

- 2) Asaram was treated as *de facto rajguru* in Gujarat under both the BJP and the Congress governments.
- 3) Asaram received huge private donations from the wealthy Sindhi-Marwari community.
- 4) Being a state *rajguru*, Asaram never liked to acquire land through encroachment.
- 5) All the above are correct statements
4. Who was Narendra Dabholkar and what reason is he known for?
- 1) He was a well-known doctor and firm believer in the existence of God.
- 2) He was a social worker fighting against superstitious beliefs and practices.
- 3) He favoured well-known godmen for spreading mysticism all across the country.
- 4) He was the chairman of the Maharashtra Andhashraddha Nirmulan samiti and was killed by some unidentified assailants in Pune.
- 5) None of these
5. Which of the following is/are true about Asaram as mentioned in the given passage?
- (A) Asaram's trajectory reflects the rapid progress of India's superstition industry.
- (B) Asaram's arrest reflects the complete merger of blind faith, politics and money.
- (C) Asaram's episode tells us how modern India looks down upon the integrity of saints.
- 1) Only (A) and (B)
- 2) Only (C)
- 3) Only (B)
- 4) Only (A)
- 5) Only (A) and (C)
6. Which of the following is/are the most important reason(s) behind the success of godmen in India? Give your answer in the context of the given passage.
- 1) Their knowledge about Indian religious scriptures such as the Vedas, the Puranas, the Mahabharata and the Ramayana
- 2) Their saintly lifestyle, religious sermons, preaching and discourse
- 3) Support of powerful politicians, and free access to public assets and state machinery
- 4) Their ability to pronounce exorcism, cure patients and dupe innocent people
- 5) None of these
7. Which of the following do you think can be correctly associated with the fallen gurus?
- 1) Qualities of godliness
- 2) Overweening human ambition
- 3) Personal failings
- 4) Misanthropic attitude
- 5) None of these
8. Who among the following help flourish the business of the so-called gods and godmen? Give your answer in the context of the given passage.
- 1) Innocent villagers, school children, shopkeepers and employers
- 2) Prominent scientists, business tycoons, Bollywood superstars and our elected representatives
- 3) Research scholars, social scientists and unemployed youths
- 4) Greedy, mentally challenged and depressed people
- 5) All the above
9. Which of the following proverbs can best explain the theme of the given passage?
- 1) Two wrongs do not make a right.
- 2) No man is an island.
- 3) Hope for the best, but prepare for the worst.
- 4) All that glitters is not gold.
- 5) You cannot make an omelette without breaking a few eggs.
- Directions (Q. 10-15): In each of the following questions four words are given of which two are most nearly the same or opposite in meaning. Find the two words which are most nearly the same or opposite in meaning and find the number of the correct letter combination.**
10. (A) Vocal (B) Benign
(C) Unpleasant (D) Drastic
1) A-B 2) B-C 3) C-D
4) A-C 5) A-D
11. (A) Abysmal (B) Diligence
(C) Zenith (D) Nadir
1) A-B 2) B-D 3) C-D
4) B-C 5) A-C
12. (A) Elude (B) Avoid
(C) Harness (D) Hatch
1) A-B 2) A-C 3) A-D
4) B-C 5) B-D
13. (A) Languid (B) Gorgeous
(C) Knack (D) Ability
1) A-B 2) A-D 3) B-C
4) C-D 5) B-D
14. (A) Gregarious (B) Quixotic
(C) Sociable (D) Discernible
1) A-B 2) B-C 3) C-D
4) A-C 5) B-D
15. (A) Testimony (B) Aura
(C) Augment (D) Decrease
1) A-B 2) B-C 3) C-D
4) A-D 5) B-D
- Directions (Q. 16-20): Rearrange the following six sentences (A), (B), (C), (D), (E) and (F) in the proper sequence to form a meaningful paragraph and then answer the questions given below.**
- (A) The belief that whatever God did was for the good

of human beings served as a great consolation to people when a natural calamity fell upon them.

- (B) Our forefathers had deep faith in God and religion which is missing in the present generation.
- (C) But now those spiritual beliefs have more or less gone.
- (D) In the past, religious faith used to be a great prop to human beings in times of distress or misfortune.
- (E) As a result of scientific discoveries, we find it difficult now to believe in the existence of God, in the soul, or in a life after death.
- (F) The difficulties, disappointments and failures were attributed to God's will and people bowed without much questioning.
16. Which of the following would be the **THIRD** sentence after rearrangement?
1) D 2) A 3) E
4) C 5) F
17. Which of the following would be the **LAST (SIXTH)** sentence after rearrangement?
1) A 2) F 3) D
4) C 5) B
18. Which of the following would be the **FOURTH** sentence after rearrangement?
1) B 2) A 3) C
4) D 5) E
19. Which of the following would be the **FIFTH** sentence after rearrangement?
1) C 2) B 3) E
4) A 5) F
20. Which of the following would be the **SECOND** sentence after rearrangement?
1) D 2) C 3) E
4) B 5) A

Directions (Q. 21-30): In the following passage, some of the words have been left out, each of which is indicated by a number. Find the suitable word from the options given against each number and fill up the blanks with appropriate words to make the paragraph meaningful.

Purists in Delhi, of course, will never stop grumbling. Their analytical clarity is uncluttered by the larger political and economic imperatives facing India's foreign policy. Pragmatists, the few that there are in the capital, must adopt a different course.

For one, they must concede publicly that (21) solutions to the problems of cross-border (22) with Pakistan are not on the (23). Until we get there, the pragmatics must affirm, India must responsibly (24) to reduce violence on the disputed borders and prevent the (25) of every military incident into a major bilateral crisis.

Although the confidence-building measures can't immediately address the "root causes" of the (26) with Pakistan and China, they expand the (27) between the Indian

armed forces and those of Pakistan and China, create a measure of trust, and make it easier (28) a period of time to resolve the underlying conflicts.

Having embarked on a substantive negotiation of military CBMs with Pakistan and China, the UPA government has some work to do at home. It needs to get the armed forces, the ministry of defence, the ministry of home and the foreign office to (29) the interconnected nature of India's diplomatic objectives, military strategy and border management and ensure effective (30) between the different stakeholders.

21. 1) adequate 2) efficient 3) dilute
4) effective 5) impressive
22. 1) terrorism 2) complication 3) lawlessness
4) agitation 5) anarchism
23. 1) boundary 2) border 3) horizon
4) sphere 5) prospect
24. 1) seek 2) question 3) inquire
4) follow 5) browse
25. 1) wane 2) growing 3) happening
4) escalation 5) decline
26. 1) rigidity 2) tensions 3) balance
4) fight 5) brawl
27. 1) combination 2) divide 3) affinity
4) association 5) interface
28. 1) across 2) over 3) for
4) in 5) above
29. 1) recognise 2) diagnose 3) nail
4) tag 5) remark
30. 1) allotment 2) disposal 3) grouping
4) grading 5) coordination

Test-II

Reasoning Ability

31. How many such pairs of letter are there in the word MANAGED each of which has as many letters between them in the word as in the English alphabetical series?
1) Two 2) Three
3) None 4) More than three
5) None of these
32. How many meaningful English words can be formed with the letters RLIA, using each letter only once in each word?
1) One 2) Two 3) Four
4) More than four 5) Three

Directions (Q. 33-35): Read the following information carefully and answer the questions.

There is a group of six persons M, N, O, P, Q and R. Each of them has a different height. P is taller than Q. M is taller than N but smaller than O. R is shorter than only two persons. Q is shorter than only one person.

33. Who among the following is the tallest?
 1) P 2) R 3) O
 4) N 5) None of these
34. Who among the following is the third shortest?
 1) N 2) Q 3) R
 4) P 5) O
35. How many persons are taller than only M?
 1) One 2) Two 3) Three
 4) Four 5) Five

Directions (Q. 36-40): Study the following information carefully and answer the given questions.

A word and number arrangement machine when given an input line of words and numbers, rearranges them following a particular rule in each step. The following is an illustration of input and rearrangement.

Input: based 18 scheme 49 after 9 interested 25 aadhar 4 payment 42

Step I: aadhar 4 based 18 scheme 49 after 9 interested 25 payment 42

Step II: aadhar 4 after 9 based 18 scheme 49 interested 25 payment 42

Step III: aadhar 4 after 9 based 18 interested 25 scheme 49 payment 42

Step IV: aadhar 4 after 9 based 18 interested 25 payment 42 scheme 49

Step IV is the last step of the above input as the desired arrangement is obtained. As per the rules followed in the above question find the appropriate step for the given input.

Input: people 100 India 24 added 9 country 12 democratic 16 eligible 19

36. How many steps will be required to complete the above input?
 1) Five 2) Six 3) Eight
 4) Nine 5) Four
37. In Step III what will be the position of 16 from the left?
 1) Third 2) Seventh 3) Fifth
 4) Sixth 5) Eighth
38. How many numbers exist between 9 and 24 in Step V?
 1) Two 2) Three 3) Four
 4) Six 5) Five
39. In Step IV, if 16 is related to 19 then which number or word will 9 be related to?
 1) 24 2) people 3) 12
 4) 100 5) eligible
40. Which of the following steps would be the last step but one?
 1) VI 2) IV 3) II
 4) V 5) VII
41. If the expressions, $R < P$ and $Q \geq T$ are true, then which of the following symbols should be placed in the blank spaces respectively in the given expression?
 $R_P > N = T_Q$

- 1) $>, \geq$ 2) $\leq, <$ 3) $<, \leq$
 4) $>, \geq$ 5) \leq, \geq

42. Which of the following expressions is not necessarily true, if the given expression is true?
 $S > T \geq R > P = N \leq O > Q$
 1) $S > P$ 2) $T > N$ 3) $T > P$
 4) $P > Q$ 5) None of these
43. Which of the following symbols should be placed in the blank spaces respectively to make the expressions $T > O, R \leq O$ and $S < R$ definitely true?
 $O_S_R_T$
 1) $<, >, <$ 2) $<, <, \leq$ 3) $>, >, <$
 4) $<, \leq, >$ 5) None of these
44. Which of the following expressions is true, if the given expression is true?
 $B < U \leq E > V \geq L$
 1) $L < E$ 2) $L > V$ 3) $L \geq E$
 4) $U > V$ 5) None of these
45. In the following number sequence, how many such odd digits are there which are each divisible by its immediate preceding digit but not exactly divisible by its immediate succeeding digit?
 3 9 4 2 6 5 3 1 2 2 8 3 1
 1) One 2) Three 3) Four
 4) None 5) Two

Directions (Q. 46-50): Study the following information carefully and answer the given questions.

In BRICS summit the PM of each country is denoted by letters A, B, C, D and E. They are sitting around a circular table for dinner, but not in the same order. The PM of China is sitting second to the right of B. The PM of Russia is sitting second to the right of the PM of SA. Neither A nor E is the PM of Brazil or Russia. C is not the PM of India, who is sitting on the immediate left of the PM of Russia. The PM of China is sitting second to the left of D. C and E are immediate neighbours of each other.

46. Who is the PM of SA?
 1) E 2) B 3) Either A or D
 4) A 5) Can't be determined
47. What is the position of the PM of India with respect to E?
 1) Immediate left 2) Second to the right
 3) Second to the left 4) Immediate right
 5) Can't be determined
48. If A becomes the PM of Brazil, then who will become the PM of SA (The two countries interchange their PMs)?
 1) D 2) C
 3) Either D or B 4) Can't be determined
 5) None of these
49. How many persons are sitting between B and C, if we start counting from B in clockwise direction?
 1) One 2) None 3) Two
 4) Three 5) Four

50. In which of these pairs is the first PM not sitting on the immediate left of the second one?

- 1) EA 2) DB 3) CE
4) AD 5) CB

Directions (Q. 51-55): Study the following information carefully and answer the given questions.

Seven friends P, Q, R, S, T, U and V study in Class X in three different sections A, B and C.

Not less than two friends study in one section.

All of them have a different favourite subject—Social Science, Physics, History, Mathematics, English, Biology and Chemistry.

Each of them has a favourite sport – Cricket, Hockey, Football, Basketball, Tennis, Volleyball and Table Tennis. T's favourite subject is Chemistry and plays Table Tennis. Q and V study in the A section. Q's favourite subject is History. Neither Tennis nor Volleyball is his favourite game.

The one whose favourite game is Football has Physics as his favourite subject and is in Section B only with R. P's favourite subject is Social Science. He plays Cricket and studies only with U.

R studies Mathematics and V studies Biology. U plays Basketball.

The one whose favourite subject is Maths doesn't play Volleyball.

51. Who plays Tennis?

- 1) P 2) R 3) T
4) U 5) V

52. Who among the following study in Section B?

- 1) RP 2) UT 3) RS
4) TS 5) PS

53. How many friends study in Section A?

- 1) Four 2) Three 3) Two
4) One 5) None of these

54. Who among the following plays Hockey?

- 1) P 2) Q 3) R
4) S 5) T

55. Which of the following pairs of games is not played by students of the same section?

- 1) Cricket and Basketball 2) Hockey and Tennis
3) Tennis and Football 4) Hockey and Volleyball
5) Table Tennis and Volleyball

Directions (Q. 56-60): Study the following information carefully to answer the given questions.

In a certain code language 'weather is so cool' is written as 'la pa ma se', 'so are we going' is written as 'ma ne ta ra', 'as going cool' is written as 'pa ne he', 'is weather hot' is written as 'la se ka', 'desert are hot' is written as 'ka te ra' and 'mountains are cool' is written as 'pa ra ha'.

56. What is the code for 'mountains'?

- 1) pa 2) ra 3) pa or ha
4) ha 5) Can't be determined

57. What is the code for 'cool'?

- 1) pa 2) la 3) na
4) ra 5) None of these

58. What is the code for 'going'?

- 1) ne 2) la 3) ka
4) se 5) ma

59. What is the code for 'going hot desert'?

- 1) ne ka la 2) ka te se 3) ka te ne
4) ka ta na 5) None of these

60. What will be the code for 'so desert'?

- 1) ma ta 2) se te 3) ma se
4) te ne 5) None of these

Directions (Q. 61-65): In each question below are given three statements followed by two conclusions numbered I and II. You have to take the given statements to be true even if they seem to be at variance with commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows from the given statements, disregarding commonly known facts. Give answer

- 1) if only conclusion I follows.
2) if only conclusion II follows.
3) if either conclusion I or II follows.
4) if neither conclusion I nor II follows.
5) if both conclusions I and II follow.

(61-62):

Statements: Only medicines are tablets.
Most tablets are tonic.
Many tablets are bitter.

61. **Conclusions:** I. Many tonics are medicines.
II. Many bitter are medicines.

62. **Conclusions:** I. Only tonics being tablets is a possibility.
II. Only tonics being bitter is a possibility.

63. **Statements:** A few towns are cities.
Only cities are villages.
No city is cool.

Conclusions: I. No village is cool.
II. Only villages being cool is a possibility.

(64-65):

64. **Statements:** Some red are colours.
No red is a paint.
All colours are black.

Conclusions: I. Some colours are not paints.
II. All red being black is a possibility.

65. **Conclusions:** I. Some black being paints is a possibility.
II. All paints being black is a possibility.

Test-III
Quantitative Aptitude

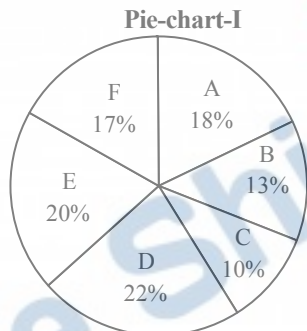
66. 5 persons are chosen at random from a group of 4 men, 3 women and 5 children. The probability that exactly 3 of them are children is
- 1) $\frac{36}{48}$ 2) $\frac{35}{132}$ 3) $\frac{34}{139}$
- 4) $\frac{35}{221}$ 5) $\frac{37}{135}$
67. There are two mixtures in which milk and water are in the ratio of 2 : 3 and 3 : 7 respectively. In what ratio should the two mixtures be mixed to form a new mixture in which the ratio of milk to water is 4 : 7?
- 1) 7 : 4 2) 7 : 3 3) 7 : 2
- 4) 3 : 8 5) None of these
68. A money lender finds that due to a fall in the rate of interest from 13% to $12\frac{1}{2}\%$ his yearly income has reduced by 104. What is his capital?
- 1) 10400 2) 20800 3) 10800
- 4) 20400 5) None of these
69. The traffic lights at three different road crossings change after every 48 seconds, 72 seconds and 108 seconds respectively. If they all change simultaneously at 8 : 20 hours then at what time will they again change simultaneously?
- 1) 8 : 27 min 12 sec
2) 8 : 28 min 12 sec
3) 8 : 30 min 12 sec
4) 8 : 29 min 12 sec
5) None of these
70. An aeroplane started 30 minutes later than the scheduled time from a place 1800 km away from its destination. To reach the destination at the scheduled time the pilot increased the speed by 300 kmph. What was the speed of the aeroplane in kilometre per hour during the entire journey?
- 1) 1300 km/h 2) 1200 km/h 3) 1250 km/h
- 4) 1320 km/h 5) 1420 km/h
71. There is an equilateral triangle of which each side is 2m. With all three corners as centres, circles of radius 1m each are described. Calculate the area common to all the circles and triangles.
- 1) $1.57m^2$ 2) $15.7m^2$ 3) $0.157m^2$
- 4) $1.67m^2$ 5) None of these
72. What sum of money at compound interest will amount to 2249.52 in 3 years, if the rate of interest is 3% for the first year, 4% for the second year and 5% for the third year?

- 1) 4000 2) 5000 3) 3080
- 4) 2000 5) 2530
73. Three partners altogether invested 114000 in a business. At the end of the year, the first partner got 337.50, the second partner got 1125 and the third partner got 675 as profit. What is the ratio of their investments?
- 1) 3 : 10 : 6 2) 10 : 3 : 6 3) 6 : 10 : 3
- 4) 6 : 3 : 10 5) None of these
74. A box contains 4 white balls, 3 black balls and 9 red balls. In how many ways can 4 balls be drawn from the box, if at least one white ball is to be included in a draw?
- 1) 1325 2) 1421 3) 325
- 4) 428 5) 912
75. The area of a rectangle is equal to the area of the circle whose radius is 21 cm. If the length and the breadth of the rectangle are in the ratio of 14 : 11, what is its perimeter?
- 1) 142 cm 2) 140 cm 3) 132 cm
- 4) 136 cm 5) 150 cm
- Directions (Q. 76-80): In each question below equations are given, find the relation between x and y and mark your answer:**
- 1) if $x = y$
2) if $x > y$
3) if $x < y$
4) if $x \geq y$
5) if $x \leq y$
76. $\frac{3}{4} \times \frac{7}{6} x = \frac{12}{15} \times \frac{25}{24} y$
77. $\frac{42}{33} \times \frac{12}{7} x = \frac{18}{7} \times \frac{28}{27} y$
78. (i) $x + y = 16$
(ii) $x^2 + y^2 + xy = 192$
79. (i) $x^2 - 8x + 16 = 0$
(ii) $y^2 - 7y + 12 = 0$
80. (i) $x^2 - 10x + 24 = 0$
(ii) $y^2 - 12x + 36 = 0$
- Directions (Q. 81-85): In each of the following questions a number series is given. A number in the series is represented by x. You have to find out the number in the place of x and use this number to find the value in the place of question mark (?) in the equation following the series.**
81. 23 30 x 53 69 88 110
 $x^2 - 500 = ?$
- 1) 1000 2) 1100 3) 1200
- 4) 1300 5) 1400
82. 16 21 30 45 x 101
 $x + 12 = ? \div 4$
- 1) 320 2) 325 3) 330
- 4) 340 5) 350
83. 15 35 75 x 315 635
 $x \div 30 = ?$

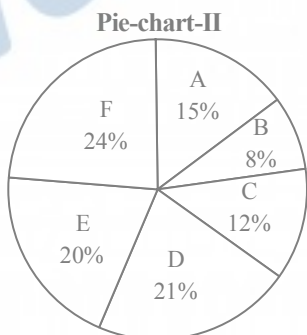
- 1) $4\frac{1}{3}$ 2) $5\frac{1}{2}$ 3) $4\frac{1}{2}$
 4) $5\frac{1}{3}$ 5) $5\frac{1}{6}$
84. $576 \times 24 \times 2.25 \times 1.5 \times 1.4641 \times x \times 4.5 = ?$
 1) 4.455 2) 4.545 3) 5.445
 4) 4.554 5) None of these
85. $x \times \frac{3}{10} \times \frac{1}{5} \times \frac{1}{10} \times \frac{1}{15} \times \frac{1}{30}$
 $x + \frac{2}{5} = ?$
 1) 1 2) $\frac{4}{5}$ 3) $\frac{3}{5}$
 4) $\frac{2}{5}$ 5) None of these

Directions (Q. 86-90): Study the following information carefully and answer the questions given below:

Pie-chart-I shows the percentage distribution of students who appeared in an examination from six different schools and pie-chart-II shows the percentage distribution of students who passed from these schools.



Total students appeared = 9500



Total students passed = 2400

86. What is the difference between the number of students appeared from School A and those appeared from School D?
 1) 320 2) 340 3) 360
 4) 380 5) 400

87. How many students passed from School B and School F together?
 1) 760 2) 768 3) 774
 4) 784 5) 788
88. How many students failed from School C?
 1) 662 2) 664 3) 666
 4) 668 5) 672
89. What is the difference between the total number of failed and passed students from School D?
 1) 1012 2) 1048 3) 1064
 4) 1078 5) 1082
90. Total number of failed students from School E is approximately what percentage of the total number of appeared students from all six schools together?
 1) 15% 2) 18% 3) 21%
 4) 24% 5) 27%

Directions (Q. 91-95): What should come in place of the question mark (?) in the following questions?

91. $18.5 \times 22.5 \times ? = 5161.5$
 1) 13.5 2) 11.4 3) 16.5
 4) 12.4 5) None of these
92. $(9)^2 + (12)^2 = (?)^2$
 1) 21 2) 15 3) 25
 4) 18 5) None of these
93. $(23)^2 = ?$
 1) 12167 2) 17576 3) 2197
 4) 5832 5) None of these
94. $15 \div 5 \div 5 = ?$
 1) 1 2) 15 3) 0
 4) 3 5) None of these
95. $18^{1.3} \times 18^{4.4} = 18^?$
 1) 3.1 2) 4 3) 5.7
 4) 6 5) None of these

Directions (Q. 96-100): What approximate value should come in place of the question mark (?) in the following questions? (You are not expected to calculate the exact value.)

96. $32.156 \times 41.998 \times 24.053 = ?$
 1) 30418 2) 28625 3) 26544
 4) 32483 5) 39623
97. $(85.05)^2 = ?$
 1) 7200 2) 6400 3) 7800
 4) 7700 5) 6900
98. $8989 \div 45 = ?$
 1) 150 2) 200 3) 250
 4) 300 5) 100
99. $12.999 + 18.956 + 284.005 = ?$
 1) 396 2) 301 3) 316
 4) 338 5) 361
100. $\sqrt{7550} = ?$
 1) 94 2) 78 3) 64
 4) 70 5) 87

Thus required time = 8 hrs 20 min + 7 min 12 sec = 8 : 27 : 12 seconds

70. 2; Let the time taken at normal speed be $(x + \frac{1}{2})$ hours.

Then time taken, when speed increases to 300 km/h, is x hours.

$$\text{So, } \frac{1800}{x} - \frac{1800}{(x + \frac{1}{2})} = 300$$

$$\text{or, } 6\left(x + \frac{1}{2}\right) - 6x = x\left(x + \frac{1}{2}\right)$$

$$\text{or, } 2x^2 + x - 6 = 0$$

$$\text{or, } 2x^2 - 3x + 4x - 6 = 0$$

$$\text{or, } x(2x - 3) + 2(2x - 3) = 0$$

$$\text{or, } (x + 2)(2x - 3) = 0$$

$$\text{or, } (x + 2) = 0$$

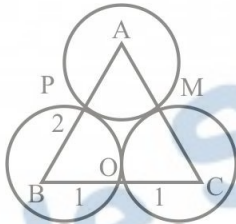
$$\therefore x = -2 \text{ (neglect negative value)}$$

$$\text{And } (2x - 3) = 0$$

$$\therefore x = \frac{3}{2} \text{ hr}$$

$$\therefore \text{Speed} = \frac{1800}{\frac{3}{2}} \text{ km/h} = 1200 \text{ km/h}$$

71. 1;



$$AB = BC = CA = 2m$$

$$\text{Now, } PA = PB = BO = OC = MC = AM = 1m$$

$$\angle ABC = \angle ACB = \angle BAC = 60^\circ$$

$$\text{Area } \Delta ABC = \frac{\sqrt{3}}{4} (\text{side})^2 = \frac{\sqrt{3}}{4} \times 2^2 = \sqrt{3} = 1.732m^2$$

Area of ΔABC covered by all circles

$$= 3 \times \frac{\pi r^2}{360^\circ} \times 60^\circ = 3 \times \frac{\pi r^2}{6}$$

$$= \frac{3 \times 3.14 \times 1^2}{6} = 1.57m^2$$

72. 4; Let money be x .

$$\text{Then, } x\left(1 + \frac{3}{100}\right)\left(1 + \frac{4}{100}\right)\left(1 + \frac{5}{100}\right) = 2249$$

$$\text{or, } x \times 1.03 \times 1.04 \times 1.05 = 2249.52$$

$$\therefore x = \frac{2249.52}{1.03 \times 1.04 \times 1.05} = 2000$$

Direct Formula: By rule of fraction:

$$P = 2249.52 \times \frac{100}{103} \times \frac{100}{104} \times \frac{100}{105} = 2000$$

73. 1; HCF of 337.50, 1125 and 675 is 112.5. Then, ratio is

$$\frac{337.50}{112.5} : \frac{1125}{112.5} : \frac{675}{112.5} = 3 : 10 : 6$$

74. 1; Reqd number of ways

$$= ({}^4C_1 \times {}^{12}C_3) + ({}^4C_2 \times {}^{12}C_2) + ({}^4C_3 \times {}^{12}C_1) + {}^4C_4$$

$$= \left(4 \times \frac{12 \times 11 \times 10}{6}\right) + \left(\frac{4 \times 3}{2} \times \frac{12 \times 11}{2}\right) + (4 \times 12) + 1$$

$$= (4 \times 22 \times 10) + (6 \times 6 \times 11) + 48 + 1$$

$$= 880 + 396 + 48 + 1 = 1325$$

75. 5; Area of circle = $\pi r^2 = \frac{22}{7} \times (21)^2$

Let the length be $14x$ and breadth be $11x$.

Then,

$$\text{Area of rectangle} = 14x \times 11x = \frac{21}{7} \times (21)^2$$

$$\text{Now, } x^2 \times 14 \times 11 = \frac{22}{7} \times 21 \times 21$$

$$\text{or, } x^2 = \frac{22 \times 21 \times 21}{7 \times 14 \times 11} = 9$$

$$\therefore x = 3$$

$$\text{Length of rectangle} = 14 \times 3 = 42 \text{ cm.}$$

$$\text{Breadth} = 11 \times 3 = 33 \text{ cm}$$

$$\therefore \text{Perimeter} = 2(42 + 33) = 2 \times 75 = 150 \text{ cm}$$

76. 3; $\frac{3}{4} \times \frac{7}{6} x = \frac{12}{15} \times \frac{25}{24} y$

$$\text{or, } \frac{7}{8} x = \frac{5}{6} y$$

$$\text{or, } \frac{x}{y} = \frac{5}{6} \times \frac{8}{7}$$

$$\text{or, } \frac{x}{y} = \frac{20}{21} < 1$$

$$\therefore x < y$$

77. 2; $\frac{42}{33} \times \frac{12}{7} x = \frac{18}{7} \times \frac{28}{27} y$

$$\text{or, } \frac{24}{11} x = \frac{8}{3} y$$

$$\text{or, } \frac{x}{y} = \frac{8}{3} \times \frac{11}{24}$$

$$\text{or, } \frac{x}{y} = \frac{11}{9} > 1$$

$$\therefore x > y$$

78. 1; $x + y = 16$

$$(x + y)^2 = (16)^2$$

$$x^2 + y^2 + 2xy = 256$$

$$\text{But } x^2 + y^2 + xy = 192$$

$$\text{On subtracting, } xy = 64$$

$$(x - y)^2 = (x + y)^2 - 4xy$$

$$(x - y)^2 = 256 - 4 \times 64$$

$$(x - y)^2 = 256 - 256$$

$$(x - y)^2 = 0$$

$$x - y = 0$$

$$\therefore x = y$$

79. 4; (i) $x^2 - 8x + 16 = 0$

$$x^2 - 2 \times 4 \times x + (4)^2 = 0$$

$$(x - 4)^2 = 0$$

$$x = 4$$

(ii) $y^2 - 7y + 12 = 0$

$$y^2 - 3y - 4y + 12 = 0$$

$$y(y - 3) - 4(y - 3) = 0$$

$$(y - 3)(y - 4) = 0$$

$$\therefore y = 3 \text{ or } 4$$

$$\text{But } x = 4$$

$$\therefore x^3 y$$

80. 5; (i) $x^2 - 10x + 24 = 0$

$$x^2 - 6x - 4x + 24 = 0$$

$$x(x - 6) - 4(x - 6) = 0$$

$$(x - 6)(x - 4) = 0$$

$$\therefore x = 6 \text{ or } 4$$

(ii) $y^2 - 12y + 36 = 0$

$$y^2 - 2 \times 6 \times y + (6)^2 = 0$$

$$(y - 6)^2 = 0$$

$$y = 6$$

$$\therefore x \leq y$$

81. 2; $23 + 7 \quad 30 + 10 \quad \frac{40}{x} + 13 \quad 53 + 16 \quad 69 + 19 \quad 88 + 22 \quad 110$

$$\therefore x = 30 + 10 = 40$$

$$\therefore x^2 - 500 = (40)^2 - 500 = 1600 - 500 = 1100$$

82. 1;
$$\begin{array}{ccccccccc} 16 & & 21 & & 30 & & 45 & & x & & 101 \\ & \nearrow & & \nearrow & & \nearrow & & \nearrow & & \nearrow & \\ & +5 & & +9 & & +15 & & +23 & & +33 & \\ & & \nearrow & & \nearrow & & \nearrow & & \nearrow & & \\ & & +5 & & +6 & & +8 & & +10 & & \end{array}$$

$$x = 45 + 23 = 68$$

$$\therefore x + 12 = ? \div 4$$

$$\text{or, } 68 + 12 = \frac{?}{4}$$

$$\text{or, } 80 \times 4 = ?$$

$$\therefore ? = 320$$

83. 5; $15 \times 2 + 5 \quad 35 \times 2 + 5 \quad 75 \times 2 + 5 \quad \frac{155}{x} \times 2 + 5 \quad 315 \times 2 + 5 \quad 635$

$$x = 75 \times 2 + 5 = 155$$

$$x \div 30 = ?$$

$$\text{or, } 155 \div 30 = ?$$

$$\text{or, } ? = \frac{155}{30} = \frac{31}{6} = 5 \frac{1}{6}$$

84. 3;
$$\begin{array}{ccc} 576 & 24 & 2.25 & 1.5 & 1.4641 & x \\ \sqrt{} & \uparrow & \sqrt{} & \uparrow & \sqrt{} & \uparrow \end{array}$$

$$x = \sqrt{1.4641} = 1.21$$

$$? = x \times 4.5 = 1.21 \times 4.5 = 5.445$$

85. 1; $x \quad \frac{3}{10} \quad \frac{1}{5} \quad \frac{1}{10} \quad \frac{1}{15} \quad \frac{1}{30}$

$$\begin{array}{ccccc} \boxed{\otimes} \frac{1}{2} & \boxed{\otimes} \frac{2}{3} & \boxed{\otimes} \frac{1}{2} & \boxed{\otimes} \frac{2}{3} & \boxed{\otimes} \frac{1}{2} \end{array}$$

$$x \times \frac{1}{2} = \frac{3}{10}$$

$$\text{or, } x = \frac{3}{5}$$

$$\text{or, } ? = x + \frac{2}{5} = \frac{3}{5} + \frac{2}{5} = \frac{5}{5} = 1y$$

86. 4; Reqd difference = $9500 \times \frac{(22-18)}{100} = 380$

87. 2; Total number of students passed from School B and F together

$$= 2400 \times \frac{(8+24)}{100}$$

$$= 24 \times 32 = 768$$

88. 1; $\therefore C_{\text{App}} = 9500 \times \frac{10}{100} = 950$

$$C_{\text{Pass}} = 2400 \times \frac{12}{100} = 288$$

$$\therefore \text{Number of failed students} = 950 - 288 = 662$$

89. 5; $D_{\text{App}} = 9500 \times \frac{22}{100} = 2090$

$$D_{\text{Pass}} = 2400 \times \frac{21}{100} = 504$$

$$\therefore D_{\text{Fail}} = 2090 - 504 = 1586$$

$$\therefore \text{Reqd difference} = 1586 - 504 = 1082$$

$$90. 1; E_{\text{Fail}} = \left(9500 \times \frac{20}{100}\right) - \left(2400 \times \frac{20}{100}\right)$$

$$= 1900 - 480 = 1420$$

$$\therefore \text{Total appeared students} = 9500$$

$$\therefore \text{Reqd \%} = \frac{1420}{9500} \times 100 = 14.94 \approx 15\%$$

$$91. 4; ? = \frac{5161.5}{18.5 \times 22.5} = \frac{5161.5}{416.25} = 12.4$$

$$92. 2; ? = \sqrt{81+144} = \sqrt{225} = 15$$

$$93. 1; ? = (20+3)^3$$

$$= (20)^3 + (3)^3 + 3 \times 20 \times 3(20+3)$$

$$= 8000 + 27 + (180 \times 23) = 8027 + 4140 = 12167$$

$$94. 5; ? = 15 \times \frac{1}{5} \times \frac{1}{5} = \frac{3}{5}$$

$$95. 3$$

$$96. 4; ? = 32.156 \times 41.998 \times 24.053 = 32483.280$$

$$= 32483 \text{ (approx)}$$

$$97. 1$$

$$98. 2$$

$$99. 3$$

$$100. 5$$



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