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SBI PO Preliminary Exam Model Paper - 3

By Ramandeep Singh



Ramandeep Singh
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Quantitative Aptitude

- A sphere of 30 cm radius is dropped into a cylindrical vessel of 80 cm diameter, which is partly filled with water, then its level rises by x cm. Find x :
a) 27.5 cm b) 22.5 cm c) 18.5 cm
d) Data inadequate e) None of these
- On dividing a number by 357, we get 39 as remainder. On dividing the same number by 17, what will be the remainder?
a) 0 b) 3 c) 5
d) 11 e) None of these
- After replacing an old member by a new member, it was found that the average age of five members of a club is the same as it was 3 years ago. What is the difference between the ages of the replaced and the new member?
a) 2 years b) 4 years c) 8 years
d) 15 years e) None of these
- The LCM of two numbers is 495 and their HCF is 5. If the sum of the numbers is 10, then their difference is
a) 10 b) 46 c) 70
d) 90 e) None of these
- A child has three different kinds of chocolates costing Rs.2, Rs.5 and Rs.10. He spends total Rs.120 on the chocolates. What is the minimum possible number of chocolates, he can buy, if there must be atleast one chocolate of each kind?
a) 22 b) 19 c) 17
d) 15 e) None of these
- A, B, C rent a pasture. A puts 10 oxen for 7 months, B puts 12 oxen for 5 months and C puts 15 oxen 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 e) None of these
- A letter lock consists of 4 rings, each ring contains 9 non-zero digits. This lock can be opened by setting a 4 digit code with the proper combination of each of the 4 rings Maximum how many codes can be formed to open the lock?
a) 4^9 b) 9^4 c) 9^4
d) Data inadequate e) None of these
- A bag contains 6 black and 8 white balls. One ball is drawn at random. What is the probability that the ball drawn is white?
a) $\frac{3}{4}$ b) $\frac{4}{7}$ c) $\frac{1}{8}$
d) $\frac{3}{7}$ e) None of these
- The ratio between the present ages of P and Q is 6 : 7. If Q is 4 years old than P, what will be the ratio of the ages of P and Q after 4 years?
a) 3 : 4 b) 3 : 5 c) 4 : 3
d) 7 : 8 e) None of these
- I gain 70 paise on Rs.70. My gain percent is
a) 0.1% b) 1% c) 7%
d) 10% e) None of these

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39. How many such pairs of letters are there in the word SEARCHES each of which has as many letters between them in the word as in the English alphabet?
a) None b) One c) Two
d) Three e) More than three
40. If '÷' means '+', '×' means '×', '×' means '÷' and '+' means '×', then
 $15 \times 8 \times 6 \div 12 + 4 = ?$
a) 20 b) 28 c) $8-4/7$
d) $2-2/3$ e) None of these
41. Ashok started walking towards South. After walking 50 m he took a right turn and walked 30 m. He then took a right turn and walked 100 m. He again took a right turn and walked 30 m and stopped. How far and in which direction was he from the starting point?
a) 50 m South
b) 150 m North
c) 180 m East
d) 50 m North
e) None of these
42. How many meaningful English words can be made with the letters DLEI using each letter only once in each word?
a) None b) One c) Two
d) Three e) More than three
43. In a certain code TEMPORAL is written as OLDSMBSP. How is CONSIDER written in that code?
a) RMNBSFEJ b) BNMRSFEJ c) RMNBJEFS
d) TOPDQDCH e) None of these
44. In a certain code language 'how many goals scored' is written as '5 3 9 7'; 'many more matches' is written as '9 8 2' and 'he scored five' is written as '1 6 3'. How is 'goals' written in that code language?
a) 5 b) 7 c) 5 or 7
d) Data inadequate e) None of these
45. Pratap correctly remembers that his mother's birthday is before 23rd of April but after 19th of April, whereas his sister correctly remembers that their mother's birthday is not on or after 22nd of April. On which day in April is definitely their mother's birthday?
a) 20th b) 21st c) 20th or 21st
d) Can't be determined e) None of these

Directions (Q. 46-50) In each of the questions below are given four statements followed by four conclusions numbered I, II, III and IV. You have to take the given statements to be true even if they seem to be at variance from 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.

46. **Statements:** All cups are bottles.
Some bottles are jugs.
No jug is plate.
Some plates are tables.
- Conclusions:** I. Some tables are bottles.
II. Some plates are cups.
III. No table is bottle.
IV. Some jugs are cups.

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- a) Only I follows
- b) Only II follows
- c) Only III follows
- d) Only IV follows
- e) Only either I or III follows

47. **Statements:** All birds are horses.
All horses are tigers.
Some tigers are lions.
Some lions are monkeys.
- Conclusions:** I. Some tigers are horses.
II. Some monkeys are birds.
III. Some tigers are birds.
IV. Some monkeys are horses.
- a) Only I and III follow
 - b) Only I, II and III follow
 - c) Only II, III and IV follow
 - d) All I, II, III and IV follow
 - e) None of these

48. **Statements:** Some chairs are handles.
All handles are pots.
All pots are mats.
Some mats are buses.
- Conclusions:** I. Some buses are handles.
II. Some mats are chairs.
III. No bus is handle.
IV. Some mats are handles.
- a) Only I, II and IV follow
 - b) Only II, III and IV follow
 - c) Only either I or III and II follow
 - d) Only either I or III and IV follow
 - e) Only either I or III and II and IV follow

49. **Statements:** Some sticks are lamps.
Some flowers are lamps.
Some lamps are dresses.
All dresses are shirts.
- Conclusions:** I. Some shirts are sticks.
II. Some shirts are flowers.
III. Some flowers are sticks.
IV. Some dresses are sticks.
- a) None follows
 - b) Only I follows
 - c) Only II follows
 - d) Only III follows
 - e) Only IV follows

50. **Statements:** Some benches are walls.
All walls are houses.
Some houses are jungles.
All jungles are roads.
- Conclusions:** I. Some roads are benches.
II. Some jungles are walls.
III. Some houses are benches.

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IV. Some roads are houses.

- a) Only I and II follow
- b) Only I and III follow
- c) Only III and IV follow
- d) Only II, III and IV follow
- e) None of these

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

A, B, C, D, E, F, G and H are eight employees of an organization working in three departments viz. Personnel, Administration and Marketing with not more than three of them in any department. Each of them has a different choice of sports from Football, Cricket, Volleyball, Badminton, Lawn Tennis, Basketball, Hockey and Table Tennis not necessarily in the same order.

D works in Administration and does not like either Football or Cricket. F works in Personnel with only A who likes Table Tennis. E and H do not work in the same department as D. C likes Hockey and does not work in Marketing. G does not work in Administration and does not like either Cricket or Badminton. One of those who work in Administration likes Football. The one who likes Volleyball works in Personnel. None of those who work in Administration likes either Badminton or Lawn Tennis. H does not like Cricket.

- 51. Which of the following groups of employees work in Administration department?
 - a) EGH
 - b) AF
 - c) BCD
 - d) BGD
 - e) Data inadequate
- 52. In which department does E work?
 - a) Personnel
 - b) Marketing
 - c) Administration
 - d) Data inadequate
 - e) None of these
- 53. What is E's favourite sport?
 - a) Cricket
 - b) Badminton
 - c) Basketball
 - d) Lawn Tennis
 - e) None of these
- 54. Which of the following combinations of employees-department-favourite sport is correct?
 - a) E-Administration-Cricket
 - b) F-Personnel-Lawn Tennis
 - c) H-Marketing-Lawn Tennis
 - d) B-Administration-Table Tennis
 - e) None of these
- 55. What is G's favourite sport?
 - a) Cricket
 - b) Badminton
 - c) Basketball
 - d) Lawn Tennis
 - e) None of these

Directions (Q. 56-60) In the following questions, the symbols @, \$, *, # and ! are used with the following meaning as illustrated below:

- 'P \$ Q' means 'P is not smaller than Q'.
- 'P @ Q' means 'P is neither smaller than nor equal to Q'.
- 'P # Q' means 'P is neither greater than nor equal to Q'.
- 'P ! Q' means 'P is neither greater than nor smaller than Q'.
- 'P * Q' means 'P is not greater than Q'.

Now, in each of the following questions assuming the given statements to be true, find which of the four conclusions I, II, III and IV given below them is/are definitely true and give your answer accordingly.

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56. **Statements:** N ! B, B \$ W, W # H, H * M
Conclusions: I. M @ W
II. H @ N
III. W ! N
IV. W # N

- a) Only I is true
- b) Only III is true
- c) Only IV is true
- d) Only either III or IV is true
- e) Only either III or IV and I are true

57. **Statements:** R * D, D \$ J, J # M, M @ K
Conclusions: I. K # J
II. D @ M
III. R # M
IV. D @ K

- a) None is true
- b) Only I is true
- c) Only II is true
- d) Only III is true
- e) Only IV is true

58. **Statements:** H @ T, T # F, F ! E, E * V
Conclusions: I. V \$ F
II. E @ T
III. H @ V
IV. T # V

- a) Only I, II and III are true
- b) Only I, II and IV are true
- c) Only II, III and IV are true
- d) Only I, III and IV are true
- e) All I, II, III and IV are true

59. **Statements:** D # R, R * K, K @ F, F \$ J
Conclusions: I. J # R
II. J # K
III. R # F
IV. K @ D

- a) Only I, II and III are true
- b) Only II, III and IV are true
- c) Only I, III and IV are true
- d) All I, II, III and IV are true
- e) None of these

60. **Statements:** M \$ K, K @ N, N * R, R # W
Conclusions: I. W @ K
II. M \$ R
III. K @ W
IV. M @ N

- a) Only I and II are true
- b) Only I, II and III are true
- c) Only III and IV are true
- d) Only II, III and IV are true
- e) None of these

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Directions (Q. 61-65) Study the following information carefully and answer the questions given below:

Following are the conditions for selecting Senior Manager-Credit in bank. The candidate must

- (i) Be a Graduate in any discipline with at least 60% marks.
- (ii) Have post qualification work experience of at least 10 years in the Advances Section of a bank.
- (iii) Be at least 30 years and not more than 40 years as on 01.04.2010.
- (iv) Have secured at least 40% marks in the group discussion.
- (v) Have secured at least 50% marks in interview.

In the case of a candidate who satisfies all the conditions

Except

- (a) At (i) above but has secured at least 50% marks in graduation and at least 60% marks in post graduation in and discipline the case is to be referred to the General Manager-Advances.
- (b) At (ii) above but has total post qualification work experience of at least seven years out of which at least three years as Manager-Credit in a bank, the case is to be referred to Executive Director.

In each question, below details of one candidate is given. You have to take one of the following courses of action based on the information provided and the conditions and sub-conditions given above and mark the number of that course of action as your answer. You are not to assume anything other than the information provided in each question. All these cases are given to you as on 01.04.2010.

Give answer (a) if the case is to be referred to Executive Director.

Give answer (b) if the case is to be referred to General Manager-Advances.

Give answer (c) if the data are inadequate to take a decision.

Give answer (d) if the candidate is not to be selected.

Give answer (e) if the candidate is to be selected.

61. Prakash Gokhale was born on 4th August 1977. He has secured 65% marks in post graduation and 58% marks in graduation. He has been working for the past 10 years in the Advances Department of a bank after completing his post graduation. He has secured 45% marks in the group discussion and 50% marks in the interview.
62. Amit Narayan was born on 28th May 1974. He has been working in the Advances Department of a bank for the past 11 years after completing his B.Sc. degree with 65% marks. He has secured 55% marks in group discussion and 50% marks in the interview.
63. Shobha Gupta has secured 50% marks in the interview and 40% marks in the group discussion. She has been working for the past eight years out of which four years as Manager-Credit in a bank after completing her B.A. degree with 60% marks. She was born on 12th September, 1978.
64. Rohan Maskare was born on 8th March 1974. He has been working in a bank for the past 12 years after completing his B.Com degree with 70% marks. He has secured 50% marks in both the group discussion and the interview.
65. Sudha Mehrotra has been working in the Advances Department of a bank for the past 12 years after completing her B.Com. degree with 60% marks. She has secured 50% marks in the group discussion and 40% marks in the interview. She was born on 15th February 1972.

Directions (Q. 66-70) In each questions below is given a statement followed by three courses of action numbered (A), (B) and (C). A course of action is a step or administrative decision to be taken for improvement, follow-up or further action in regard to the problem, policy, etc. On the basis of the information given in the statement, you have to assume everything in the statement to be true, then decide which of the suggested courses of action logically follow(s) for pursuing.

66. **Statement:** Many political activists have decided to stage demonstrations and block traffic movement in the city during peak hours to protest against the steep rise in prices of essential commodities.

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Courses of action

- (A) The government should immediately ban all forms of agitations in the country.
(B) The police authority of the city should deploy additional forces all over the city to help traffic movement in the city.
(C) The state administration should carry out preventive arrests of the known criminals staying in the city.
- a) Only (A) b) Only (B) c) Only (C)
d) Only (A) and (B) e) None of these

67. **Statement:** The school dropout rate in many districts in the state has increased sharply during the last few years as the parents of these children make them work in the fields owned by others to earn enough for them to get at least one meal a day.

Courses of action

- (A) The government should put up a mechanism to provide foodgrains to the poor people in these districts through public distribution system to encourage the parents to send their wards to school.
(B) The government should close down some of these schools in the district and deploy the teachers of these schools to nearby schools and also ask remaining students to join these schools.
(C) The government should issue arrest warrants for all the parents who force their children to work in fields instead of attending classes.
- a) Only (A) b) Only (B) c) Only (C)
d) Only (A) and (B) e) None of these

68. **Statement:** A large private bank has decided to retrench one-third of its employees in view of the huge losses incurred by it during the past three quarters.

Courses of action

- (A) The government should issue a notification to general public to immediately stop all transactions with the bank.
(B) The government should direct the bank to refrain from retrenching its employees.
(C) The government should ask the central bank of the country to initiate an enquiry into the bank's activities and submit its report.
- a) None b) Only (A) c) Only (B)
d) Only (C) e) None of these

69. **Statement:** One aspirant was killed due to stampede while participating in a recruitment drive of police constables.

Courses of action

- (A) The officials incharge of the recruitment process should immediately be suspended.
(B) A team of officials should be asked to find out the circumstances which led to the death of the aspirant and submit its report within a week.
(C) The government should ask the home department to stagger the number of aspirants over more number of days to avoid such incidents in future.
- a) Only (A) b) Only (B) c) Only (C)
d) Only (B) and (C) e) None of these

70. **Statement:** A heavy unseasonal downpour during the last two days has paralysed the normal life in the state in which five persons were killed but this has provided a huge relief to the problem of acute water crisis in the state.

Courses of action

- (A) The state government should set up a committee to review the alarming situation.
(B) The state government should immediately remove all the restrictions on use of potable water in all the major cities in the state.
(C) The state government should send relief supplies to all the affected areas in the state.

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- a) None
d) Only (C)
- b) Only (A)
e) All (A), (B) and (C)
- c) Only (B) and (C)

English Language

Directions (Q. 71-80) Read the following passage carefully and answer the questions given below it. Certain words have been printed in bold to help you to locate them while answering some of the questions.

Banking sector reforms in India were introduced in order to **improve** efficiency in the process of financial intermediation. It was expected that banks would take advantage of the changing operational environment and improve their performance. Towards this end, the Reserve Bank of India initiated a host of measures for the creation of a competitive environment. Deregulation of interest rates on both deposit and lending sides imparted freedom to banks to appropriate price their products and services. To compete effectively with non-banking entities, banks were permitted to undertake newer activities like investment banking, securities trading and insurance business. This was facilitated through amendments in the **relevant** acts which permitted PSBs to raise equity from the market up to threshold limit and also enabling the entry of new private and foreign banks. This changing face of banking led to an erosion of margins on traditional banking business, promoting banks to search for newer activities to **augment** their free incomes. At the same time, banks also needed to devote focused attention to operational efficiency in order to contain their transaction costs. Simultaneously with the deregulation measures prudential norms were instituted to strengthen the safety and soundness of the banking system. Recent internal empirical research found that over the period 1992-2003, there has been a discernible improvement in the efficiency of Indian banks. The increasing trend in efficiency has been fairly uniform, irrespective of the ownership pattern. The rate of such improvement has, however, not been sufficiently high. The analysis also **reveals** that PSBs and private sector banks in India did not differ significantly in terms of their efficiency measures. Foreign banks, on the other hand, recorded higher efficiency as compared with their Indian counterparts.

71. Prudential norms were initiated in the banking sector with a view to
- Increase operational efficiency
 - Contain the non-performing assets
 - Strengthen the soundness of banking system
 - Improve the customer service
 - None of these
72. Banking sector reforms in India were introduced for the purpose of
- Giving more and more employment opportunities to the educated unemployed
 - Taking care of the downtrodden masses
 - Increasing efficiency in the banking activities
 - Giving better return to the Central Government
 - None of these
73. Banks can control their transaction costs by
- Restricting their lending activities
 - Undertaking more and more non-banking activities
 - Encouraging the customers to bank with other banks
 - Devoting more attention to operational efficiency
 - None of these
74. The recent internal empirical research conducted by the RBI found that
- There is cut-throat competition in banking industry

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- b) The rate of return is not commensurate with the operational cost
c) The rate of improvement has not been high
d) Nationalised banks and private sector banks did differ in the efficiency measures
e) None of these
75. Which of the following statements recognising improvement in efficiency is True in the context of the passage?
a) There is no discernible difference in efficiency parameters
b) The foreign banks recorded higher efficiency
c) The efficiency of foreign banks is not comparable with Indian banks
d) The rate of such improvement in efficiency was very high
76. Which of the following is/are the measure(s) taken by Reserve Bank of India to create a competitive environment in the Banking sector?
I. Banks were given freedom to take up newer activities.
II. Entry of new private and foreign banks in the field.
III. Amendments in the relevant acts to enable PSBs to raise equity from the market.
a) None b) I and II c) I and III
d) II and III e) All the three
77. Choose the word which is most nearly the same in meaning as the word printed in bold as used in the passage.
Relevant
a) Recorded b) Opposite c) Appropriate
d) Germane e) None of these
78. Choose the word which is most nearly the same in meaning as the word printed in bold as used in the passage.
Augment
a) make b) become c) enlarge
d) increase e) None of these
79. Choose the word that is most opposite of the word printed in bold as used in passage.
Improve
a) Retard b) Disprove c) Prove
d) Accelerate e) None of these
80. Choose the word that is most opposite of the word printed in bold as used in passage.
Reveal
a) Show b) Conceal c) Secretive
d) Exhibit e) None of these

Directions (Q. 81-85) Read each sentence to find out whether there is any grammatical error or idiomatic error in it. The error, if any, will be in one part of the sentence. The number of that part is the answer. If there is 'No error', the answer is (5) (Ignore errors of punctuation, if any)

81. The area was plunged into (1) / darkness mid a wave of (2) / cheering and shouting (3) / slogans like 'Save The Earth'. (4) No error (5)
82. The poll contestants approached (1) the commission complaining that the hoardings (2) / violated the code of conduct (3) / and influenced public perception. (4) No error (5)
83. The country has (1) / adequate laws but problems (2) / arise when these are not (3) / implemented in letter and spirit. (4) / No error (5)
84. The management feels that (1) / the employees of the organisation are (2) / non-productive, and do not want (3) / to work hard (4) / No error

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85. As far the issue of land encroachment (1) / in villages is concerned, people will (2) / have to make a start from their villages by (3) / sensitising and educating the villagers this issue. (4) No error (5)

Directions (Q. 86-90) Which of the phrases (1), (2), (3) and (4) given below each sentence should replace the word/phrase printed in bold in the sentence to make it grammatically correct? If the sentence is correct as it is given and no correction is required, mark (5) as the answer.

86. US Secretary of State made it clear that time **running out** for diplomacy over Iran's nuclear programme and said that talks aimed at preventing Tehran from acquiring a nuclear weapon would resume in April.
a) runs out b) was running out c) ran out
d) run e) No correction required
87. While the war of the generals **rage on**, somewhere in small town India, wonderful things are happening, quietly and minus fanfare.
a) rage b) raging c) rages on
d) raged on e) No correction required
88. According to WWF, the small Island nation of Samoa was **the first in switch off** its lights for Earth Hour.
a) first to switch off
b) the first to switch off
c) the first of switch off
d) first in switch off
e) No correction required
89. The campaign is significant **because not just** the youths are directly appealing to the World but because their efforts challenge the chimera of normalcy in the area.
a) not just because
b) just not because
c) not just
d) because just
e) No correction required
90. The doctor's association has threatened to go on indefinite strike support of their teachers.
a) on supporting to
b) to supporting
c) for support
d) in support of
e) No correction required

Directions (Q. 91-100) In the following passage there are blanks, each of which has been numbered. These numbers are printed below the passage and against each, five words/phrases are suggested, one of which fits the blank appropriately. Find out the appropriate word/phrase in each case.

Greenhouse gases are only (91) of the story when it comes to global warming. Changes to one part of the climate system can (92) additional changes to the way the planet absorbs or reflects energy. These secondary changes are (93) climate feedbacks, and they could more than double the amount of warming caused by carbon dioxide alone. The primary feedbacks are (94) to snow and ice, water vapour, clouds and the carbon cycle.

Perhaps the most well (95) feedback comes from melting snow and ice in the Northern Hemisphere. Warming temperatures are already (96) a growing percentage of Arctic sea ice, exposing dark ocean water during the (97) sunlight of summer. Snow cover on land is also (98) in many areas. In the (99) of snow and ice, these areas go from having bright, sunlight reflecting surfaces that cool

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the planet to having dark, sunlight absorbing surfaces that (100) more energy into the Earth system and cause more warming.

91. a) whole b) part c) material
d) issue e) most
92. a) raise b) brings c) refer
d) stop e) cause
93. a) sensed b) called c) nothing
d) but e) term
94. a) due b) results c) reason
d) those e) because
95. a) done b) known c) ruled
d) bestowed e) said
96. a) mastering b) sending c) melting
d) calming e) increasing
97. a) make-shift b) ceasing c) troubled
d) perpetual e) absent
98. a) dwindling b) manufactured c) descending
d) generating e) supplied
99. a) progress b) reduced c) existence
d) midst e) absence
100. a) repel b) waft c) monitor
d) bring e) access

Answers:

1. Volume of water displaced = volume of sphere

$$\times (40)^2 \times h = \frac{4}{3} \times (30)^3$$

$$h = \frac{90}{4} = 22.5 \text{ cm}$$

Thus, the level of water rises by 22.5 cm.

Note The volume of water will be calculated by considering it in the cylindrical shape since the water takes the shape of vessel in which it is filled.

2. Let x be the number and y be the quotient. Then,

$$x = 357 \times y + 39$$

$$= (17 \times 21 \times y) + (17 \times 2) + 5$$

$$= 17 \times (21y + 2) + 5$$

So, required number = 5

3. Age decreased = 5×3 years = 15 years

So, required difference = 15 years

4. Let the numbers be x and $(100 \div x)$

$$\text{Then, } x (100 \div x) = 5 \times 495$$

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$$x^2 - 100x + 2475 = 0$$

$$(x - 55)(x - 45) = 0$$

$$x = 55 \text{ or } x = 45$$

Therefore, the numbers are 45 and 55.

$$\text{Required difference} = (55 - 45) = 10$$

5. Minimum number of chocolates are possible when he purchases maximum number of costliest chocolates.

$$\text{Thus, } 2 \times 5 + 5 \times 2 = \text{Rs.}20$$

$$\text{Now, Rs.}100 \text{ must be spend on 10 chocolates as } 100 = 10 \times 10$$

$$\text{Thus, minimum number of chocolates} = 5 + 2 + 10 = 17$$

$$\begin{aligned} 6. \text{ A : B : C} &= 10 \times 7 : 12 \times 5 : 9 \times 5 \\ &= 70 : 60 : 45 \\ &= 14 : 12 : 9 \\ &= \text{Rs.}175 \times \frac{9}{35} = \text{Rs.}45 \end{aligned}$$

$$7. 9 \times 9 \times 9 \times 9 = 9^4$$

$$8. \text{ Let number of balls} = (6 + 8) = 14$$

$$\text{Number of white balls} = 8$$

$$P(\text{drawing a white ball}) = \frac{8}{14} = \frac{4}{7}$$

9. Let P's age and Q's age be $6x$ years and $7x$ years respectively.

$$\text{Then } 7x - 6x$$

$$x = 4$$

$$\text{Required ratio} = (6x + 4) : (7x + 4)$$

$$= 28 : 32$$

$$= 7 : 8$$

$$10. \text{ Gain \%} = \left[\frac{0.70}{70} \times 100 \right] \% = 1\%$$

$$11. T_{11} + T_{12} + T_{13} = 114$$

$$T_{12} = \frac{114}{3} = 38$$

$$a + 11d = 38 \quad \dots (i)$$

$$\text{and } T_{21} + T_{22} + T_{23} = 204$$

$$T_{22} = 68$$

$$a + 21d = 68 \quad \dots (ii)$$

from equations (i) and (ii)

$$10d = 30$$

$$d = 3$$

$$\text{So, } a = 5$$

$$T_1 + T_2 + T_3 = 5 + 8 + 11 = 24$$

$$12. \sqrt{0.09} = \sqrt{\frac{9}{100}}$$

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$$= \frac{3}{10}$$

0.3, which is rational.

13. Suppose they meet x hrs. after 8 a.m. then
 (Distance moved by first in x hrs.) + = 300
 [Distance moved by second in $(x \mp 1)$ hrs.]

$$\text{Therefore } 60x + 75(x \mp 1) \qquad \qquad \qquad \Leftrightarrow 330$$

$$x = 3$$

So, they meet at $(8 + 3)$ i.e. 11 a.m.

14. 1 woman's 1 day's work

$$= \frac{1}{70}$$

1 child's 1 day's work

$$= \frac{1}{140}$$

$$(5 \text{ women} + 10 \text{ children})'s \text{ day's work} = \left[\frac{5}{70} + \frac{10}{140} \right] = \left[\frac{1}{14} + \frac{1}{14} \right] = \frac{1}{7}$$

5 women and 10 children will complete the work in 7 days.

15. BH perpendicular to AC means that triangles ABH and HBC are right triangles. Hence
 $\tan(39^\circ) = 11/AH$ or $AH = 11/\tan(39^\circ)$

$$HC = 19 \mp AH = 19 \mp 11/\tan(39^\circ)$$

$$\text{Pythagora's theorem applied to right triangle HBC : } 11^2 + HC^2 = x^2$$

$$\text{Solve for } x \text{ and substitute HC : } x = \text{sqrt}[11^2 + (19 \mp 11/\tan(39^\circ))^2]$$

$$= 12.3$$

16. This is a right triangle with a 30° angle so it must be a $30^\circ \mp 60^\circ \mp 90^\circ$ triangle.

You are given that the hypotenuse is 8. Substituting 8 into the third value of the ratio $n\sqrt{3} : 2n$,

$$\text{we get that } 2n = 8$$

$$n = 4$$

Substituting $n = 4$ into the first and second value of the ratio we get that the other two sides are 4 and $4\sqrt{3}$

The lengths of the two sides are 4 inches and $4\sqrt{3}$ inches.

$$17. \text{ Rate downstream} = \left[\frac{15}{3 \frac{1}{4}} \right] \text{ km/hr} = \left[15 \times \frac{4}{15} \right] \text{ km/hr} = 4 \text{ km/hr}$$

$$\text{Rate upstream} = \left[\frac{5}{2 \frac{1}{2}} \right] \text{ km/hr} = \left[5 \times \frac{2}{5} \right] \text{ km/hr} = 2 \text{ km/hr}$$

$$\text{So, speed of current} = \frac{1}{2} (4 \mp 2) \text{ km/hr} = 1 \text{ km/hr}$$

$$18. \text{ Required percentage} = \left[\frac{720 + 840 + 780 + 950 + 870}{1980 + 1050 + 1020 + 1240 + 940} \times 100 \right] \%$$

$$= \left[\frac{4160}{5230} \times 100 \right] \%$$

$$= 79.54\% \sim 80\%$$

$$19. \text{ Required average} = \frac{8100 + 9500 + 8700 + 9700 + 8950}{5}$$

$$= \frac{44950}{5} = 8990$$

20. The percentages of candidates qualified to candidates appeared from State P during different years are :

$$\text{For 1997} = \left[\frac{780}{6400} \times 100 \right] \% = 12.19\%$$

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For 1998 = $\left[\frac{1020}{8800} \times 100\right]\% = 11.59\%$

For 1999 = $\left[\frac{890}{7800} \times 100\right]\% = 11.41\%$

For 2000 = $\left[\frac{1010}{8750} \times 100\right]\% = 11.54\%$

For 2001 = $\left[\frac{1250}{9750} \times 100\right]\% = 12.82\%$

Maximum percentage is for the year 2001.

21. Required percentage = $\left[\frac{840 + 1050 + 920 + 980 + 1020}{7500 + 9200 + 8450 + 9200 + 8800} \times 100\right]\%$
 $= \left[\frac{4810}{43150} \times 100\right]\%$
 $= 11.15\%$

22. Required percentage = $\left[\frac{850 + 920 + 890 + 980 + 1350}{7400 + 8450 + 7800 + 8700 + 9800} \times 100\right]\%$
 $= \left[\frac{4990}{42150} \times 100\right]\%$
 $= 11.84\%$

23. In 12 hours, they are at right angles 22 times.
 So, in 24 hours, they are at right angles 44 times.

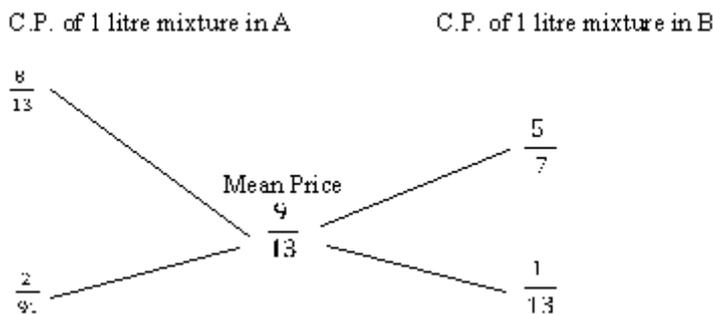
24. Let cost of 1 litre milk be Rs. 1

Milk in 1 litre mix. in A = $\frac{8}{13}$ litre, C.P. of 1 litre mix. in A = Rs. $\frac{8}{13}$

Milk in 1 litre mix. in B = $\frac{5}{7}$ litre, C.P. of 1 litre mix. in B = Rs. $\frac{5}{7}$

Milk in 1 litre of final mix. = $\left[\frac{900}{13} \times \frac{1}{100} \times 1\right] = \frac{9}{13}$ litre; Mean price = Rs. $\frac{9}{13}$

By the rule of allegation, we have :



So, required ratio = $\frac{2}{91} : \frac{1}{13} = 2 : 7$

25. Time taken by one tap to fill the half tank = 3 hours

Part filled by the four taps in 1 hour = $\left[4 \times \frac{1}{6}\right]$
 $= \frac{2}{3}$

Remaining part = $\left[1 - \frac{2}{3}\right]$

Therefore $\frac{2}{3} : \frac{1}{2} :: 1 : x$
 $\left[\frac{1}{2} \times 1 \times \frac{3}{2}\right]$
 $= \frac{3}{4}$ hours i.e. 45 minutes.

So, total time taken = 3 hours 45 minute

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26. Time = $\left[\frac{100 \times 81}{450 \times 4.5}\right]$ years = 4 years
27. 20% of a = b
 $\frac{20}{100} a = b$
 So, b% of 20 = $\left[\frac{b}{100} \times 20\right] = \left[\frac{20}{100} a \times \frac{1}{100} \times 20\right] = \frac{4}{100} a = 4\%$ of a
28. $(4^{61} + 4^{62} + 4^{63} + 4^{64}) = 4^{61} \times (1 + 4 + 4^2 + 4^3) = 4^{61} \times 85$
 $= 4^{60} \times (4 \times 85) = (4^{60} \times 340)$, which is divisible by 10.
29. Average of 20 numbers = 0.
 \therefore Sum of 20 numbers $(0 \times 20) = 0$.
 It is quite possible that 19 of these numbers may be positive and if their sum is a then 20th number is $(-a)$.
30. Required length = HCF of 700 cm, 385 cm and 1295 cm
 = 35 c
31. $\frac{(a+b)}{(a-b)} = \frac{15}{1}$
 $\frac{a}{b} = \frac{8}{7}$ (by componendo and dividendo)
 Therefore $a^2 - b^2 = 64 - 49 = 15$
32. Simran : Nanda = $[5000 \times 36] : [80000 \times 3]$
 = 3 : 4
 Simran's share = Rs. $[24500 \times \frac{3}{7}]$
33. Number of ways of selecting (3 consonants out of 7) and (2 vowels out of 4) = $({}^7C_3 \times {}^4C_2)$
 $= \frac{7 \times 6 \times 5}{3 \times 2 \times 1} \times \frac{4 \times 3}{2 \times 1} = 210$
 Number of groups, each having 3 consonants and 2 vowels = 210
 Each group contains 5 letters.
 Number of ways of arranging
 5 letters among themselves = $5 \times 4 \times 3 \times 2 \times 1 = 120$
 Required number of ways = $210 \times 120 = 25200$
34. In two throws of a die, $n(S) = (6 \times 6) = 36$
 Let E = event of getting a sum = $\{(3, 6), (4, 5), (5, 4), (6, 3)\}$
 $P(E) = \frac{n E}{n S} = \frac{4}{36} = \frac{1}{9}$
35. Clearly, my mother was born 3 years before I was born and 4 years after my sister was born.
 So, father's age when = $(28 + 4)$
 Brother was born = 32 years
 Mother's age when brother was born = $(26 - 3)$
 = 23 years
36. Option B

Given number	5	2	6	3	1	8	7
After rearrangement	6	1	5	4	2	7	8

 Arranged in ascending order 1, 2, 4, 5, 6, 7, 8
 So, the 3rd digit from left end is 4.
37. Option D
38. Option D
 $D > A$
 $(B, E) > C$

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D is heavier than only A
 So, $(B, E) > C > D > A$
 So, heaviest is either B or E

39. Option D

S	E	A	R	C	H	E	S
19	5	1	18	3	8	5	19

So, there are three pairs AC, AE and CE

40. Option B

$$15 \div 8 \times 6 \div 12 + 4 = ?$$

After changing the sign = $15 \times 8 \div 6 + 12 \div 4 = ?$

$$15 \times 8 / 6 + 8 = ?$$

$$20 + 8 = 28$$

41. Option D

42. Option D

43. Option A

44. Option C

How many goals scored $\rightarrow 5 \ 3 \ 9 \ 7 \ \dots$ (i)

Many more matches $\rightarrow 9 \ 82 \ \dots$ (ii)

He scored five $\rightarrow 1 \ 6 \ 3 \ \dots$ (iii)

From (i) and (ii), many $\rightarrow (9)$

From (i) and (iii), scored $\rightarrow 3$

So, goals's code 5 or 7

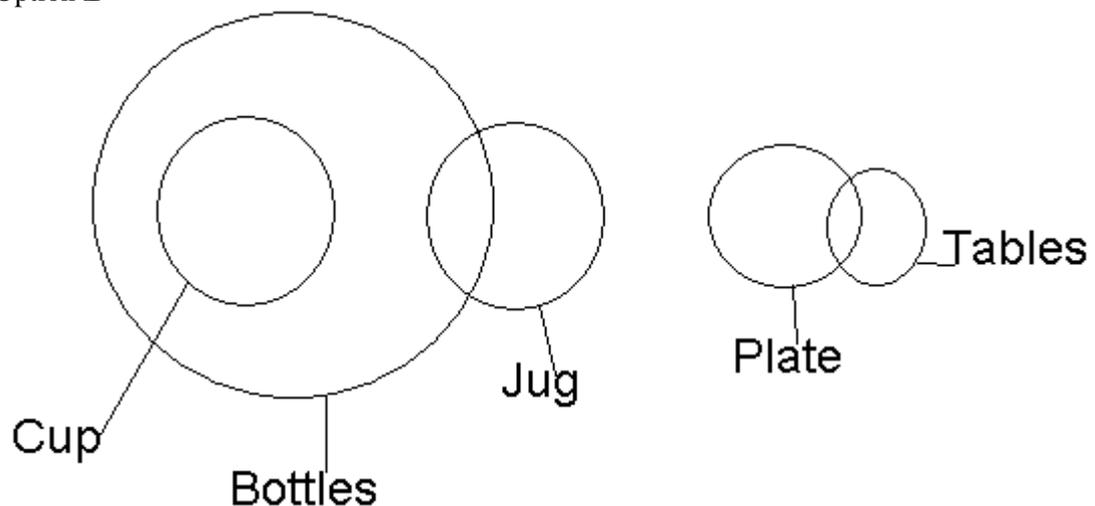
45. Option C

According to Pratap = 20, 21, 22

According to his sister = not after 21st April

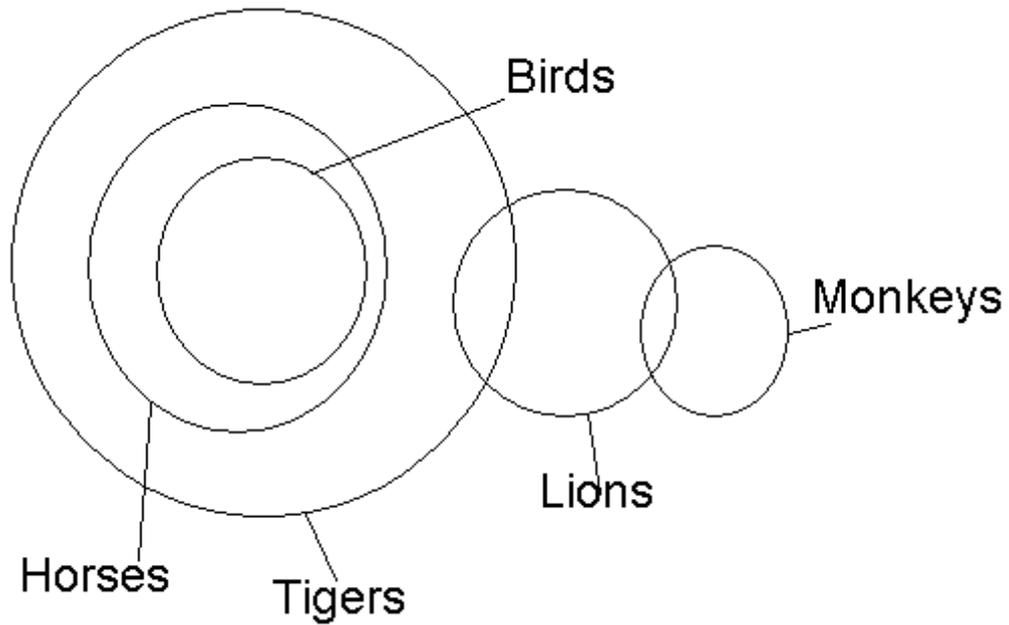
So, the birthday will be 20 or 21 April from both statements.

46. Option E



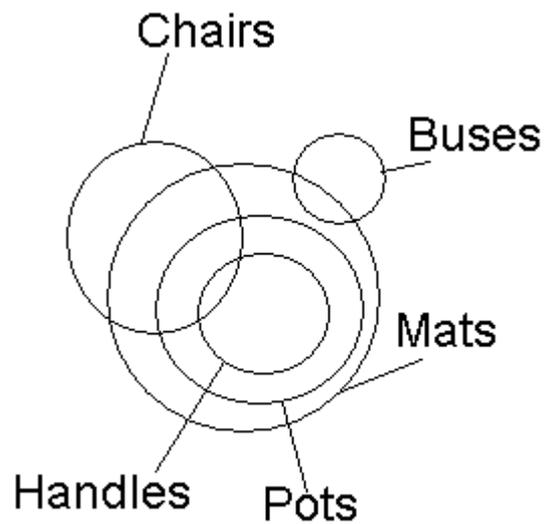
- Conclusoins: I. False
 II. False
 III. True
 IV. False

47. Option A



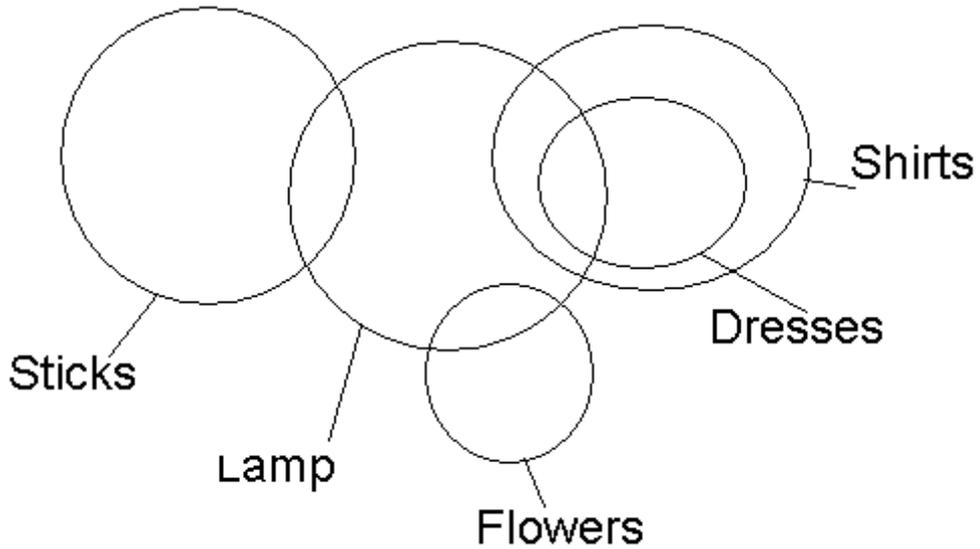
Conclusions: I. True
II. False
III. True
IV. False
So, I and III follows only.

48. Option E



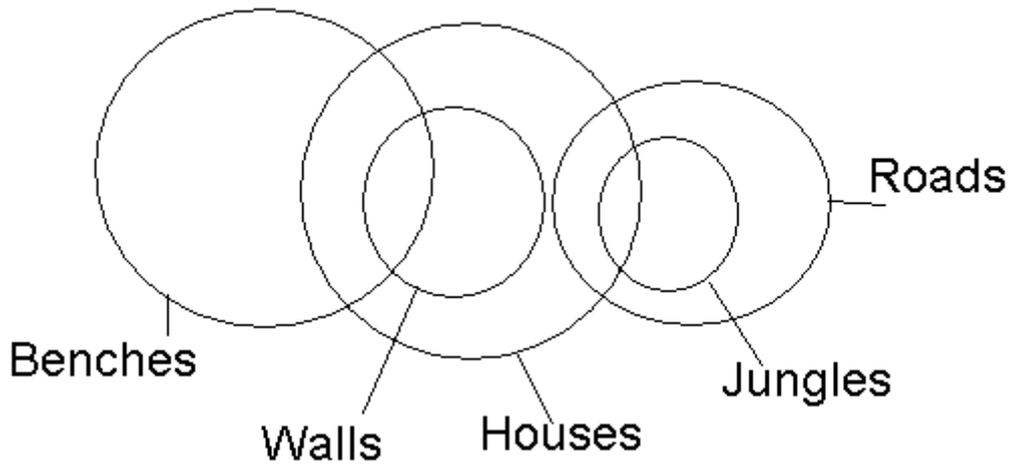
Conclusions: I. False
II. True
III. True
IV. True
Either I or III and II, IV are true

49. Option A



- Conclusions: I. False
 II. False
 III. False
 IV. False

50. Option C



- Conclusions: I. False
 II. False
 III. True
 IV. True

Only III and IV follow

Person	A	B	C	D	E	F	G	H
Department	Personnel	Administration	Administration	Administration	Marketing	Personnel	Marketing	Marketing
Sports	Table Tennis	Football	Hockey	Basket ball	Cricket	Volley ball	Lawn Tennis	Badminton

51. Option C
 52. Option B
 53. Option A
 54. Option E

55. Option D

56. Option E

$N = B, B > W, W < H, H < Q$

So, $N = B > W < H < M$

I. $M > W$ (True)

II. $H > N$ (False)

III. $W = N$ or

IV. $W < N$

$N > W$

57. Option A

$R < D, D < J, J < M, M > K$

So, $R < D < J < M > K$

I. $K < J$ (False)

II. $D > M$ (False)

III. $R < M$ (False)

IV. $D > K$ (False)

So, none is true

58. Option B

$H > T, T < F, F = E, E < V$

So, $H > T < F = E < V$

I. $V > F$ (True)

II. $E > T$ (True)

III. $H > V$ (False)

IV. $T < V$ (True)

So, only I, II and IV are true

59. Option E

$D < R, R < K, K > F, F < J$

So, $D < R < K > F < J$

I. $J < R$ (False)

II. $J < K$ (True)

III. $R < F$ (False)

IV. $K > D$ (True)

So, only II and IV are true

60. Option E

$M < K, K > N, N < R, R < W$

So, $M < K > N < R < W$

I. $W > K$ (False)

II. $M < R$ (False)

III. $K > W$ (False)

IV. $M > N$ (True)

So, only IV is true

61. Option B

Prakash has less than 60% in graduation but more than 60% in PG. So, his case is to be referred to the GM-advance.

62. Option E

Amit Narayan fulfils all requirement.

63. Option A

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Shobha Gupta does not fulfil condition II but B fulfils. So, her case is to be referred to the ED.

64. Option C
Data insufficient (experience in advance department is not clear)
65. Option D
Sudha Mehrotra has less than 50% marks in interview. So, she is not to be selected.
66. Option B
Statement followed by course of action B only to solve the traffic problems.
67. Option A
Course of action A is logically follow.
68. Option D
Course of action C logically follows, because government controls banking system with the help of Central Bank.
69. Option D
Course of action B and C logically follow.
70. Option E
All course of action follow.
71. Option C
72. Option C
73. Option D
74. Option C
75. Option B
76. Option E
77. Option D
78. Option D
79. Option A
80. Option B
81. Option B
82. Option D
83. Option E
84. Option C
85. Option A
86. Option B
87. Option C
88. Option B
89. Option A
90. Option D
91. Option B
92. Option E
93. Option B
94. Option A
95. Option B
96. Option C
97. Option D
98. Option A
99. Option E
100. Option E