IBPS
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MODEL PAPER

IBPS

4

ENGLISH LANGUAGE

Directions(1-5): find out the sentence to fwheather there is any grammatical error.

1. Most operators are now grappling (1) /with the challenge (2)/ of having to think (3) / totally different about the network (4)/ No error (5).

2. Men and women are so different as(1)/ chalk and cheese, especially when (2)/ it comes to important things such as (3) / communication and understanding body language(4) /NO Error(5).

3. Who doesn't love to (1) /cuddle up for quilts near (2) /that cozy fireplace at home with a cup of coffee(3/ and an interesting book ? (4)/ No error(5).

4. One can never (1) / vouch for the quality (2) / about poultry in (3) / such a panic stricken situation(4)/ No Error (5).

5. The fo1 boyfriended (1) / the stork and (2) / acted like (3) /a very good friend(4)/ No Error(5).

Direction (6-10) : Rearrange the following six sentences.

A) when these millennium Development goals were first formulated in 1990, 53.5 percent of all indian children were malnourished.

B) This would still be below the target of reducing malnourishment to 28.6 %.

C) india has been moderately successful in reducing poverty.

D) since then, progress has been slow.

E) Today, it is estimated that malnourishment could decline to 40% by the end of 2015.

F) However, eradicating hunger along with malnourishment still remains a key challenge, according to the millennium Development Goals.

6. Which of the following should be the second sentence after rearrangement?

   1) A   2) B   3) C   4) D   5) F

7. Which of the following be the last (sixth) sentence?

   1) A   2) F   3) D   4) C   5) B

8. Which of the following be the first sentence?

   1) A   2) B   3) C   4) D   5) E

9. Which of the following be the fourth sentence?

   1) A   2) B   3) C   4) F   5) D

10. Which of the following be the Third sentence?

   1) A   2) B   3) F   4) D   5) f

Direction (11-20) :- cloze test.

    Realizing the pile-up of (11) food where millions go to bed on empty stomac -hs in the country, the UN has announced theme of this year's world Environment Day (WED) as 'Think, Eat, Save' to raise awareness about this environmental and social problem. The event also wants to ser (12) individuals to take strong action in their daily food choices. world over, more than 20,000 children under the age of five die of malnutrition everyday whereas the global reports have put the food wastage at 30 to 50 percent from the farms to our plates. While ever incr -easing (13) would require more food, we cannot think of ways to produce it with the technology at our disposal today as the land available for (14) is limited. This in a matter of 70 years. it would be a situation of all availa -ble resources to fill our stomachs. painting the grim picture, the scienti -sts warn that farm (15) had already reached plateau due to chemical abuse of soil and after a point, it is impossible to get more (16).

    since 1960s, the agricultural land has expanded by 12 percent. Where by the same time, population has grown by 10 percent annually. As they predict, the future wars would be fought to control resources such

food and water. what's the way out? The world produces 4 billion tons of food every year that is enough for the global population. But the food does not reach to the (17) as the UN's food and agriculture organization (FAO) blames this failure on wastage. We need to check our consumption and take what we need. We see wastage of food especially in public functions where the (18) are colossal. Such habits can be corrected to (19) the culture of zero-wastage. As one need to understand how much ~~can be corrected to~~ the ~~cattle~~ water, resources and man hours are invested to produce one kg of vegetables or grains. Earlier an entire food chain consisting of stray animals and birds was sustained on the leftovers but when we start throwing the food in plastic bags, it ends up into animals stomach that causes their (20) deaths.

11. 1) wasted   2) stale   3) grew   4) marketed   5) stored

12. 1) revitalize   2) strengthen   3) recommend   4) update   5) encourage

13. 1) public   2) pollution   3) humanity   4) population   5) society.

14. 1) farming   2) living   3) culture   4) grazing   5) working

15. 1) Abundance   2) Productivity   3) gain   4) manufacturing   5) fruitfulness

16. 1) Consequence   2) gathering   3) season   4) intake   5) harvest

17. 1) Affluent   2) needy   3) malnourishment   4) laudable   5) Exhausted

18. 1) pieces   2) Excess   3) leftovers   4) debris   5) remainder.

19. 1) impress   2) inject   3) commit   4) instill   5) saturate

20. 1) irritated   2) tedious   3) painful   4) tender   5) extreme.

Direction (20-30): Read the information and Answer the questions.

In India, live in a relationship have been a taboo right since the British Raj. However, this is no longer entirely true amongst young couples in big cities like Bangalore, mumbai, Delhi, etc. However, one can not deny that maintaining such relationships in most of the country's rural areas would be

nothing but to invite loads of unwanted attention, or may be even trouble. The government, however has been taking various measures for the past few years (especially after the intervention from the judiciary) to protect the interest of female live in partners. In one such move, the government had extended economic rights to women in live in relation under the protection of women from Domestic Violence Act 2005.

Similarly, the maharashtra state government in 2008 granted a proposal suggesting a woman maharashtra state involved in cohabitation for a 'resonable period' should be given the status of a wife. In the same year, the ministry of woman and child development was urged by the national commission of woman to include female live in partners in the definition of wife as described in the section 125 of cr.pc. The objective of this recommendation was to harmonize various other sections of law with the protection of women [Court recommended that this be taken] from Domestic violence Act, 2005. Justice mali-math committee of the supreme court recommended that this be turn into a law by all states. The committee had observed that 'if man and woman are living together as husband and wife for a resonable long period. the man shall be deemed to have married the woman.' The mali math committee also recommended that the word 'wife' under cr.p.c. be amended to include any 'woman living with a man like his wife'. In the payal katara v. superintendent nari niketan kandri vihar agra and others trial (2002), the Allahabad High Court ruled that 'a lady of about 21 years of age being a major has right to go any where and that anyone similarly. In patel and others case of 2006, the apex court had observed that cohabitation between an adult male and an adult woman without formal marriage should not be considered as an offence in another case just two years late, supreme court ruled that if any unmarried couple of opposite sexes live together for a prolonged period of time, they can be considered as man and wife Also Find the their child. if any, would be legitimate.

21. find the incorrect statement (s) on the basis of the given passage?

   1) The supreme court of india had thrown its weight behind live in relationships.

   2) cohabitation has turned into a rare pattern amongst people.

   3) The courts do not have the legal power to override the decision related to social welfare.

   4) Both 2 and 3.

   5) All of the above.

22. According to the passage, which of the following can be said about the cohabi -tation in india?

   1) living together should be punished in india.

   2) living together should."

   2) young couples try to know each other better in live in relationship before marriage.

   3) women in such relationship are often safe.

   4) All of the above.

   5) None of these.

23. Which of the following is possibly the most appropriate title for the passage?

   1) Live in relationships in india.   2) Stability in live in relationships.

   3) live in relationship is immoral   4) marriage like live in relationship.

   5) Laws on relationship.

24. Which of the following can be inferred from the passage?

   1) cohabitation should be the basic right.   2) cohabitation is an offence.

   3) there are some specific reasons why a couple may want to live together.

   4) the social fabric of india is drastically different. But the judiciary's effort to protect the interests of people living in live in relationship is definetly a welcome step for the greater benfits of the society.   5) None of these.

25. Which of the following is a disadvantage of live in relationship?
    1) Rights, obligations and responsibilities of both parties are not clearly defined.
    2) There are no strong legal provisions for securing the future of children born from live in relationships.
    3) They can test their compatibility as a couple.
    4) Both 1 and 3.   5) Both 1 and 2.

26. most similar meaning of Deemed?
    1) Assumed   2) Reckoned   3) Estimated   4) credited   5) misconceived.

27. most similar meaning of cohabitation?
    1) miscommunication   2) Affinity   3) coitus   4) compatibility   5) familiarity.

28. most opposite meaning of Taboo?
    1) ok   2) Allowed   3) Thinkable   4) outlawed   5) forbidden

29. 'Harmonize' opposite meaning?
    1) Disagree   2) fight   3) unify   4) cohere   5) Tune

30. prolonged opposite meaning?
    1) protracted   2) sustained   3) Delayed   4) shortened   5) continued.

English Answers

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

Reasoning Ability

Direction (31-35): study the conclusion based on the given statement & Answer.

1) only conclusion I true   2) only conclusion II true   3) Both I and II true

4) Either I or II is true   5) neither I nor II true

31. statements : $L \le V \le O = D$

    conclusion : I. $D = L$ II. $L < D$

32. statements : $O < R \ge I = U < N$

    conclusion : I. $O < U$ II. $P > N$

33. statements : $J = C > y = k < q$

    conclusion : I. $q > C$ II. $k < J$

34. statements : $R > F \ge J = I > M$

    conclusion : I. $R > I$ II. $F \ge M$

35. statements : $H \le A < B > W ; S = B$

    conclusion : I. $S > H$ II. $W < H$

Direction (36-40): solve the conclusions logically from the given statements.

1) if only conclusion I follows   2) if only conclusion II follows.

3) Both conclusions I & II follows.   4) either conclusion I or II follows

5) Neither conclusion I nor II follows.

36. Statements :   No post is mail   All mails are letters

    some posts are ~~letters~~ offices.

    conclusion :   I. some poffices are letters   II. No letter is a post.

37. statements : All numbers are digits   some digits are letters

    All letters are Alphabets.

    conclusion :
    I. All Numbers are Alphabets
    II. some alphabets are digits.

38. statements: some cells are tissues   All tissues are bones

No bone is a ligament.

Conclusion:

I. No ligament is a cell

I. At least some bones are cells.

39. statements:

some schools are colleges   no school is a nursery

All nurseries are playgrounds

Conclusion:

I. No playground is a school

II. At least some colleges are playgrounds.

40. statement:

All metals are plastics   All plastics are cloth

All cloth are threads

Conclusion:

I. All metals are threads.

II. All plastics are threads.

Direction (41-45): Letters followed by the numbers and symbols.

Letters	A	D	O	U	S	P	N	F	L	T	W	K	Z	Q
Numbers/symbols	5	%	6	1	$	8	&	4	7	#	@	2	+	3

Conditions:

i) if the first letter is a consonant and the last element is a vowel, then the consonant is to be coded as *

ii) if both the first and last elements are vowels, then the last vowel is to be coded as the code for the fourth element.

iii) if the group of elements does not contain any vowel, third element is to be coded as the code for the last element.

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41. OTWDSA

1) 6#@%.$% 2) %.@#%.5% 3) 6#@%.$5 4) 6#@%$@ 5) 6#@5$5

42. ENZQLA

1) 4&+373 2) 4&+575 3) 4*+375 4) 4t+375 5) *4+373

43. KPELQU

1) *84731 2) 284731 3) *84732 4) 28473* 5) *8473*

44. WTDKNP

1) @#8&88 2) @#%2&8 3) @#2&%. 4) @#%2&2 5) @#82&8

45. KZLTDP

1) 2+7#%.7 2) 2+8#%.8 3) *+7#%.8 4) #+82%.8 5) 2+7#%.8

Direction (46-50) : study the information and Answer the question. (All codes are Two letters)

Be one good human is written as   ay ch ke dm

all are good people is written as   ch bs ha lg

all human are friends is written as   ha dm bs ts

be friends with people is written as   si lg ay ts

46. What is the code for 'good' in the given code language ?

1) ig   2) dm   3) ch   4) ay   5) None of these

47. What is the code for 'human' in the given code language ?

1) dm   2) ke   3) ch   4) ay   5) kj

48. which of the following possibly means 'all are together'?

1) bs wr ha   2) ha dm ay   3) ha wr sl   4) ha ts bs   5) ay dm bs

49. what does code for 'ts' ?

1) with   2) are   3) friends   4) one   5) be

50. In the given code language what does the code 'lg' stand for ?

1) people   2) either all or are   3) with   4) friends   5) good.

Direction (51-55) : study the information and answer the questions.

Eight family members P, Q, R, S, T, U, V and W are sitting around a circular table but not necessarily in the same order some of them are facing the centre while some are facing outside (i.e opposite to the centre).

T is the son of V. T sits second to the left of W. W faces centre. only two people sit between W and R. No female is an immediate neighbour of R.

S sits third to the right of his wife Q. Q is not an immediate neighbour of W. Both the immediate neighbours of P face outside. U the daughter of P is one of the immediate neighbours of P.

only one person sit between P and the brother of P. The brother of V sits second to his right. T's wife sits to his immediate left.

S and P face a direction opposite to that of T. (ie if T face centre then both S and P face outside and vice versa).

51. who among the following sit exactly between U and V when counted from the Left of V ?

1) Q   2) T   3) P   4) W   5) R.

52. How many people sit between Q and V's daughter-in-law when counted from the left of Q ?

1) Four   2) Three   3) None   4) Two   5) one.

53. who sits immediate left of U ?

1) U's father   2) U's uncle   3) U's daughter-in-law   4) W   5) T

54. who among the following facing the centre ?

1) Q   2) U   3) T   4) R   5) V

55. if it is given that W is married to P. then what is the position of W with respect to W's brother-in-law ?

1) second to the left   2) second to the right   3) Third to the left
4) immediate neighbour (Right)   5) Third to the right.

Nine persons A, B, C, D, E, F, G, H and J lives in a building but not necessarily in the same order. Each of them have different colours of cars - Blue, Gray, White, Black, yellow, Green, Red, voilet and pink. but not necessarily in the same order. Ground floor numbered one and above floor is two and so on last top floor numbered 9.

H has black colour car and he lives on even numbered floor. A lives on even floor that is below from floor in which H lives. The person who has violet colour car lives on fourth floor. E lives on second floor and has white colour car. There are two floors between the floors on which car lives on third floor.

The person who has pink colour car lives on third floor. A does not have Green colour car. There are two floors between the floors on which the persons live having Red and black colour car. C has Gray colour car. There are 3 floors between that floors in which C and G lives. D lives on the immediate above from floor that J lives floor. there is one floor between that floors in which F and G lives. F does not have pink colour car. The person who has blue colour car lives on top floor. F does not live on ground floor.

56. How many floors between that floors on which J and C lives?

   1) one   2) TWO   3) None   4) Three   5) more than three.

57. on which of the following floor G lives?

   1) First   2) sixth   3) Fifth   4) seventh   5) None of these.

58. which of the following live on top floor?

   1) F   2) G   3) D   4) C   5) B

59. A has which of the following colour car?

   1) voilet   2) pink   3) yellow   4) Blue   5) None of these.

60. Who lives between H and A?

   1) B   2) G   3) C   4) F   5) none of these.

Direction (61-63): study the information and Answer.

    E, F, G, H, I, J, k and L are seated in a straight line facing North.

but not necessarily in the same order.

    G sits third to the right of H. H sits at one of the extreme ends of the line. only three people sit between G and I. k is one of the imme -diate neighbours of G. J sits second to left of F. L is not an immedi -ate neighbour of F.

61. What is the position of L with respect to F?

    1) Fourth to the right   2) Fifth to the left   3) second to the left

    4) Third to the right   5) second to the right.

62. Who among the following sits exactly between J & F?

    1) I   2) G   3) k   4) E   5) H

63. How many persons are seated to left of J?

    1) Four   2) None   3) one   4) Two   5) Three.

64. point 'A' is 40 m to the south of point 'B'. point 'c' is 20m to the east of point 'A'. point 'D' is 10m to the south of point 'c'. point D is exactly midway between points E and F in such a manner that point E, D and F Form a horizontal straight line of 40m. point E is to the west of point D.

How far and in which direction point E from point B?

    1) 50m towards North   2) 40m towards south   3) 40m towards north

    4) 50 m towards south   5) 10 m towards south.
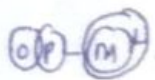
65. which of the following does not belong to the Group?

    1) WF   2) SK   3) RD   4) TJ   5) YE.

Reasoning Answers

31. 3)   32. 2)   33. 2)   34. 2)   35. 5)

36. 5)

37. 2)

38. 2)   39. 5)   40. 3)

41. 5)   ⇒ Condition ii) 1st and last elements are vowels.

42. 2)   ⇒ Condition ii) 1st and last elements are vowels.

43. 1)   ⇒ Condition i) 1st element Consonant & last one vowel.

44. 5)   ⇒ Condition iii) group does not contain any vowel.
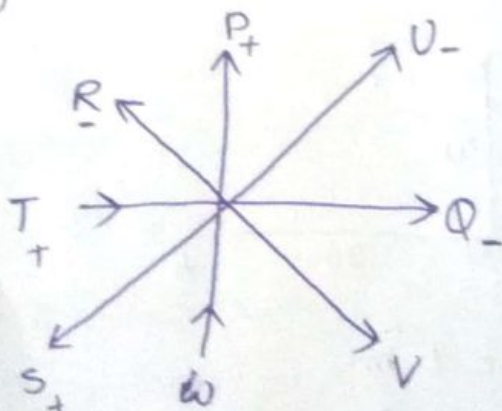
45. 2)   ⇒ Condition iii) group does not contain any vowel.

Direction (46-50)

Be → ay   friends → ts
good → ch   with → si
human → dm
one → ke
people → lg
all /are→ ha/bs

46. 3)   47. 1)   48. 1)   49. 3)   50. 1)

Direction (51-55)

$Q_- = S - \forall$
$R_- = T_+ - P_+$
U_-

51. 1)   52. 4)   53. 1)   54. 3)   55. 2)

B 9 blue

H 8 black

F 7 green

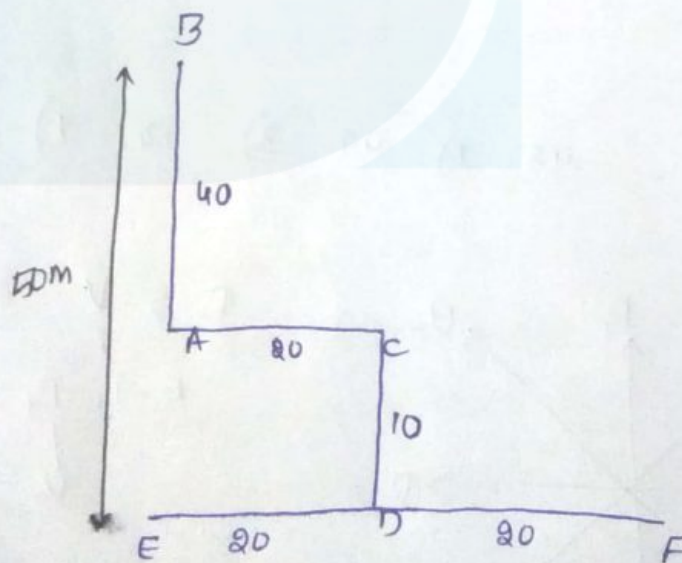A 6 yellow.

G 5 red

J 4 violet

D 3 pink

E 2 white

C 1 Gray.

56. 1)   57. 3)   58. 5)   59. 3)   60. 4)

direction (61-63):—

1	2	3	4	5	6	7	8
H	L	k	G	J	F	F	I

61. 2)   62. 4)   63. 1)

64. 4)

65. 5)   a b c d e f g h i J k l m
       z y x w v u t s r z p o n

[WF]

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Numerical Ability

direction (1-10): what will come in place of (?).

1. $1431 \div 27 = \dfrac{?^2 \times 12 - 336}{12}$

  1) 7   2) 9   3) 3   4) 13   5) 11

2. ?% of 638 + 55 × 450 = 550.86.

  1) 54   2) 46   3) 48   4) 44   5) 52

3. $(7.8 \times 4.3 - 1.54) \div 1.6 = ?$

  1) 20   2) 24   3) 22   4) 12   5) 16

4. $6\frac{1}{12} + 7\frac{3}{8} - ? = 5\frac{5}{6}$

  1) $3\frac{7}{24}$ 2) $4\frac{5}{8}$ 3) $5\frac{1}{6}$ 4) $4\frac{3}{4}$ 5) $3\frac{5}{8}$

5. $250 \times \sqrt{?} - 5468 = 9035 - 2463$

  1) 1849   2) 1742   3) 1744   4) 1886   5) 1966

6. $(27)^2 \times 6 \div 9 + (7)^3 + 72 = (?)^3 - 432$

  1) 11   2) $(13)^3$ 3) 13   4) $(11)^2$ 5) $\sqrt{11}$

7. $\left(\frac{4}{7} + 1\frac{3}{7} + \frac{3}{4}\right)$ of ? = 693

  1) 252   2) 308   3) 224   4) 364   5) 196

8. $\sqrt{108 \times 6 + 98 - 121} = ?^2$

  1) 4   2) 3   3) 7   4) 8   5) 5

9. $(0.4 \times 450) \div 4 = 5 \times 3^?$

  1) −2   2) 3   3) 2   4) 1   5) −3

10. $5^8 \times 7^2 \div \sqrt{196} - 143 = 3^?$

  1) 4   2) 5   3) 2   4) 3   5) 6

Direction (11-15): What will come in place of (?).

11. 24 ? 12 18 36 90

    1) 8   2) 18   3) 9   4) 6   5) 4

12. 3 4 9 28 113 ?

    1) 534   2) 492   3) 528   4) 486   5) 566

13. 220 229 211 247 ? 379

    1) 175   2) 159   3) 164   4) 185   5) 193
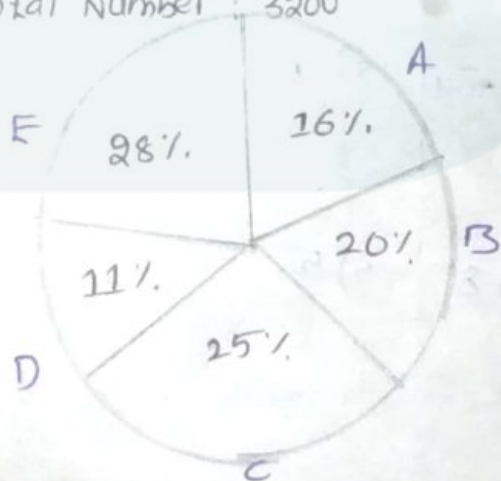
14. 17 18.6 21.8 28.2 41 ?

    1) 63.6   2) 69   3) 66.6   4) 65.4   5) 66.8

15. 141 143 149 161 ? 211

    1) 179   2) 185   3) 168   4) 181   5) 171

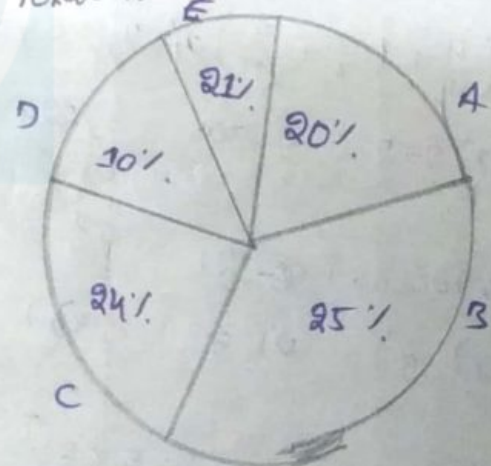Direction (16-20): Refere pie chart and Answer.

Distribution of number of employees (both femel & male). in five organisations in 2011.

Total Number : 3200

Distribution of number of mal employees in five organisations in 2011.

Total Number : 1800

16. What is the difference between total number of female employees in organisations A and B together and number of employees (both male on female) in organisation F?

    1) 562   2) 558   3) 554   4) 548   5) 544.

17. Number of female employees in organization D is what percent of the number of male employees in organization B?

1) $34\frac{2}{3}$ 2) $42\frac{4}{9}$ 3) $36\frac{4}{9}$ 4) $32\frac{1}{3}$ 5) $38\frac{2}{9}$

18. What is the average number of male employees in organization A, c and D?

1) 332   2) 316   3) 328   4) 318   5) 324

19. Number of female employees in organization c is what percent less than the number of employees (both male and female) in organization A?

1) $28\frac{1}{8}$ 2) $22\frac{3}{8}$ 3) $30\frac{1}{8}$ 4) $24\frac{5}{8}$ 5) $32\frac{3}{8}$

20. What is the central angle corresponding to number of employees (both male and female) in organization A?

1) $61.8°$ 2) $57.6°$ 3) $63.4°$ 4) $53.8°$ 5) $65.6°$

Direction (21-25): study the table and answer.

Data regarding total student strength (male & females) of colleges A and B in different years.

college years	A		B	
	% of males out of total strength	Number of females out of total strength	% males out of total strength	Number of females out of total strength
2001	75	600	65	700
2002	70	360	70	450
2003	80	320	75	700
2004	50	920	60	496

21. What was the total number of male students in colleges A and B together in the year 2003?

1) 3380 2) 3250 3) 3060 4) 3260 5) 3330

22. In the year 2003, what is the respective ratio of number of femal students in college A and that in college B?

1) 16:35 2) 14:27 3) 15:26 4) 13:27 5) 16:25

23. What is the difference between the total number of male students in colleges A and B together in the year 2001 and total number of female students in the same colleges together in the year 2002?

1) 1820 2) 1800 3) 2000 4) 1600 5) 1850

24. What is the difference between average number of female students in colleges A and B in the year 2003 and the Average number of female students in same colleges in the year 2004?

1) 198 2) 164 3) 172 4) 185 5) 214

25. In the year 2002, total number of student strength of college B was what percent more than that college A in the same year?

1) 15 2) 25 3) 20 1/5 4) 30% 5) 30 1/5

Direction (26-35): Answer the following questions.

26. Present age of Ram is equal to shyam's age 8 years ago. 6 years hence, the respective ratio between shyam's age and Ram's age will be 6:5 at that time. What is Ram's present age?

1) 36 years 2) 40 years 3) 34 years 4) 24 years 5) 28 years

27. Of the three numbers the Average of the first and second number is greater than the average of second and third number by 11. What is the sum of the first and third number?

1) 88   2) 84   3) can't be determined   4) 96   5) 108.

28. A and B can independently finish a piece of work in 30 days and 40 days respectively. They started working together and after few days B left. After that A could finish the remaining work in 16 days. After how many days of working together B left?

1) 6   2) 10   3) 8   4) 12   5) 4

29. $\frac{2}{5}$ th of a number is two more than $\frac{1}{3}$ rd of another number. If the sum of the two numbers is 16. What is their product?

1) 30   2) 90   3) 60   4) 120   5) 150

30. A, B and C started a business by investing RS 36,000, RS 42,400 and RS. 28,800. At the end of the year C got RS. 9,900 as his share of Annual profit then what is the total profit?

1) 37,750   2) 36,250   3) 38,950   4) 36,850   5) 38,450

31. Every month srikanth spends 20% of his monthly income on paying bills and 30% of the remaining on purchasing household items. The remaining amount he invests in fixed deposits and mutual funds in the respective ratio of 9:5. If she invests 14,400 in fixed deposits every month, how much did he spends in a year of paying bills?

1) 76,000   2) 52,000   3) 54,000   4) 48,000   5) 96,000

31) 50 litres of mixture of 'Milk' and Water contains 32 litres of Milk. In that mixture we have to taken out 20 litres of mixture and is replaced by water. The percentage of the Milk in the final mixture is ?

1) 22.48 % 2) 18.56 % 3) 38.4 % 4) 32.74 % 5) 25.6 %

33) A railway passenger counts the telegraph poles on the rail road as he passes them. The telegraph poles are at a distance of 60 metres. What will be his count in 5 hrs, if the Speed of the train is 30 kmph ?

1) 3600 2) 2500 3) 2800 4) 3400 5) 2600

34) The circumference of a circle is 10% more than the perimeter of a square. If the difference between the area of the circle and that of the square is 486 cm², how much does the diagonal of the square measure (in cm)

1) $30\sqrt{2}$ 2) 22 3) 18 4) $10\sqrt{2}$ 5) $16\sqrt{2}$

35) A bag contains 3 Green balls, 6 red balls, 6 yellow balls. If 3 balls are picked at random, what is the probability that one of them is green and two of them are yellow in colour ?

1) $\frac{11}{91}$ 2) $\frac{7}{91}$ 3) $\frac{14}{91}$ 4) $\frac{9}{91}$ 5) $\frac{13}{91}$

Numerical Ability Answers

1. 2) $\Rightarrow \dfrac{1431}{27} \times 12 + 336 = x^2 \times 12 \Rightarrow x = 9$.

2. 3) $\Rightarrow \dfrac{x \times 632}{100} = 550 + 86 - \dfrac{55 \times 450}{100} \Rightarrow x = 48$.

3. 1) $\Rightarrow x = \left(\dfrac{78 \times 43}{100} - \dfrac{154}{100}\right) \times \dfrac{10}{16} \Rightarrow x = 20$.

4. 2) $\Rightarrow \dfrac{73}{12} + \dfrac{59}{8} - \dfrac{53}{6} = x \Rightarrow \dfrac{146 + 177 - 212}{24} = x \Rightarrow x = 4\dfrac{5}{8}$.

5. 1) $\Rightarrow 280 \times \sqrt{x} = 12040 \Rightarrow \sqrt{x} = 43 \Rightarrow x = 1849$.

6. 1) $\Rightarrow \dfrac{27 \times 27 \times 6}{9} + 343 + 71 + 431 = x^3 \Rightarrow x^3 = (11)^3 \Rightarrow x = 11$.

7. 1) $\Rightarrow \left(\dfrac{4}{7} + \dfrac{10}{7} + \dfrac{3}{4}\right) \times x = 693 \Rightarrow \dfrac{1}{x} = \dfrac{77}{28} \times \dfrac{1}{693} \Rightarrow x = 252$.

8. 5) $\Rightarrow \sqrt{648 + 98 - 121} = x^2 \Rightarrow x = 5$

9. 3) $\Rightarrow \dfrac{4}{10} \times \dfrac{450}{4} = 5 \times 3^x \Rightarrow 3^x = 9 \Rightarrow x = 2$

10. 1) $\Rightarrow \dfrac{64 \times 49}{14} - 143 = 3^x \Rightarrow 3^x = 81 \Rightarrow x = 4$

11. 2) $\Rightarrow \times 0.5, \times 1, \times 1.5, \times 2, \times 2.5$.

12. 5) $\Rightarrow \times 1 + 1, \times 2 + 1, \times 3 + 1, \times 4 + 1, \times 5 + 1$

13. 1) $\Rightarrow$ 9, 18, 36, 72, 144

14. 3) $\Rightarrow$ 1.6, 3.2, 6.4, 12.8, 25.6

15. 4) $\Rightarrow$ 2, 6, 12, 20, 30

16. 3) $\Rightarrow$

E(both)	A(female)		B male		E-(A+B)
1 → 32	1 → 32	1 → 18	1 → 32	1 → 18	= 896 - 342
28 → 896	16 → 512	20 → 360	20 → 640	25 → 450	= 554.
	512 - 360 = 152		640 - 450 = 190		

17. 5) $\Rightarrow$

B male = 450	D female		$\dfrac{172}{450} \times 100 = 38\dfrac{2}{9}$
1 → 32	1 → 18		
11 → 352	10 → 380		
352 - 180 = 172			

18. 5) $\Rightarrow$ $\quad$ A=360 | D=180 | C=1→18 $\quad\Rightarrow$ $\dfrac{360+180+432}{3} = 324.$

$\qquad\qquad\qquad\qquad\qquad\qquad\quad$ 24→432

19. 1) $\Rightarrow$ C (female)
$\qquad\qquad$ 1→32
$\qquad\qquad$ 25→800 $\qquad\qquad$ A=512 | $\dfrac{512-368}{512}\times100 = 28\frac{1}{8}$
$\qquad\qquad$ 800−432 = 368 |

20. 2) $\Rightarrow$ Central angle A = 16×3.6 $\Rightarrow$ 57.6°

21. 1) $\Rightarrow$ 2003→A $\qquad$ B
$\qquad\qquad$ 20→320 , $\qquad$ 25→700 $\qquad\Rightarrow$ $\dfrac{\begin{array}{r}2100\\1280\end{array}}{3380}$
$\qquad\qquad$ $\dfrac{80→2560}{2}$ $\quad$ 75→2100
$\qquad\qquad$ →1280

22. 1) $\Rightarrow$ 320 : 700 $\Rightarrow$ 16 : 35

23. 2) $\Rightarrow$ 2001 (male) $\qquad\qquad$ $\overset{2001}{female} = A+B = 600+700 = 1300$
$\qquad\qquad$ A $\qquad$ B
$\qquad\qquad$ $\dfrac{25→600}{15→800}$ $\quad$ $\dfrac{35→700}{65→1300}$ $\Rightarrow (1800+1300) - 1300 \Rightarrow 1800.$

24. 1) $\Rightarrow$ A+B female 2003 Avg = $\dfrac{1020}{2}$ = 510 $\qquad\Rightarrow$ 708−510 = 198
$\qquad\qquad$ A+B female 2004 Avg = $\dfrac{1416}{2}$ = 708

25. 2) $\Rightarrow$ A in 2008 | B in 2002 $\qquad\Rightarrow$ $\dfrac{300}{1200}\times100 = 25\%$
$\qquad\qquad$ 30→360 | 30→450
$\qquad\qquad$ 100→1200 | 100→1500

26. 3) $\Rightarrow$ $\dfrac{6:5 \Rightarrow 6yrs\,hence}{1→8}$
$\qquad\qquad$ 6→48 $\Rightarrow$ present age Bm = 34 years.
$\qquad\qquad$ 5→40

27. 3) $\Rightarrow \left(\dfrac{A+B}{2}\right) - \left(\dfrac{B+C}{2}\right) = 11.$ $\Rightarrow$ A−C = 22 $\quad$ we can't find $\underline{A+C}$.

28. 3) $\Rightarrow$ 30, 40 → 120
$\qquad\qquad$ $\dfrac{\begin{array}{l}A→4\\B→3\end{array}}{7}$ $\Rightarrow$ A → 16×4 = 64 $\qquad\Rightarrow$ 7→$\overset{8}{56}$ $\Rightarrow$ B = 8 days left.
$\qquad\qquad\qquad\qquad\qquad$ = 120−64 = 56

29. 3) $\Rightarrow$ $\dfrac{2}{5}x - \dfrac{1}{3}y = 2$ $\Rightarrow$ 6x−5y = 30 —① $\Big\}$ from ① & ②
$\qquad\qquad\qquad\qquad\qquad\qquad$ x+y = 16 ② $\qquad$ x=10, y = 6
$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ x×y = 10×6 = 60

30. 5) $\Rightarrow$ 360 : 424 : 288 $\Rightarrow$ 45 : 53 : 36 $\Rightarrow$ 36 → 9900

$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ 134 → 38,450

31. 5) $\Rightarrow$ Remaining

$\qquad\qquad$ 100 → 80 $\Rightarrow$ 80 - 24 = 56 $\Rightarrow$ 9 : 5 = 56 $\qquad$ 36 → 14,400

$\qquad\qquad$ 80 → 24 $\qquad\qquad\qquad\qquad$ 14 → 56 $\Rightarrow$ 20 → 8000

$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ 9 → 36 $\qquad$ Per year → 8000×12

$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ 5 → 20 $\qquad\qquad\qquad\qquad$ = 96,000/-

32. 3) $\Rightarrow$ 50 L

$\qquad\qquad\quad \dfrac{m}{32} \qquad \dfrac{w}{18} \Rightarrow 64\%$ of $60\% \Rightarrow \dfrac{38.4}{}$

$\qquad\qquad\quad 64\% \qquad 36\%$

33. 2) $\Rightarrow \dfrac{30,000 \times 5}{6} = 2500$

34. 1) $\Rightarrow 2\pi r = \dfrac{110}{100} \times 49 \Rightarrow \dfrac{22}{7} \times 2 \times r = \dfrac{110}{100} \times 49 \Rightarrow r = \dfrac{7}{10} a$

$\Rightarrow \pi r^2 - a^2 = 486 \Rightarrow \dfrac{22}{7} \times \dfrac{7}{10} \times \dfrac{1}{10} \times a^2 - a^2 = 486 \Rightarrow a^2 = 900 \Rightarrow a = 30$

diagonal $a\sqrt{2} = 30\sqrt{2}$.

35. 4) $\Rightarrow \dfrac{3c_1 \times 6c_2}{15c_3} \Rightarrow \dfrac{3 \times \dfrac{6 \times 5}{2}}{\dfrac{15 \times 14 \times 13}{3 \times 2 \times 1}} = \dfrac{9}{91}$