34. Rs. 3000 amounts to Rs 4000 in 4 years. If rate of simple interest is 5% more then principal amounts to;
 (a) Rs. 4000 (b) Rs. 4600
 (c) Rs. 5000 (d) Rs. 4200
 (e) None of these

35. A sum of Rs 400 amounts to Rs 480 in 4 years, if rate of simple interest increase to 2%, then it becomes?
(a) Rs. 484 (b) Rs. 560
(c) Rs. 512 (d) Rs. 500
(e) None of these
36. A man invests Rs. 500 at certain rate of interest per annum as simple interest and invests Rs. 700 with 1% more rate of interest. If he got Rs. 165 as interest in 3 years, then rate of first interest is:
(a) 4 % (b) 5 %
(c) 3.5 % (d) 4.4 %
(e) None of these
37. A sum of Rs. 16000 is invested at simple rate of interest of 6% and 10% in this way after one year it gives Rs. 1200 as interest, then a sum of money invested at the rate of 10% is:
(a) Rs. 10000 (b) Rs. 6000
(c) Rs. 4000 (d) Rs. 9000
(e) None of these
38. A sum of Rs. 3900 will be given as rent into two parts in this way first part is given for 5 years at the rate of 12% per annum is equal to the second part given for 6 years at the rate of 10% per annum, then money lent at the rate of 12% is:
(a) Rs. 2000 (b) Rs. 1900
(c) Rs. 1950 (d) Rs. 1850
(e) None of these
39. If the interest on Rs. 1200 be more than the interest on Rs. 1000 by Rs. 50 in 3 years, then rate of interest is?
(a) $4\frac{1}{3}\%$ (b) $4\frac{1}{6}\%$
(c) $8\frac{1}{6}\%$ (d) $8\frac{1}{3}\%$
(e) None of these



ENGINEERS ACADEMY

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ANSWER KEY

- | | | | |
|---------------------|---------------------|---------------------|---------------------|
| 1. <i>Ans. (d)</i> | 11. <i>Ans. (a)</i> | 21. <i>Ans. (b)</i> | 31. <i>Ans. (c)</i> |
| 2. <i>Ans. (c)</i> | 12. <i>Ans. (c)</i> | 22. <i>Ans. (b)</i> | 32. <i>Ans. (b)</i> |
| 3. <i>Ans. (a)</i> | 13. <i>Ans. (b)</i> | 23. <i>Ans. (a)</i> | 33. <i>Ans. (a)</i> |
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| 6. <i>Ans. (d)</i> | 16. <i>Ans. (b)</i> | 26. <i>Ans. (a)</i> | 36. <i>Ans. (a)</i> |
| 7. <i>Ans. (c)</i> | 17. <i>Ans. (a)</i> | 27. <i>Ans. (c)</i> | 37. <i>Ans. (b)</i> |
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| 9. <i>Ans. (a)</i> | 19. <i>Ans. (d)</i> | 29. <i>Ans. (b)</i> | 39. <i>Ans. (d)</i> |
| 10. <i>Ans. (d)</i> | 20. <i>Ans. (c)</i> | 30. <i>Ans. (a)</i> | |



ENGINEERS ACADEMY

COMPOUND INTEREST

CHAPTER
19

OBJECTIVE QUESTIONS

1. Find compound interest on Rs. 25000 at 12% per annum for 3 years, compounded annually.
(a) Rs. 9000.30 (b) Rs. 10123.20
(c) Rs. 10483.20 (d) Rs. 9720
(e) None of these
2. Find principal, if rate of compound interest is 25%, and amount of 3 years is Rs. 37500.
(a) Rs. 19000 (b) Rs. 19150
(c) Rs. 19300 (d) Rs. 19200
(e) None of these
3. Find the compound interest on Rs. 15000 in one year at 10% per annum, the interest is compounded half yearly.
(a) Rs. 16500 (b) Rs. 16525.50
(c) Rs. 16537.50 (d) Rs. 18150
(e) None of these
4. If a man deposits Rs. 6000 in the bank at the rate of 5% per annum at simple interest and another man deposits Rs. 5000 at 8% per annum compounded interest, difference of interests after two years:
(a) Rs. 230 (b) Rs. 232
(c) Rs. 832 (d) Rs. 600
5. Find the compound interest of 10,000 in 3 years, If rate of interest first year is 4%, 5% for second year and 6% for third year.
(a) Rs. 1600 (b) Rs. 1625.80
(c) Rs. 1575.20 (d) Rs. 2000
6. Find the compound interest on Rs. 16000 at 20% per annum for 9 months, compounded quarterly
(a) Rs. 2530 (b) Rs. 2524
(c) Rs. 2522 (d) Rs. 2518
7. A certain sum of money becomes Rs. 26620 in $1\frac{1}{2}$ at the rate of interest 20%, compounded half yearly, what is the principal ?
(a) Rs. 20000 (b) Rs. 15000
(c) Rs. 12500 (d) Rs. 17500
8. Which sum of money becomes Rs. 1352 at the rate of 4% per annum in 2 years compounded annually ?
(a) Rs. 1200 (b) Rs. 1225
(c) Rs. 1250 (d) Rs. 1300
9. The difference between simple and compound interest at 4% per annum on Rs. 5000 after $1\frac{1}{2}$ year by half yearly :
(a) Rs. 6.04 (b) Rs. 3.06
(c) Rs. 8.30 (d) Rs. 4.80
10. A sum of money becomes double in 10 year at compound interest, then in how many years it becomes four times of itself.
(a) 15 years (b) 20 years
(c) 24 years (d) 40 years
11. A sum of money becomes double in 4 years at compound interest, then in how many years it becomes eight times of itself.
(a) 18 years (b) 12 years
(c) 16 years (d) 24 years

12. How long it takes, if Rs. 2000 amount to Rs. 2420 at rate of interest 10%, compounded annually?
- (a) 3 years (d) $2\frac{1}{2}$ years
 (c) 2 years (d) $1\frac{1}{2}$ years
13. How long it takes, if a sum of Rs. 1000 amounts to Rs. 1331 at 20% per annum, when rate of interest is compounded half yearly?
- (a) $1\frac{1}{2}$ years (b) 3 years
 (c) 2 years (d) 4 years
14. In how many years, Rs. 80,000 amounts to Rs. 92610 at the rate of 10% compounded half yearly.
- (a) 2 years (b) $2\frac{1}{2}$ years
 (c) $1\frac{1}{2}$ years (d) 3 years
15. A building of Rs. 1,33,100 were building on a land of Rs. 72,900. After how many years sum of money equals to each other when rate of interest of land increasing at 10% and rate of building decreasing at 10% yearly
- (a) 3 years (b) 1 years
 (c) 2 years (d) 5 years
16. What will be the sum, when difference between simple and compound interest is Rs. 15, for the rate of interest 5% for two years?
- (a) Rs. 6500 (b) Rs. 5500
 (c) Rs. 6000 (d) Rs. 7000
17. If the difference between simple and compound interest is Rs. 1, on a certain sum at the rate of 4% per annum for two years, find the sum:
- (a) Rs. 2500 (b) Rs. 2400
 (c) Rs. 625 (d) Rs. 2000
18. If the difference between simple and compound interest is Rs. 65 on a certain sum at the rate of 10% per annum for 2 years, the sum is;
- (a) Rs. 65650 (b) Rs. 65065
 (c) Rs. 6565 (d) Rs. 6500
19. If the difference between simple and compound interest is Rs. 8 on a certain sum at the rate of 4% per annum for 2 years. The sum is:
- (a) Rs. 400 (b) Rs. 800
 (c) Rs. 4000 (d) Rs. 5000
20. The difference between simple interest and compound interest at on Rs. 1000 for two years is Rs. 10, the rate of interest per annum is
- (a) 10% (b) 6%
 (c) 12% (d) 5%
21. The difference between simple and compound interest at 10% per annum on a sum of Rs. 5000 after 3 years?
- (a) Rs. 145 (b) Rs. 150
 (c) Rs. 165 (d) Rs. 155
22. Find the principal whose difference between simple and compound interest is Rs. 31 at 10% per annum for 3 years :
- (a) Rs. 1500 (b) Rs. 1200
 (c) Rs. 1100 (d) Rs. 1000
23. A certain sum of money becomes 8 times in 3 years of itself at compound interest, find the rate of interest per annum,
- (a) 25% (b) 50%
 (c) 75% (d) 100%
24. At what rate of compound interest per annum will a sum of Rs. 4000 becomes Rs. 4840 in 2 years?
- (a) 20% (b) 10%
 (c) 15% (d) 8%
25. A sum of money becomes 8 times in 4 year and 27 times in 7 year, and then find the rate of compound interest:
- (a) 20% (b) 30%
 (c) 50% (d) 25%
26. At what rate of compound interest a sum of money becomes 4 times of itself in 2 years?
- (a) 100% (b) 80%
 (c) 95% (d) 85%

27. If an amount becomes 2.25 times of principal at certain rate of compound interest in 2 years. The rate of interest per annum is ?
 (a) 25% (b) 30%
 (c) 45% (d) 50%
28. If a sum of money at compound interest becomes Rs. 2400 in 3 years and Rs. 2520 in 4 years, The rate of interest per annum is :
 (a) 5% (b) 6%
 (c) 10% (d) 12%
29. At what rate of compound interest principal becomes $\frac{25}{16}$ of itself in 2 years?
 (a) 16% (b) 18%
 (c) 20% (d) 25%
30. On a certain sum, compound interest is Rs. 282.15 and simple interest is Rs. 270. Find the rate of interest per annum;
 (a) 6.07% (b) 9%
 (c) 10% (d) 12.15%
31. The simple interest of a certain sum is Rs.120 and compound interest is Rs. 129 for 2 years. Find rate of interest?
 (a) 14% (b) 15%
 (c) 12% (d) 12.5%
32. Compound interest of a sum of money is Rs 246 at 5 % per annum for 2 years then what is the simple interest of that sum of money, then the rate of 6% per annum for 3 years is :
 (a) Rs. 435 (b) Rs. 450
 (c) Rs. 430 (d) Rs. 432
33. Compound interest of a sum of money is Rs. 2100 at 10% per annum for 2 years, then simple interest of that money at same rate for 2 years is :
 (a) Rs. 1700 (b) Rs. 1800
 (c) Rs. 1900 (d) Rs. 2000
34. If compound interest is Rs. 510 of a certain sum at the rate 12.5 % per annum for 2 years then what is simple interest for the sum at same rate and same duration :
 (a) Rs. 400 (b) Rs. 480
 (c) Rs. 450 (d) Rs. 460
35. A sum of money becomes Rs. 6690 in 3 years when deposited at compound interest and after 6 years it becomes Rs. 10035, then that sum is :
 (a) Rs. 4400 (b) Rs. 4425
 (c) Rs. 4460 (d) Rs. 4520
36. A sum of money becomes Rs. 4500 in 2 years and Rs. 6750 in 4 years at compound interest, The sum is :
 (a) Rs. 4000 (b) Rs. 2500
 (c) Rs. 3000 (d) Rs. 3500
37. A sum of money becomes Rs. 2240 in 2 years and Rs. 2600 in 5 years at simple interest, that sum of money is :
 (a) Rs. 1880 (b) Rs. 2000
 (c) Rs. 2120 (d) Data Inadequate
38. At what rate percent at the compound interest, does a sum of money become 9 times in 2 years?
 (a) 150% (b) 100%
 (c) 200% (d) 75%
39. The sum of money whose second year compound interest is Rs 132 at 10% per annum is :
 (a) Rs. 1000 (b) Rs. 1200
 (c) Rs. 1320 (d) None of these
40. The compound interest of first year for a sum is Rs. 48 at 8% rate of compound interest per annum, what is interest of second year?
 (a) Rs. 48 (b) Rs. 51.84
 (c) Rs. 56.48 (d) Rs. 96
41. A sum of Rs. 20,000 is divided between two brothers whose ages are 15 years and 13 years. The amount is divided in this way each got same amount at the age of 18 years, where rate of compound interest is 5% per annum, Sum of money got by younger brother is :
 (a) Rs. 8123.50 (b) Rs. 1213.50
 (c) Rs. 9512.50 (d) Rs. 1000.50
42. Find the ratio of amount and principal after n years if the rate of interest is 5% per annum compounded annually?
 (a) $(22)^n : (21)^n$ (b) $(20)^n : (21)^n$
 (c) $(21)^n : (20)^n$ (d) None of these



ANSWER KEY

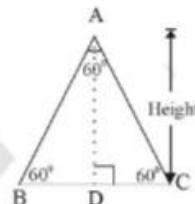
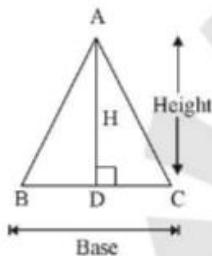
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| 1. Ans. (b) | 11. Ans. (b) | 21. Ans. (d) | 31. Ans. (b) |
| 2. Ans. (d) | 12. Ans. (c) | 22. Ans. (d) | 32. Ans. (d) |
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| 9. Ans. (a) | 19. Ans. (d) | 29. Ans. (d) | 39. Ans. (b) |
| 10. Ans. (b) | 20. Ans. (a) | 30. Ans. (b) | 40. Ans. (b) |
| | | | 41. Ans. (c) |
| | | | 42. Ans. (c) |

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**CHAPTER
20**
**MENSURATION
THEORY**
TRIANGLE

A closed Geometrical figure bounded by three sides is called triangle



$$\text{Q2} \quad \text{Area of equilateral } \Delta = \frac{\sqrt{3}}{4} \times (\text{side})^2$$

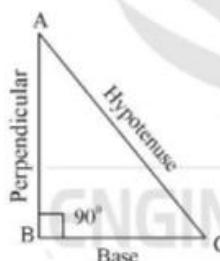
Q2 Height of equilateral triangle

$$= \frac{\sqrt{3}}{2} \times \text{side}$$

Q2 Perimeter of equilateral triangle = $3 \times \text{side}$

- 3.** **Isosceles Triangle :** A triangle in which any of two sides are equal.

In Isosceles Triangle two angles and two sides are equal

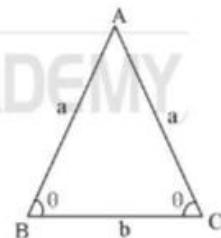


$$\text{Hypotenuse} = \sqrt{\text{length}^2 + \text{base}^2}$$

$$\text{Area of right angle } \Delta = \frac{1}{2} \times \text{base} \times \text{height}$$

- 2.** **Equilateral Triangle :** A triangle in which all the sides are equal.

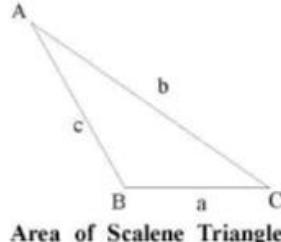
In Equilateral Triangle all the angle (60°) are equal



$$\frac{1}{2} \text{ Area of Isosceles triangle} = \frac{b}{4} \sqrt{4a^2 - b^2}$$

$$\frac{1}{2} b \text{ Perimeter of Isosceles triangle} = 2a + b$$

- 4.** **Scalene Triangle :** A triangle in which all the sides are unequal.



$$= \sqrt{s(s-a)(s-b)(s-c)} \quad \frac{1}{4} \text{ Heron}$$

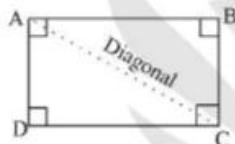
Formula $\frac{1}{2}$ Where $s = \frac{a+b+c}{2}$

QUADRILATERAL

A closed geometrical figure bounded by four sides is called Quadrilateral.

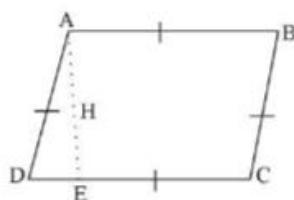
Types of Quadrilateral

- Rectangle :** If opposite sides of a Quadrilateral are equal and each angle is 90° .
Diagonals are equal but not perpendicularly bisects to each other.



- (A) Area of rectangle = Length \times Breadth
- (B) Perimeter of rectangle = $2(\text{Length} + \text{Breadth})$
- (C) Diagonal of rectangle = $\sqrt{\text{Length}^2 + \text{Breadth}^2}$

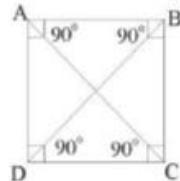
- Parallelogram :** When opposite sides of a quadrilateral are equal and parallel.



- (A) Area of parallelogram = Base \times Height
- (B) Perimeter of Parallelogram = $2 \times \text{Sum of parallel sides}$

- Square :** If all the sides of a Quadrilateral are equal and each angle is 90° .

Diagonals are equal and bisects each other to perpendicularly.

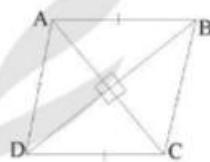


(A) Area of square = $(\text{side})^2 = \frac{1}{2} (\text{diagonal})^2$

(B) Perimeter of square = $4 \times \text{one side}$

(C) Diagonal of square = $\sqrt{2} \times \text{One side}$

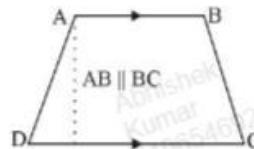
- Rhombus :** Rhombus is such a parallelogram in which all sides are equal.
Diagonals are not equal but bisect each-other perpendicularly.



(A) Area of Rhombus = $\frac{1}{2} \times \text{Product of diagonals}$

(B) Perimeter of Rhombus = $4 \times \text{one side}$

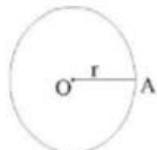
- Trapezium :** A quadrilateral in which one pair of opposite sides are parallel



$$\text{Area of Trapezium} = \frac{1}{2} \times \text{sum of parallel sides} \times \text{height}$$

CIRCLE

A circle is a simple closed curve, all the points of which are at the same distance from a given fixed point. The fixed point is called centre of the circle.



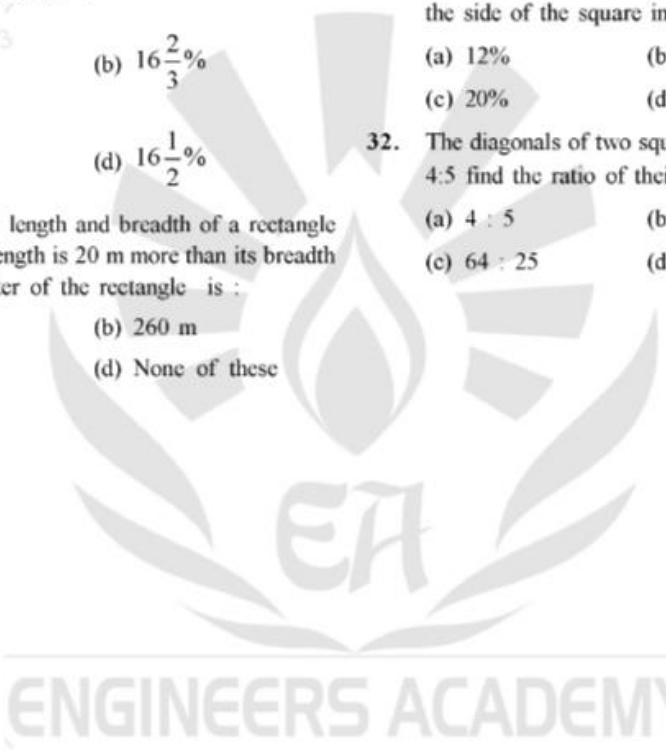
1. All radius of a circle are equal.
 2. Diameter of circle is double of its radius.
- (A) Area of circle = πr^2

where r is radius of circle and $\pi = \frac{22}{7}$

- (B) Circumference of circle = $2\pi r$

OBJECTIVE QUESTIONS**CIRCLE**

1. If the radius of a circle is increased by 10%, find the percentage increase in its area?
 - (a) 15%
 - (b) 16%
 - (c) 21%
 - (d) 25%
2. If the circumference of a circle is decreased by 50%, find the percentage decrease in its area?
 - (a) 25%
 - (b) 50%
 - (c) 65%
 - (d) 75%
3. If the radius of a circle is decreased by 30%, find the percentage decrease in area?
 - (a) 30%
 - (b) 60%
 - (c) 45%
 - (d) None of these
4. If the diameter of the circle is increased by 40%, find the percentage increase in area?
 - (a) 40%
 - (b) 80%
 - (c) 96%
 - (d) 82%
5. A wire can be bent in the form of a circle of radius 28 cm. If it is bent in the form of a square, then its side will be :
 - (a) $\frac{\pi}{2}$ cm.
 - (b) 44 cm.
 - (c) 2 cm.
 - (d) 28 cm.
6. If the ratio of areas of two circles is 4 : 9, then the ratio of their circumference will be :
 - (a) 2 : 3
 - (b) 3 : 2
 - (c) 4 : 9
 - (d) 9 : 4
7. If the ratio of radius of two circles is 3 : 2, then the ratio of their areas will be :
 - (a) 2 : 3
 - (b) 9 : 4
 - (c) 4 : 9
 - (d) 3 : 4
 - (e) 3 : 2
8. If the circumference and the area of a circle are numerically equal, then the diameter is equal to
 - (a) area of circle
 - (b) $\frac{\pi}{2}$
 - (c) 2π
 - (d) 4
9. The number of revolutions a wheel of a diameter 40 cm can move in travelling a distance of 176m, is :
 - (a) 140
 - (b) 150
 - (c) 160
 - (d) 166
10. The number of revolutions a wheel of a radius 0.25 cm can move in travelling a distance of 11 km, is :
 - (a) 2800
 - (b) 4000
 - (c) 5500
 - (d) 7000
11. The area of a circle is numerically 7 times of its circumference. The circumference of the circle is:
 - (a) 616 Unit
 - (b) 132 Unit
 - (c) 88 Unit
 - (d) Can't determined
 - (e) None of these



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ANSWER KEY

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|--------------------|---------------------|---------------------|---------------------|
| 1. <i>Ans. (c)</i> | 9. <i>Ans. (a)</i> | 17. <i>Ans. (d)</i> | 25. <i>Ans. (a)</i> |
| 2. <i>Ans. (d)</i> | 10. <i>Ans. (d)</i> | 18. <i>Ans. (c)</i> | 26. <i>Ans. (c)</i> |
| 3. <i>Ans. (d)</i> | 11. <i>Ans. (c)</i> | 19. <i>Ans. (d)</i> | 27. <i>Ans. (b)</i> |
| 4. <i>Ans. (c)</i> | 12. <i>Ans. (b)</i> | 20. <i>Ans. (d)</i> | 28. <i>Ans. (d)</i> |
| 5. <i>Ans. (b)</i> | 13. <i>Ans. (d)</i> | 21. <i>Ans. (d)</i> | 29. <i>Ans. (c)</i> |
| 6. <i>Ans. (a)</i> | 14. <i>Ans. (b)</i> | 22. <i>Ans. (c)</i> | 30. <i>Ans. (b)</i> |
| 7. <i>Ans. (b)</i> | 15. <i>Ans. (b)</i> | 23. <i>Ans. (c)</i> | 31. <i>Ans. (c)</i> |
| 8. <i>Ans. (d)</i> | 16. <i>Ans. (b)</i> | 24. <i>Ans. (d)</i> | 32. <i>Ans. (d)</i> |

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POLYGONS

THEORY

**CHAPTER
21**

POLYGON

A plane geometrical figure bounded by atleast three line segments is called a Polygon.

Name	No. of Sides
Triangle	3
Quadrilateral	4
Pentagon	5
Hexagon	6
Heptagon	7
Octagon	8
Nonagon	9
Decagon	10

- Regular Polygon :** A polygon with all its sides and angles are equal.
- Concave Polygon :** If atleast one angle of a polygon is more than 180° .
- Convex Polygon :** If each angle of a polygon is less than 180° .

SOME IMPORTANT FORMULAE

- A. If number of sides of a polygon is n then number of its diagonals $= \frac{n(n - 1)}{2} - n$
- B. In a polygon sum of exterior angles is (360°)
- C. Each exterior angle of regular polygon $= \left(\frac{360^\circ}{n}\right)$
- D. Sum of all interior angles of regular polygon $= (n - 2) \times 180^\circ$
- E. Each interior angle of regular polygon $= \frac{(n - 2)180^\circ}{n}$
- F. Area of polygon $= \frac{na^2}{4} \cot\left(\frac{\pi}{n}\right)$

OBJECTIVE QUESTIONS

- The sum of the interior angles of a regular hexagon is :
 - 720°
 - 710°
 - 650°
 - 750°
- The sum of the interior angles of a regular pentagon is :
 - 550°
 - 540°
 - 1140°
 - 1440°
- The measure of each interior angle of a regular polygon is 108° . The number of sides in the polygon is :
 - 6
 - 7
 - 5
 - 8
- A polygon has 54 diagonals. The number of sides of the polygon is :
 - 14
 - 12
 - 16
 - 9

5. A polygon has 10 sides, the sum of its interior angles is :
 (a) 1440° (b) 114°
 (c) 1404° (d) 1044°
6. The sum of interior angles of regular octagon is :
 (a) 1800° (b) 1008°
 (c) 1080° (d) 180°
7. A polygon has 10 sides, then number of diagonals are how much more than its sides?
 (a) 5 (b) 10
 (c) 15 (d) 25
8. The sum of interior angles of a polygon is 540° , then the number of sides of the polygon is :
 (a) 3 (b) 4
 (c) 5 (d) 6
9. How many diagonals are there in a hexagon?
 (a) 7 (b) 8
 (c) 9 (d) 10
10. Each exterior angle of an octagon is :
 (a) 180° (b) 90°
 (c) 45° (d) 60°
11. The measure of a exterior angles of a regular polygon is :
 (a) 900° (b) 360°
 (c) $128\frac{4}{7}^\circ$ (d) $51\frac{3}{7}^\circ$
12. The sum of all interior and exterior angle of a Hexagon is :
 (a) 1008° (b) 360°
 (c) 1080° (d) 720°
13. In a regular polygon each interior angle is twice of exterior angle then number of sides of polygon?
 (a) 4 (b) 5
 (c) 6 (d) 8
14. The ratio of the measure of an interior angle of a regular octagon to the measure of its exterior angle is :
 (a) 1:2 (b) 1:3
 (c) 2:3 (d) 3:1
15. The angles of a quadrilateral are in the ratio 1:2:3:4. The greatest angle is:
 (a) 72° (b) 45°
 (c) 108° (d) 144°
16. The angle of a hexagon are in the ratio 1:2:3:4:5:5. The smallest angle is
 (a) 90° (b) 45°
 (c) 36° (d) 27°
17. The sum of the interior angles of a polygon is 1260° . The number of sides of the polygon is :
 (a) 8 (b) 10
 (c) 6 (d) 9
18. The ratio of an interior angle to the exterior angle of a regular polygon is (7:2). The number of sides of the polygon is:
 (a) 6 (b) 9
 (c) 7 (d) 8
19. Find the area of an equilateral triangle whose side is 12cm.
 (a) $36\sqrt{3}$ cm (b) $10\sqrt{3}$ cm
 (c) $144\sqrt{3}$ cm (d) $12\sqrt{3}$ cm
20. Find the area of a regular octagon whose side is 8cm. ($\cot(22.5^\circ) = \sqrt{2} + 1$).
 (a) $128(\sqrt{2} + 1)$ (b) $128\sqrt{2}$
 (c) $256(\sqrt{2} + 1)$ (d) 128
21. Find the measure of an angle which cannot be an interior angle of a regular polygon.
 (a) 150° (b) 144°
 (c) 108° (d) 105°

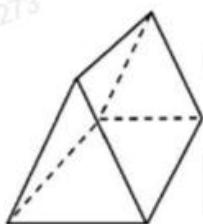


ANSWER KEY

- | | | | |
|--------------------|---------------------|---------------------|---------------------|
| 1. <i>Ans. (a)</i> | 6. <i>Ans. (c)</i> | 11. <i>Ans. (b)</i> | 16. <i>Ans. (c)</i> |
| 2. <i>Ans. (b)</i> | 7. <i>Ans. (d)</i> | 12. <i>Ans. (c)</i> | 17. <i>Ans. (d)</i> |
| 3. <i>Ans. (c)</i> | 8. <i>Ans. (c)</i> | 13. <i>Ans. (c)</i> | 18. <i>Ans. (b)</i> |
| 4. <i>Ans. (b)</i> | 9. <i>Ans. (c)</i> | 14. <i>Ans. (d)</i> | 19. <i>Ans. (a)</i> |
| 5. <i>Ans. (a)</i> | 10. <i>Ans. (c)</i> | 15. <i>Ans. (d)</i> | 20. <i>Ans. (a)</i> |
| | | | 21. <i>Ans. (d)</i> |

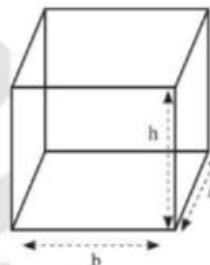
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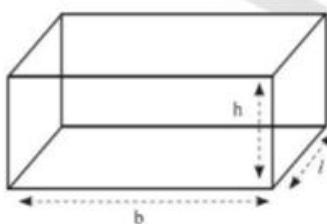
VOLUME**THEORY****PRISM**

1. Volume = Area of base x height
2. Lateral surface Area = Perimeter of base x height
3. Total surface Area = Lateral surface area + 2 x Area of base

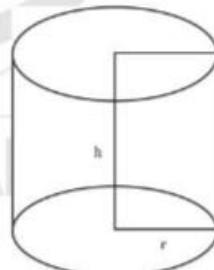
6. Total surface area = $2(lb + bh + hl)$

CUBE

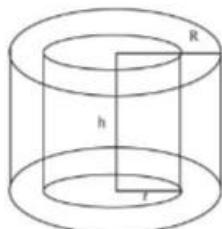
1. Volume = a^3 (a = length of side)
2. Lateral surface Area = $4a^2$
3. Total surface Area = $6a^2$
4. Diagonal = $\sqrt{3}a$

CUBOID

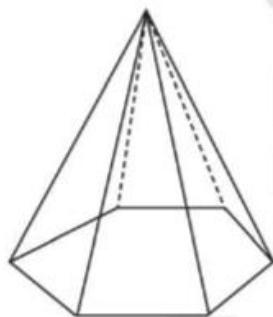
1. Volume = Area of base x height
2. Volume = length x breadth x height
3. Diagonal = $\sqrt{l^2 + b^2 + h^2}$
4. Lateral surface Area or Area of four walls = Perimeter of base x height
5. Lateral surface Area = $2(l + b)h$

CIRCULAR CYLINDER

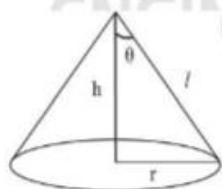
1. Volume = Area of base x height
2. Volume = $\pi r^2 h$
3. Curved surface Area = Perimeter of base x height
4. Curved surface Area = $2\pi rh$
5. Total surface Area = $2\pi rh + 2\pi r^2$
= $2\pi r(h + r)$

HOLLOW CYLINDER

1. Volume = External volume - Internal Volume
 $= \pi R^2 h - \pi r^2 h = \pi (R^2 - r^2) h$
2. Curved surface Area = $2\pi (R + r) h$
3. Total surface Area = $2\pi (R + r) (R - r + h)$

PYRAMID

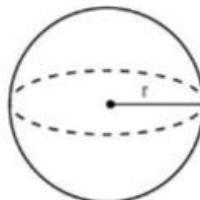
1. Volume = $1/3 \times \text{Area of base} \times \text{height}$
2. Lateral surface Area = $1/2 \times \text{Perimeter of base} \times \text{slant height}$
3. Total surface Area = Lateral surface Area + Area of base

CONE h = height l = slant height r = radius of base

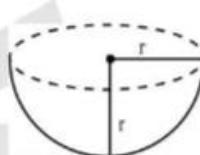
1. Slant height = $\sqrt{r^2 + h^2}$
2. Volume = $1/3 \pi r^2 h$

3. Curved surface Area = $\pi l l$

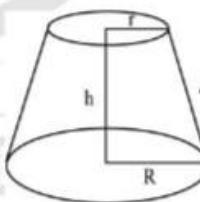
4. Total surface Area = $\pi l l + \pi r^2 = \pi r (l + r)$

SPHERE

1. Volume = $4/3 \pi r^3$
2. Curved Surface Area/Total Surface area
 $= 4 \pi r^2$

HEMISPHERE

1. Volume = $2/3 \pi r^3$
2. Curved surface Area = $2 \pi r^2$
3. Total surface Area = $3 \pi r^2$

FRUSTUM

1. Slant height = $\sqrt{h^2 + (R - r)^2}$
2. Volume = $\frac{1}{3} \pi (R^2 + r^2 + R \cdot r) l$
3. Curved surface Area = $\pi (R + r) l$
4. Total surface Area = $\pi [(R + r) l + R^2 + r^2]$

OBJECTIVE QUESTIONS

CUBE & CUBOID

1. If each edge of a cube is increased by 50%, find the percentage increase in its surface area:
 (a) 100% (b) 125%
 (c) 150% (d) 200%
2. If each edge of the cube is double, then percentage increase in its volume :
 (a) 150% (b) 200%
 (c) 700% (d) 600%
3. The volume of cube is 512 cubic cm. Find its total surface area?
 (a) 64 sq.cm (b) 256 sq.cm
 (c) 384 sq.cm (d) 512 sq.cm
4. The total surface area of a cube is 600 sq. cm. Find the length of its diagonal?
 (a) $10\sqrt{2}$ cm (b) $\sqrt{10}$ cm
 (c) $10\sqrt{3}$ cm (d) $\sqrt{2}$ cm
5. The volume of a cube is 1000 cubic cm, then find the length of its diagonal :
 (a) 10 cm (b) $10\sqrt{2}$ cm
 (c) $10\sqrt{3}$ cm (d) $5\sqrt{2}$ cm
6. The diagonal of a cube is $4\sqrt{3}$ cm, Find its volume:
 (a) 16 cubic cm (b) 27 cubic cm
 (c) 64 cubic cm (d) $3\sqrt{2}$ cubic cm
7. If two cubes have their volumes in the ratio 27:1. Find the ratio of their edges.
 (a) 3 : 1 (b) 27 : 1
 (c) 1 : 3 (d) 1 : 27
8. If two cubes have their volumes in the ratio 27:64. Find the ratio of their surface area
 (a) 27 : 64 (b) 3 : 4
 (c) 9 : 16 (d) 3 : 8

9. The length, breadth and height of a box is 6cm, 4cm, and 3cm, respectively. Its volume is :
 (a) 24 cubic cm (b) 72 cubic cm
 (c) 144 cubic cm (d) 18 cubic cm
10. The length, breadth and height of cuboid is 12m, 4m, and 3m respectively. Find the length of the largest rod which can be kept in it.
 (a) 19 metre (b) 13 metre
 (c) 12 metre (d) 15 metre
11. The area of three surface of a cuboid is x, y, z sq. units respectively, its volume is v cubic units, then $xyz = ?$
 (a) V (b) V^2
 (c) $2V$ (d) $2V^2$
12. The area of three consecutive faces of a cuboid are 12, 20 and 15 sq.cm, then the volume of the cuboid is ?
 (a) 3600 cubic cm (b) 100 cubic cm
 (c) 60 cubic cm (d) 80 cubic cm
13. What is the volume of cube whose diagonal is $4\sqrt{3}$ cm ?
 (a) 8 cubic cm (b) 16 cubic cm
 (c) 64 cubic cm (d) 27 cubic cm
14. The height of a cylinder is increased by 15% and its base is decreased by 10%, then percentage change in its curved surface area is:
 (a) Decrease of 3.5%
 (b) Increase of 3.5%
 (c) Increase of 5%
 (d) Decrease of 5%
15. By doubling the radius of the base and height of a right circular cylinder, then what is the ratio of new volume to that of original volume :
 (a) 2 : 3 (b) 3 : 2
 (c) 1 : 8 (d) 8 : 1

CYLINDER

16. The curved surface area of a cylinder is 880 sq. cm and length is 20 cm, then its volume is:
 (a) 3080 cubic cm (b) 1580 cubic cm
 (c) 1540 cubic cm (d) 2280 cubic cm
17. If the radius of a cylinder is decreased by 50% and the height is increased by 505% then the change in volume is ?
 (a) 52.5% (b) 67.5%
 (c) 57.5% (d) 62.5%

CONE

18. If both the radius and height of a right circular cone is increased by 20%, its volume will be increased by :
 (a) 70% (b) 25%
 (c) 72.8% (d) 75%
19. Two cones have their height in the ratio 1:3 and radius 3:5. The ratio of their volumes is :
 (a) 1 : 5 (b) 9 : 75
 (c) 3 : 25 (d) none of these
20. Two cones have their volumes in the ratio of 1:4 and diameter is 4:5. The ratio of their height is :
 (a) 1 : 5 (b) 5 : 4
 (c) 5 : 16 (d) 25 : 64

SPHERE & HEMISPHERE

21. The radius of a sphere is increased by 50%, then the percentage change in its total surface area is :
 (a) 100% (b) 50%
 (c) 25% (d) 125%
22. Spheres A and B have their radii 40cm and 10cm respectively. Then find the ratio of their surface areas :
 (a) 1 : 16 (b) 4 : 1
 (c) 1 : 4 (d) 16 : 1
23. If three metallic spheres of radius 3cm, 4cm and 5cms, are melted to form a single sphere, the radius of the new sphere will be :
 (a) 2 cm (b) 3 cm
 (c) 4 cm (d) 6 cm
24. If the radius of a sphere be doubled, then the percentage increase in volume is :
 (a) 200% (b) 700%
 (c) 800% (d) 900%



ANSWER KEY

- | | | | |
|--------------------|---------------------|---------------------|---------------------|
| 1. <i>Ans. (b)</i> | 7. <i>Ans. (a)</i> | 13. <i>Ans. (c)</i> | 19. <i>Ans. (b)</i> |
| 2. <i>Ans. (c)</i> | 8. <i>Ans. (c)</i> | 14. <i>Ans. (b)</i> | 20. <i>Ans. (d)</i> |
| 3. <i>Ans. (c)</i> | 9. <i>Ans. (b)</i> | 15. <i>Ans. (d)</i> | 21. <i>Ans. (d)</i> |
| 4. <i>Ans. (c)</i> | 10. <i>Ans. (b)</i> | 16. <i>Ans. (a)</i> | 22. <i>Ans. (d)</i> |
| 5. <i>Ans. (c)</i> | 11. <i>Ans. (b)</i> | 17. <i>Ans. (d)</i> | 23. <i>Ans. (d)</i> |
| 6. <i>Ans. (c)</i> | 12. <i>Ans. (c)</i> | 18. <i>Ans. (c)</i> | 24. <i>Ans. (b)</i> |



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