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Goldman Sachs

Section 1 : Numerical Computation

1.How many two digit numbers are there with sum of digits equal to 10?

Options 9 18 20 6

Ans. 9

Explanation. $19, 28, \dots 91$ are the required numbers

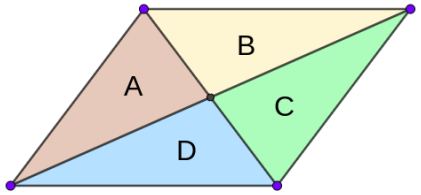
2.Given n points in the 2-d plane, let m be the minimum degree of a polynomial that passes through all the n points. Then m cannot be greater than

A. $n+1$
B. $n-1$
C. $\frac{n}{2}$
D. n

Ans. B

Explanation. For a polynomial with degree d, we have d+1 coefficients.
Each point gives one equation for the coefficients. Since n coefficients are sufficient, the answer is never greater than n-1.

3.Let A, B, C, D be the areas of the region in the following parallelogram. Which of the following is true?



A. A, B, C, D may all be distinct
B. $A=C$ and $B=D$ always but A, B may be different
C. $A=B$ and $C=D$ always but A, C may be different
D. $A=B=C=D$ always

Ans. D

Explanation. The diagonals bisect each other, using the formula for area of a triangle $\frac{1}{2} ab \sin \theta$ and the fact that $\sin \theta = \sin {\pi - \theta}$, all the triangles have the same area.

4.If the product of all integers less than n and relatively prime to n (i.e. the gcd of the number with n is 1) is p, then the remainder when p is divided by n is

A. Always 1
B. Always n-1
C. Either 1 or n-1
D. Can be any number from 1 to $n-1$

Ans. C

Explanation. We can pair the numbers with their inverses giving product 1. The only ones not paired would be those with $x^2 \equiv 1 \mod n$, For these numbers if x is a root of 1 then $n-x$ is also a root of 1, the product is then $x(n-x) \equiv -x^2 \equiv -1 \mod n$, and so the product is either 1 or n-1 modulo n.

5.If $1^5 + 2^5 + \dots t^5 \leq n$ then t is (select the best bounds from the given options)

A. $O(n^{\frac{1}{5}})$
B. $O(n^{\frac{1}{6}})$
C. $O(n^{\frac{1}{7}})$
D. $O(n^{\frac{1}{10}})$

Ans. B

Explanation. The sum is approximately within a factor of t^6 and so B is the best option.

6.Given n lines in the 2D plane, what is the minimum number of regions that these lines split the 2D plane into?

A. n+1
B. n(n+1)/2
C. n(n+1)/2+1
D. 2n

Ans. A

Explanation. Consider all the lines to be parallel.

7.If p, q are prime numbers such that $p+q = 2^{32582657}+1$ and $p>q$, what is the remainder when p is divided by 10?

A.2
B.4
C.1
D.0

Ans. C

Explanation. The number is odd, which means one among p, q is even, since both are primes, one of them must be 2, therefore $p = 2^{32582657}-1$.

8.Suppose $a_0, a_1, \dots $ is an arithmetic progression with common difference d. Then $a_1^2 - a_0^2, a_2^2 - a_1^2, \dots $ is

A. Also an arithmetic progression with common difference d
B. Also an arithmetic progression with common difference d^2
C. Also an arithmetic progression with common difference $2d^2$
D. Not necessarily an arithmetic progression

Ans. C

Explanation. If $a_n = a_0 + n * d$ then $a_n^2 - a_{n-1}^2 = 2ad - d^2 + n * 2d^2$ which clearly has common difference $2d^2$

Section 2 :

9. When they work alone, B needs 25% more time to finish a job than A does. They two finish the job in 13 days in the following manner: A works alone till half the job is done, then A and B work together for four days, and finally B works alone to complete the remaining 5% of the job. In how many days can B alone finish the entire job?

A.16
B.22
C.20
D.18

Ans c

10. Chef and Chefina are playing a game. The game involves 6 piles of stones, each with 14, 27, 11, 31, 25, and 8 stones respectively. In each move, a player can remove exactly one stone from any of the 6 piles. The player who removes the last stone wins the game. If the Chef plays first, who wins the game, if both play optimally?

A.Chef
B.Chefina
C.Not adequate data
D.None of the above

Answer: B

Explanation: There are an even number of stones, therefore the player who moves on even turns must win.

11.Alice has a favourite sequence 1, 3, 9, 19, 33, 51, 73, ...
Bob has a favourite sequence 5, 13, 37, 77, 133, 205, 293 ...
(Both sequences are obtained from evaluating some quadratic polynomial at 0, 1, 2, ...)

How many terms are present in both sequences?

A. 0
B. 5
C. Neither A nor B but finitely many
D. Infinite

Ans. A
Explanation. The first sequence is 2 *n * n + 1, second sequence is 8 * m * m + 5.

Simplifying the equation we get n * n = 4 * m * m + 2 or the remainder when n*n is divided by 4 is 2, which is impossible. So the answer is 0.

12.Let f(n, a, b) be the difference between the number of integersvalues from 1 to n that leave the same remainder as a when divided by 2021 and the number of integers values from 1 to n that leave the same remainder as b when divided by 2021. The maximum value of f(n, a, b) is

A. 1
B. 2020
C. 2022
D. 2

Ans. A

Explanation. The number of values from 1 to n that leave remainder a is almost uniformly distributed

13.Which of the following expressions is equal to min(a, b)?

A. (|a + b| - |a - b|)/ 2
B. (|a + b| + |a - b|)/ 2
C. (a + b - |a - b|)/ 2
D. Both A and C

Ans. C

Explanation. If a > b then C evaluates to (a +b) - (a - b) / 2 = b and hence C is correct.

14.Consider a simple polygon in the 2D plane such that all coordinates are integers. Which of the following is true about the area of the polygon?

A. Always an integer
B. Need not be rational
C. Always half of an integer
D. Always twice an integer

Ans. C

Explanation. Area can be expressed as half of a determinant which contains coordinates. Since all coordinates are integers, the determinant is an integer as well.

15.Suppose we want to evaluate $f(a_l, a_{l+1}, \dots a_r)$ for Q different values of l, r.

We can solve this problem using a data structure called the Sparse Table where we build the table $g(l, j) = f(a_{l}, a_{l+1}, \dots a_{l + 2^j - 1}$ for all j such that $l + 2^j - 1 \leq r$

And $g(l, j)$ is calculated by $g(l, j) = f(g(l, j-1), g(r-2^j+1, j))$ where j is the largest integer such that $2^j \geq r - l + 1$

For all functions f that satisfy one of the following properties, the above solution is correct. Which property is it?

A. Invertible

B. Idempotent
C. One to one
D. Onto

Ans. B
Explanation. The sparse table is based on the fact that f(x, x) = f(x) which is the idempotent function so that an interval may be written as a union of two intervals, each having length as a power of two.

16.How many solutions exist to the equation $x_1 + x_2 + \dots x_n \equiv m \mod q$ where $0 \leq x_i \leq q-1$.

Solve for $m = 7, q = 10 $ and $n = 3$

A 100 B 150 C 200 D 50

Ans. A
Explanation. Suppose we choose any arbitrary values for the first $n-1$ variables, there always exists an appropriate value of x_n so that the sum becomes m. So there are in total q^{n-1} solutions.

17.Given a permutation $P = \{p_0, p_1, \dots p_{n-1}\}$ of numbers from 0 to 2^n-1 for some integer n, obtain an array $Q = \{q_0, q_1, \dots q_{n-1}\}$ such that $q_i = p_i \oplus s$ where s is an integer from 0 to 2^{n-1} and $\oplus$ is the xor operator.

If the minimum and maximum number of distinct values in Q is m and M respectively then what is $m + M$ when $n = 3$?

A 18 B 16 C 24 D 38

Ans. B
Explanation. The number of distinct values in Q is always 8.

18.A polynomial $P(x)$ is such that $P(0) = -1$ and $P(1) = 1$, then the minimum number of real roots of the polynomial $P(x)$ is

A. 0
B. 1
C. 2
D. 3

Ans. B
Explanation. If $P(x)=2x-1$, then it has only one real root. There must always be at least one root, since the polynomial is continuous and crosses the x axis between 0 and 1.

19.Given that x^2+y^2, y^2+z^2 and x^2+z^2 form the sides of a triangle, which of the following is true?

A. x, y, z can be any set of 3 real numbers
B. $|x|, |y|, |z|$ also form a triangle

C. xyz is non-zero
D. $x+y+z$ is non-zero

Ans. C

Explanation. The only condition required is that none of x, y, z should be zero, therefore xyz is non-zero is the only condition required. $x=1, y=1, z=-2$ is a counterexample for B and D.

20.

A motorboat, whose speed in 15 km/hr in still water goes 30 km downstream and comes back in a total of 4 hours 30 minutes. The speed of the stream (in km/hr) is:

A. 4

B. 5

C. 6

D. 10

Answer: Option **B**

Explanation:

Let the speed of the stream be x km/hr. Then,

Speed downstream = $(15 + x)$ km/hr,

Speed upstream = $(15 - x)$ km/hr.

$$\frac{30}{(15 + x)} + \frac{30}{(15 - x)} = 4\frac{1}{2}$$

$$\frac{900}{225 - x^2} = \frac{9}{2}$$

$$\Rightarrow 9x^2 = 225$$

$$\Rightarrow x^2 = 25$$

$\Rightarrow x = 5$ km/hr.

Section 3 : Abstract Reasoning

Knowledge has turned out to be mans greatest asset in mastering and conquering nature. The word science means literally knowledge. It is this quest and thrust for knowledge and the curiosity of man to know things beyond his reach that resulted in his becoming the lord of this plant. His never-ending pursuit to unearth the reason behind phenomenon has resulted in endless discoveries and inventions, which have proved to be the grate stepping stones in the progress of mankind.

Inventions like the telephone,radio, t.v, telegraph, transistors, airplanes, automobiles, steam engine, electricity, wireless, telescopes, microscope etc, have changed mans life forever. There have been inventions and discoveries in all aspects of life. Science has worked grater miracles in the fields of health and medicine and has been the greatest weapon in mans battle against diseases of various kinds. Vaccination is a miracle in the field of science. Penicillin, streptomycin, radium and x-rays have turned out be great blessings.

The discovery of the atom and its structure has been one of the most remarkable discoveries made by man. The quantum theory, the electricity along with the great findings of Einstein, Neils Bohr etc, have revolutionized the world of science forever. Computer and information technology are the latest revolutions in the field of science. With the coming of mobiles, internet, web conferencing etc, the world has shrunk into a cyber village where time and distance have no meaning are at least are no longer barriers.

Technology is on a rise every day. Each new day brings better technology with it. However, we should learn to us our knowledge constructively. Only constructive uses of science can guarantee the continuation of mankind on this earth. Moreover, it is man who is the great generator, creator and inventor of all this knowledge and technology. We should be warned of becoming slaves to our own creations and inventions. Only then, can science be a blessing and a miracle. Science, if used for the betterment of mankind and society can bring about changes in our lives by making better, more comfortable and worthwhile.

21) What was the first thing that the man learnt to do?

a) To conquer nature.

b) To battle with his fellow men.

c) To live leisurely in the nature.

d) To eat and sleep.

Answer: a

22) How has the world shrunk for man technologically?

a) Continents on the earth are drifting closer to each other

b) Video conferencing, the internet has made this possible

c) Development of medicines

d) The planet is becoming smaller

Answer: b

23) According to the given passage, _____is the miracle in the field of science

a) computers

b) vaccination

c) atoms and its structure

d) airplane

Answer: c

24) Mark the option which is closest to the meaning of the word given below

ABNEGATE

a) Renounce

b) Assert

c) Give out

d) Continue

Answer: a

25)Alex had his dinner after he ____

a) completed his work

b) had been completing his work

c) was completing his work

d) had been completed his work

Answer: a

To test the memorability and credibility of stories, one of the authors, along with Dr. Ray Price and Dr. Joanne Martin, provided three different groups of MBA students with exactly the same information. In one case, the students were given a verbal description that contained facts and figures. Another group was given the same information—only it was presented through charts and tables. The final group was provided the very same details presented as the story of a little old wine maker.

To the researchers' surprise, when tested several weeks later, not only did those who had heard the story recall more detail than the other two groups (that was predicted), but they also found the story more credible. MBA students gave more credence to a story than to cold hard facts.

But why? Why do even the most educated of people tend to set aside their well-honed cynicism and critical nature when listening to a story? Because stories help individuals transport themselves away from the role of a listener who is rigorously applying rules of logic, analysis, and criticism and into the story itself. According to creative writing expert Lajos Egri, here's how to transport the listener into a story.

The first step is to make your reader or viewer identify your character as someone he knows. Step two—if the author can make the audience imagine that what is

happening can happen to him, the situation will be permeated with aroused emotion and the viewer will experience a sensation so great that he will feel not as a spectator but as the participant of an exciting drama before him.

Concrete and vivid stories exert extraordinary influence because they transport people out of the role of critic and into the role of participant. The more poignant, vibrant, and relevant the story, the more the listener moves from thinking about the inherent arguments to experiencing every element of the tale itself. Stories don't merely trump verbal persuasion by disproving counterarguments; stories keep the listener from offering counterarguments in the first place.

Q.26 What is the relation between credibility and analysis?

A. The more you analyse, the more credible you find something
B. The less credible you find something, the more you analyze
C. The more you analyse, the less credible you find something
D. The more credible you find something, the less you analyze

Correct Answer:- C

Explanation:- Basically there is an inverse relationship between credibility and analysis. Also we can view analysis (or a lack of it) as a cause – and credibility as an effect.

Q. 27 What role does vibrancy have to play in story telling?

A. It helps the reader imagine things better and so gives an effect of almost being there
B. It helps suspend emotions and sensations as the reader reads the story
C. It makes a story more believable, as we love stories which talk of heroes
D. We relate better to stories that show us the big picture, we do not like being bogged down in detail

Correct Answer:- A

Explanation:- From the passage: The more poignant, vibrant, and relevant the story, the more the listener moves from thinking about the inherent arguments to experiencing every element of the tale itself.

2 – vibrant story telling heightens emotions, not suspends them.

3 – the part about believable is true, but the reason is because we suspend judgment

4 – talks of a mindset of people who do not like detail. All of us do not subscribe to this opinion.

Q.28 Choose the word from the options which is most Similar in meaning to the given word.

AUGUST

A) Common B) Ridiculous C) Dignified D) Petty

Correct Answer:- C

Explanation:- August means respected and impressive

DIRECTIONS for the question 29 & 30: The question consists of five statements labelled A, B, C, D and E which when logically ordered form a coherent passage. Choose the option that represents the most logical order.

Q.29

A. With technology offering all kinds of options, from spell-checks and predictive text to simply erasing or changing errant lines, writers have been lulled into complacency bordering on laziness.
B. The very inflexibility of a typewriter's construction and functioning imposed a certain order to thought and communication that the advent of new, more accommodating writing machines has ended up destroying.
C. Caution is however in-built when using manual typewriters as even 'whiting out' liquid offers limited opportunities to alter what has once been committed to paper.
D. The downside, of course, is that everything 'unsaved' can also vanish at the press of a wrong button, but that has not deterred the onward march of computers.
E. The comforting cadence typewriters clack-clacking in unison was once also the background music in countless offices and their replacement by the far softer tap-tap of keyboards has considerably diminished the air of busyness, though it may be business as usual.

A) ECBAD B) BEADC C) EBADC D) BDECA

Correct Answer:- C

Explanation:- Option 3.

The passage talks about typewriters, their advantages and disadvantages and the new technology – computers. The introductory sentence hence would be E.

C will follow D because D mentions that everything saved can vanish at the press of a wrong button and C states that however this is not possible in manual typewriters.

Hence the sequence is EBADC.

Q.30

A. Having the vision to design what we call a rudimentary weapon today would have taken tremendous intelligence by the standards of those times, given that others around that prehistoric inventor would have been content with whatever their current skills brought to the hearth.
B. Our forebears had invented and used stone-tipped spears - a revolutionary leap comparable to the intercontinental ballistic missile as it allowed the user to kill accurately from a distance - over half a million years ago, or two lakh years earlier than previously estimated.
C. Scientific research constantly reveals that there was more to them than their bad dress sense, lack of sophisticated manners and inadequate personal hygiene.
D. He - or maybe it was a 'she' who got tired of the inefficiency of the male hunter-gatherers and decided to do something about it - was the Steve Jobs of prehistory, creating something so simple and yet irresistibly user-friendly.
E. We really tend to underestimate our prehistoric ancestors, using the term Neanderthal in a none-too-complimentary way.

A) ECBAD B) DBACE C) EBCDA D) BDECA

Correct Answer:- A

Explanation:- Option 1.

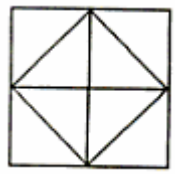
The paragraph talks about our prehistoric ancestors whom we underestimate and then their invention – the stone tipped spears and the fact that they would have had considerable intelligence to come up with such a weapon.

The them in C refers to the Neanderthal in E. Hence C will follow E.

The rudimentary weapon mentioned is A is the stone-tipped spear mentioned in B and hence A will follow B. Hence the sequence is ECBAD

Logical Reasoning :

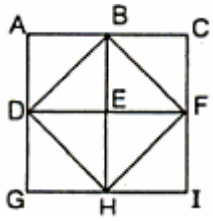
31. ***1)*** **Count the number of triangles in the problem figure.**



A)12 B)10 C)16 D)14

Solution: **A**

As a first step, all the intersecting points in the problem figure are labeled as shown.



Now count the number of simplest triangles. These are ABD, BED, CBF, BEF, FIH, FHE, GDH, DHE and their number is 8.

Next count the triangles which are formed by the combination of two of these simple triangles. These are DBF, BFH, FHD and BHD and their number is 4.

Now since, the triangles formed with the combination of three or more triangles do not exist, the total number of triangles in the figure is 8 + 4 = 12. So (a) is the correct answer.

32.Arrange the following words in a logical sequence.
1. Grass 2. Curd 3. Milk 4. Cow 5. Butter
(A) 1, 2, 3, 4, 5
(B) 2, 3, 4, 5, 1
(C) 4, 1, 3, 2, 5
(D) 5, 4, 3, 2, 1

Answer with Explanation (C) : We know that cow eats grass and then gives milk. With the milk, curd is made and then from curd, butter is made.
Hence logical sequence is :
Cow, Grass, Milk, Curd, Butter.

33.A cube of each side 4 cm, has been painted black, red and green on pairs of opposite faces. It is then cut into small cubes of each side 1 cm.How many small cubes will have atleast one face painted ?

A)28 B)56 C)72 D)14

Ans B
No. of small cubes having atleast one face painted
= No. of small cubes having 1 face painted + 2 faces painted + 3 faces painted
= 24 + 24 +8 = 56

34.Ramesh starts walking straight facing, south. After walking 30 m he turned to his right walked 25 m and turned to his left. Again after walking a distance of 10 m he turned to his left. Which-direction is he facing now?

A West
B East
C North-East
D South-West

Ans Option B
35.A police department purchases badges at 16$ each for all the graduates of the police training academy. The last training class graduated 10 new officers. What is the total amount of money the department will spend for badges for these new officers?
(A) $70
(B) $116
(C) $160
(D) $180
(E) $200
Ans (C). It can be obtained by computing the following:
16×10=160
16×10=160
The badges are priced at 16$ each. The department must purchase 10 of them for the new officers. Multiplying the price of one badge (16$) by the number of graduates (10) gives the total price for all of the badges.

Choice (A), (B), and (D) are the result of erroneous computations.

36.An investigator rented a car for six days and was charged 450$. The car rental company charged 35$ per day plus 0.30$ per mile driven. How many miles did the investigator drive the car?

A)800 B)700 C)600 D)300

Solution: The correct answer is (A). It can be obtained by computing the following:

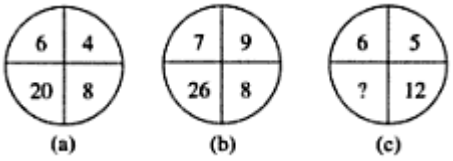
$6(35) + 0.30x = 450$

The investigator rented the car for six days at 35$ per day, which is 210$; 210$ subtracted from the total charge of 450$ leaves 240$, the portion of the total charge which was expended for the miles driven. This amount divided by charge per mile

$(240 \div 0.30)$

$(240 \div 0.30)$ gives the number of miles (800) driven by the investigator.

Choices (B), (C), and (D) are the result of erroneous computations.

37. 

Which number will replace the question mark ?

A)25 B)35 C)45 D)15

Ans A

From fig. (a),

$6+4+8=18 \rightarrow 18+2=20$

6+4+8=18→18+2=20

From fig. (b),

$7+9+8=24 \rightarrow 24+2=26$

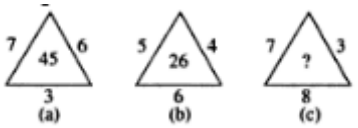
7+9+8=24→24+2=26

Similarly in fig, (c),

$$6+5+12=2\rightarrow 23+2=25=(?)$$

6+5+12=2→23+2=25=(?)

Hence the question mark will be replaced by 25.

38. 

Which number will replace the question mark ?

A) 27 B)29 C)37 D)30

Ans B

From (a),

$$7\times 6+3=45$$

7×6+3=45

(b)

$$5\times 4+6=26$$

5×4+6=26

Similarly from (c),

$$7\times 3+8=29$$

7×3+8=29

Hence the question mark will be replaced by the number 29.

39.

5	6	5
8	9	7
10	7	?
400	378	315

- A3

B 9

- C 12
- D 15

Ans B

40.A river always has –
(A) Fishes
(B) Weeds
(C) Boats
(D) Banks
(E) Bridge

Ans D

41.Statement-
Bikram's advice to Bala's – " If you want to study Engineering, Join institute

Quantum."

Assumptions-
I. Institute Quantum provides good engineering education.

II. Bala listen Bikram's advice.
A. If only assumption I is Implicit
B. If only assumption II is Implicit

C. If either I or II is Implicit
D. If neither I nor II is Implicit
E. If both I and II are implicit

Correct option is: E

42. Statement-
“It is dangerous to lean out of a running train.”

Assumptions-
I. Generally people do not like to get hurt.

II. All those who lean out of a train run the risk of being hurt.
A. If only assumption I is Implicit
B. If only assumption II is Implicit
C. If either I or II is Implicit
D. If neither I nor II is Implicit
E. If both I and II are implicit
Correct option is: B

43. Statement-
“Love marriages mostly end in divorce.”

Assumptions-
I. Love marriages do take place.

II. There are cases of divorce.
A. If only assumption I is Implicit
B. If only assumption II is Implicit

C. If either I or II is Implicit
D. If neither I nor II is Implicit
E. If both I and II are implicit
Correct option is: E

44. Statement- “
Buy pure and natural Oil of company HOL” – An ad. in a newspaper.

Assumptions-
I. People do not mind paying more for pure and natural oil.

II. Artificial oil can be prepared.
A. If only assumption I is Implicit
B. If only assumption II is Implicit
C. If either I or II is Implicit
D. If neither I nor II is Implicit
E. If both I and II are implicit
Correct option is: B

45. Statement-
“The extradition treaty with USA holds great significance for Japan as a people
like Amla , the top leader of IS who is currently lodged in a USA jail.”

Assumptions-
I. USA may be the hiding place for many terrorist groups

like IS.
II. Terrorists groups like IS which spread terrorism in
Japan may also be spreading terrorism in other countries like USA.
A. If only assumption I is Implicit
B. If only assumption II is Implicit
C. If either I or II is Implicit
D. If neither I nor II is Implicit
E. If both I and II are implicit
Correct option is: E

Q46-50 .In an exhibition seven brands have put up their stalls
● Each of these stalls are facing east
● The seven brands which have put up a stall include: Titan, Biba, Landmark, Adidas, Puma, Zara and Reebok
● Titan is next to the right of Reebok
● Reebok is fourth to the right of Landmark
● Adidas is between Biba and Zara
● Landmark which is third to the left of Biba, is at one end.

Q 46. Which of the given pairs is correct for the brands displayed at the two ends of the line?
1. Landmark, Zara
2. Titan, Zara
3. Landmark, Puma
4. Puma, Reebok
5. Reebok, Landmark
Answer: (3) Landmark, Puma

Q 47. Which brand is displayed on the immediate right of Titan?
1. Puma 2. Reebok 3. Adidas 4. Zara 5. Biba
Answer: (1) Puma

Q 48. Zara is to the immediate left of
1. Biba 2. Landmark 3. Adidas 4. Puma 5. Reebok
Answer: (3) Adidas

Q 49. Which brand is being displayed exactly in between Biba and Titan?
1. Reebok 2. Landmark 3. Puma 4. Zara 5. Adidas
Answer: (1) Reebok

Q 50. Which brand is being displayed towards the immediate right of Titan?
1. Adidas 2. Cannot be Determined 3. Biba 4. Puma 5. Reebok

Answer: (4) Puma

Q 51-55 . It's Valentine's Day and five boys Amit, Bhuvan, Chetan, Dilip and Ehsaan are buying flowers for their respective girlfriends. Each of these boys has a preference from 1 to 5 (1 being first preference, it is given the first rank) of flowers among orchid, rose, carnation, gerbera and daffodil. There is a level of dissimilarity between the five boys and this is measured as the sum of the differences in the ranks assigned by them to each of these 5 flowers. The greater this difference, the more dissimilar the persons. The following table indicates the preferences of each of these five boys:

	Amit	**Bhuvan**	**Chetan**	**Dilip**	**Ehsaan**
Orchid	2	5	1	4	1
Rose	4	2	3	3	3
Carnation	3	1	4	2	2
Gerbera	5	4	5	1	4
Daffodil	1	3	2	5	5

Q 51. The pair of persons who are the most dissimilar among the following is:
1. Amit- Bhuvan 2. Bhuvan- Dilip 3. Dilip- Ehsaan 4. Chetan- Ehsaan

Answer: (1) Amit- Bhuvan

Q 52. Who among the following is most similar to Amit?
1. Bhuvan 2. Chetan 3. Dilip 4. Ehsaan

Answer: (3) Dilip

Q 53. Which of the following pairs are the least dissimilar among the five?
1. Dilip-Ehsaan 2. Amit- Chetan 3. Chetan-Ehsaan 4. Amit- Ehsaan

Answer: (2) Amit-Chetan

Q 54. For the person who's second preference is Rose, what is the level of dissimilarity with the one who's fourth preference is orchid?
1. 8 2. 6 3. 10 4. 12
Answer: (1) 8

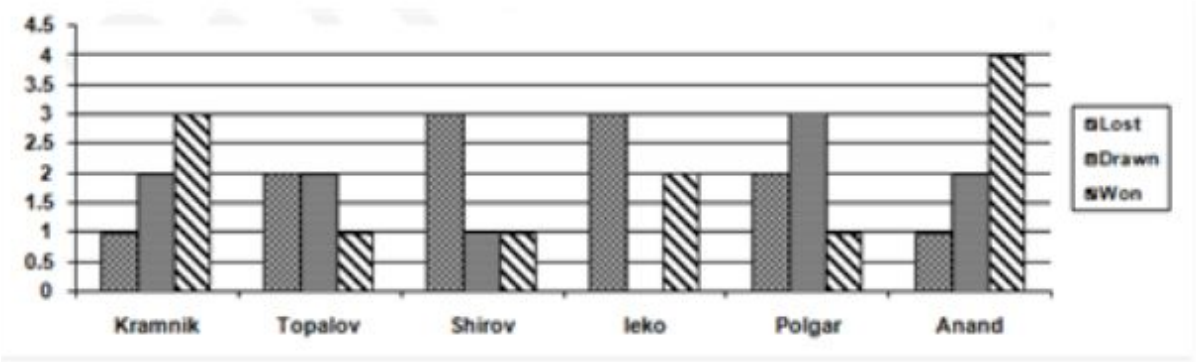
Solution: The person who's second preference is Rose is Bhuvan and the one who's fourth preference is orchid is Dilip. Their level of dissimilarity is 8

Q 55. What is the level of dissimilarity between Amit and Ehsaan?

1. 6 2. 8 3. 4 4. 10

Answer: (2) 8

Q55-60 Six players, Kramnik, Topalov, Shirov, Leko, Polgar and Anand participate in a chess tournament. In the first round, each player plays one match against every other player. The winning player is awarded 3 points and the losing player gets 1 point. In case of a draw, each player is awarded 2 points. The player with the highest number of points enters the final. The semifinal is played between the next two players. The winner of the semifinal enters the final. The winner of the finals is declared the champion. There can be no draws in the final and the semifinal. The results of all the matches played by the players at the end of the tournament are given below.



Q 55. Who is the champion?
1. Kramnik 2. Topalov 3. Leko 4. Anand
Answer: (4) Anand

Q 56. The semifinal is played between players
1. Kramnik and Topalov
2. Topalov and Polgar
3. Kramnik and Anand
4. Polgar and Anand

Answer: (4) Polgar and Anand

Q 57. Find the points of the semifinalists before the semifinal

1. 9,10
2. 10,10
3. 10,11
4. 11,11

Answer: (3) 10,11

Q 58. Which two players played the final?
1. Kramnik and Topalov
2. Topalov and Leko
3. Kramnik and Anand
4. Topalov and Anand

Answer: (4) Topalov and Anand

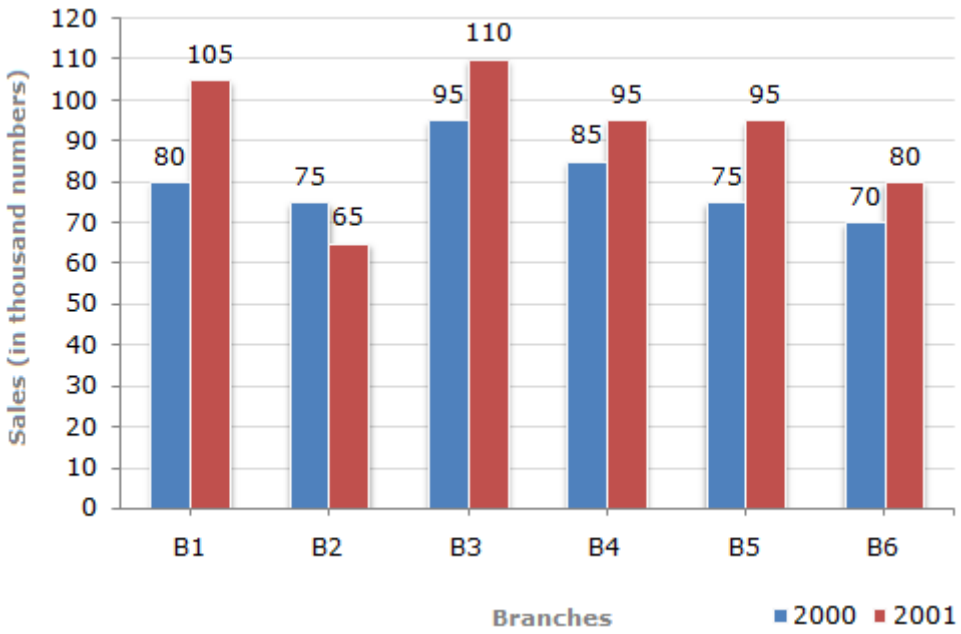
Q 59. Which of the following is/are true?
I. The top three rankings at the end of the tournament are the same as those at the end of the first round.
II. Anand won the maximum number of matches in the first round.
III. Kramnik has the highest number of points at the end of first round.

1. I only 2. II only 3. III only 4. I, II and III

Answer: (3) III only

Q 60-62
The bar graph given below shows the sales of books (in thousand number) from six branches of a publishing company during two consecutive years 2000 and 2001.

Sales of Books (in thousand numbers) from Six Branches - B1, B2, B3, B4, B5 and B6 of a publishing Company in 2000 and 2001.



60. Total sales of branch B6 for both the years is what percent of the total sales of branches B3 for both the years?

A. 68.54%

B. 71.11%

C. 73.17%

D. 75.55%

Answer: Option **C**

61.

What percent of the average sales of branches B1, B2 and B3 in 2001 is the average sales of branches B1, B3 and B6 in 2000?

A. 75%

B. 77.5%

C. 82.5%

D. 87.5%

Answer: Option **D**

62.

What is the average sales of all the branches (in thousand numbers) for the year 2000?

A. **73**

B. **80**

C. **83**

D. **88**

Answer: **Option B**

63.

What will be the day of the week 15th August, 2010?

A. Sunday

B. Monday

C. Tuesday

D. Friday

Answer: Option A

Explanation:

15^{th} August, 2010 = (2009 years + Period 1.1.2010 to 15.8.2010)

Odd days in 1600 years = 0

Odd days in 400 years = 0

9 years = (2 leap years + 7 ordinary years) = (2 x 2 + 7 x 1) = 11 odd days ≡ 4 odd days.

Jan. Feb. March April May June July Aug.
(31 + 28 + 31 + 30 + 31 + 30 + 31 + 15) = 227 days

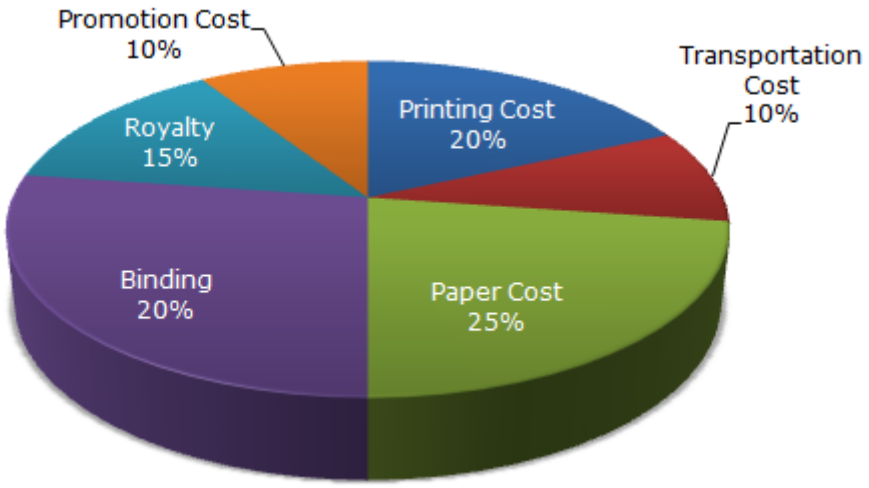
∴ 227 days = (32 weeks + 3 days) ≡ 3 odd days.

Total number of odd days = (0 + 0 + 4 + 3) = 7 ≡ 0 odd days.

Given day is Sunday.

Q-64 -66.The following pie-chart shows the percentage distribution of the expenditure incurred in publishing a book. Study the pie-chart and the answer the questions based on it.

Various Expenditures (in percentage) Incurred in Publishing a Book



If for a certain quantity of books, the publisher has to pay Rs. 30,600 as printing cost, then what will be amount of royalty to be paid for these books?

A. Rs. 19,450

B. Rs. 21,200

C. Rs. 22,950

D. Rs. 26,150

Answer: Option C

65.

If 5500 copies are published and the transportation cost on them amounts to Rs. 82500, then what should be the selling price of the book so that the publisher can earn a profit of 25%?

A. Rs. 187.50

B. Rs. 191.50

C. Rs. 175

D. Rs. 180

Answer: Option A

66. Royalty on the book is less than the printing cost by:

A. 5%

B. $3\frac{1}{3}\%$

C. 20%

D. 25%

Answer: Option D