SNAP_2019

GENERAL ENGLISH

1. Fill in the blanks with the appropriate conjunction.
   You must start at once; ……… you will be late.
   (a) otherwise   (b) than
   (c) until   (d) unless

   Sol. (a)

   In the given sentence, there is compulsion (must) in the 1st part, or face the result (which is being late here). So, otherwise is the appropriate conjunction.

2. Find the synonym of the given word.
   Abnegation
   (a) sacrifice   (b) renunciation
   (c) praise   (d) indulgence

   Sol. (b)

   Abnegation means an act of renouncing or rejecting something. So, renunciation is its synonym.

3. Which of the following is an antonym of the given word?
   Abjure
   (a) deny   (b) profess
   (c) reject   (d) drop

   Sol. (b)

   Abjure means to reject or deny. Therefore, its antonym can be declare or profess.

4. Which of the following is a synonym of the given word?
   Lingua franca
   (a) universal language   (b) second language
   (c) common language   (d) mother tongue

   Sol. (c)

   Lingua franca refers to a language that is adopted as a common language between its users (speakers) whose native languages are different. So, 'Common language' is its closest meaning word.

5. Which of the following is opposite in meaning to the given word.
   Petulant
   (a) peevish   (b) bad tempered
   (c) amiable   (d) impatient

   Sol. (c)

   Petulant means bad-tempered or grumpy. Therefore, its antonym can be good-humoured or amiable.

6. Which of the following is the odd one out?
   (a) Exacerbate   (b) Alleviate
   (c) Mitigate   (d) Assuage

Sol. (a)

Out of the given options, option (b) (Alleviate), (c) (Mitigate) and (d)(Assuage) means to make a problem less severe. On the other hand Exacerbate means to make a problem worse or to increase a problem. Hence, option (a) is odd one out.

7.   Change the voice of the given sentence.
      I didn't realise that somebody was watching me.
      (a) I didn't realised that I was being watched.
      (b) I didn't realise that somebody had been watching me.
      (c) I didn't realise that somebody was watching.
      (d) I didn't realise that I was being watched.
Sol. (d)

"I didn't realise that I was being watched", is the correct passive voice sentence of the given sentence, because the sentence is in past continuous and to change it in passive voice "was/were + being + V3" should be used.

8.   Complete the meaning of the given sentence.
      If you behaved well, your peers ……… you.
      (a) will respect   (b) should respect
      (c) can respect   (d) would respect
Sol. (d)

This is a conditional sentences, so the filler 'would respect'   makes   the sentence grammatically correct and contextually meaningful.

9.   Choose the correct word from the given options.
      The defence lawyer ……… there was insufficient evidence to   convict his client.
      (a) negated   (b) reiterated
      (c) renounce   (d) exclaimed
Sol. (b)

Other options don't fit in the context. Only option b makes the   sentence meaningful. The correct word is 'reiterated' to fill the given blank which means repeated.

10.   Choose the correct word from the given options.
      The stars were ……… in the sky.
      (a) scintillating   (b) showering
      (c) invisible   (d) dimming
Sol. (a)

Stars shine in the sky, so the correct word for the given blank is 'scintillating', which means shining.

11.   Choose the word NOT having a prefix.
      (a) Distemper   (b) Dislike
      (c) Dishonest   (d) Disagree
Sol. (a)

Out of the given options, the word distemper has no prefix. All other words have dis-as prefix to become an antonym of the root word.

12. Identify the correct figure of speech.
I must have called out to you a thousand times.
(a) simile   (b) repetition
(c) hyperbole   (d) oxymoron

Sol. (c)
There is an exaggeration of a thought or idea. Therefore, it is a hyperbole, wherein an exaggerated statement is presented.

13. Which of the following is an antonym of the given word?
Servile
(a) Imperious   (b) Humorous
(c) Helpful   (d) Conspiratorial

Sol. (a)
Servile means someone who is extremely willing to act to be obeyed.
Therefore, out of the given options, Imperious is its correct antonym, as it means giving orders and expecting to be obeyed.

14. Which of the following options is a correct match of grammatical function with the usage of the word "DOWN".

List – I	List – II
A. Noun	1. Some people can down a whole chicken in a meal.
B. Verb	2. There is a down trend in the real estate market.
C. Adjective	3. He was sent down to work in the branch office.
D. Adverb	4. In southern England the downs are so pretty.

A B C D
(a) 1 2 3 4   (b) 4 1 2 3   (c) 3 2 4 1   (d) 2 3 1 4

Sol. (b)
In sentence (1) the word down means to drink or to consume, which means down is used as a verb. In sentence (2), 'down' shows a characteristic quality of a trend. Hence, here it is used as an adjective. In sentence (3), 'down' adds to the quality of the verb. Hence, herein it is used as an adverb. In sentence (4), 'down' represents the low hills. Hence, it is used as a noun.

15. Which of the following is a synonym of the given word?
Diaphanous
(a) hard   (b) opaque
(c) thick   (d) transparent

Sol. (d)
The word given is: Diaphanous, which means sheer, light, and delicate.
So, transparent/sheer can be its closest synonym.

16. Fill in the blanks with correct modal verb.
.... you mind if I borrowed your car?
(a) should   (b) will
(c) would   (d) can

Sol. (c)

It is a polite request in the sentence given, so the most appropriate modal verb to be used here is 'would'.

17. Change the voice of the given sentence.
Windowpanes are washed by cleaners.
(a) Cleaners work to wash windowpanes
(b) Cleaners washed the windowpanes
(c) Cleaners wash the windowpanes
(d) None of the above

Sol. (c)
The given sentence is in passive voice. To convert it in the active voice the subject and object would be interchanged and 1st form of verb should be used with subject. Hence, the converted sentence would be "Cleaners wash windowpanes".

18. Identify the correct figure of speech in the sentence given below. Neeta needed new notebooks.
(a) Alliteration (b) Onomatopia
(c) Assonance (d) Paradox

Sol. (a)
In the given sentence, there is a repetition of a consonant sound 'N'. Such a repetition of sounds is a literary device called "Alliteration".

19. Which part of speech is the given (bold) word?
This wood will make a good **hiding** place.
(a) Verb (b) Adverb
(c) Adjective (d) Modal

Sol. (c)
It seems to be a verb, but in the given sentence, it presents a characteristic quality of the place. So, it is an adjective.

20. Choose the correct option of the following incorrect sentence. No matter what that I do, I can't make her happy.

(a) No matter what I do, I won't make her happy.
(b) No matter what I do, I can't make her happy.
(c) No matter what I do, that I won't make her happy.
(d) No matter whatever I do, I won't ever make her happy.

Sol. (b)
To make the given sentence grammatically correct and contextually meaningful, only 'that' must be removed. So, option (b) is its correct answer.

21. Fill in the blank with proper conditional clause.
Suppose your car broke down in the middle of nowhere, what .... do?
(a) should you (b) will you
(c) can you (d) would you

Sol. (d)
As the situation is conditional and asks what ones actions would be, 'would you' would be the most appropriate filler for the given blank.

22. Fill in the blank with appropriate option:
I .... anything from her in a long time.
(a) did not heard (b) should not have heard
(c) haven't heard (d) None of these

Sol. (c)
Did not heard is grammatically incorrect. Also, as the sentence is in present perfect form, 'haven't heard' is the most appropriate filler.

23. Read this sentence and answer the three questions to fill the blanks therein:
Construction: When the engineer visited the ...., the chaos of cement, steel and sand was a horrible ...., so, he had no option but to .... that in his report.
(a) site, sight, cite (b) cite, site, sight
(c) cite, sight, site (d) sight, site, sight

Sol. (a)
Site means a piece of land where a building was, is or will be situated. Sight means able to see in the way mentioned. Cite means to mention something as an example especially one that supports, proves or explains an idea or situation. The correct order of the words to fill the blanks are site, sight, cite, to make the sentence grammatically correct and contextually meaningful.

Directions (Q. Nos. 24-26) Read the passage carefully and answer the questions following this within the context.

"A way to deal with frozen feelings" Every child experiences all that happens around him with total awareness. In the first seven years the child's brain is like a sponge, taking in all sensory inputs and building his idea of his surroundings. As long as the environment is safe, the child learns with incredible speed. However, when the environment is scary or stressful, the child unlearns past learning just as rapidly. In the early years of every child's life, whenever there is shock, violence, fear or pain, these intense emotions are imprinted deeply into memory. Whenever the same activity or situation is repeated, the nervous system and body subconsciously re-experience the memory of that trauma. Any emotional situation that takes us out of the present and into the past means that whenever the same kind of emotion crops up later in our life we return to the past for our reference point. If that point was at age three, we find ourselves behaving like a three-year-old. We feel childish and we behave childishly. Our feelings are the cause of this 'glitch' in our learning process. We know we should be able to make a positive change, but that doesn't change anything. The process of change need not be traumatic. We couldn't have done any better because we didn't know how to. But we should realise that was then and this is now! We can choose to choose again. It's up to us. It's our movie!

24. The "Frozen Feelings" being talked about are about which of the following?
(a) negative childhood experiences (b) childhood learning patterns
(c) inability to learn as an adult (d) None of the above

Sol. (a)
According to the given passage, the frozen feeling are those experiences of shock, violence, fear or pain that has a deep impact on the child. Such a negative

childhood experience is imprinted forever into the child's mind. That's why option a is correct.

25.   A 'glitch' is
       (a) a ditch
       (b) uneasy emotions
       (c) sudden malfunction or breakdown
       (d) learning patterns

Sol. (c)

As per the stanza, a glitch refers to an unusual behaviour generally asudden malfunction or breakdown that results due to the frozen feelings.

26.   Which of the following is a correct sentence, based on the paragraph?
       (a) The process of change needs to be traumatic.
       (b) We feel childish and we behave childishly.
       (c) Both sentences are incorrect.
       (d) Both the sentences are correct.

Sol. (b)

There are glitches in ones behaviour due to frozen feelings. Due to these glitches, one feels childish and behaves childlishly.

Directions (Q. Nos. 27-31) Read the following passage and answer the questions: "There are several factors that contribute to wisdom. Of these I should put first a sense of proportion; the capacity to take accounts of all the important factors in a problem and to attach to each its due weight. This has become more difficult than it used to be owing to the extent and complexity of the specialised knowledge required of various kinds of technicians. Suppose, for example, that you are engaged in research in scientific medicine. The work is difficult and is likely to absorb the whole of your intellectual energy. You have no time to consider the effect which your discoveries or invention may have outside the field of medicine. You succeed (let us say), as modern medicine has succeeded, in enormously lowering the infant death-rate, not only in Europe and America, but also in Asia and Africa. This has the entirely unintended result of making the food supply inadequate and lowering the standard of life in the most populous parts of the world. To take an even more spectacular example, which is in everybody's mind at the present time- you study the composition of the atom from a disinterested desire for knowledge and incidentally place in the hands of powerful lunatics the means of destroying the human race. In such ways the pursuit of knowledge may become harmful unless it is combined with wisdom; and wisdom in the sense of comprehensive vision is not necessarily present in specialists in the pursuit of knowledge. Comprehensiveness alone, however, is not enough to constitute wisdom. There must be, also, certain awareness of ends of human life. This may be illustrated by the study of history. Many eminent historians have done more harm than good because they viewed facts through the distorting medium of their own passions. Hegel had a philosophy of history which did not suffer from any lack of comprehensiveness, since it started from earliest time and continued into an indefinite future. But the chief lesson of history which he sought to inculcate was that from the year A.D. 400 down to his own time, Germany had been the most important nation and the standard bearer of progress in the world. Perhaps one could stretch the comprehensiveness that

constitutes wisdom to include not only intellect but also feeling. It is by no means uncommon to find men/women whose knowledge is wide but those feelings are narrow. Such men/ women lack what I am calling wisdom. I think the essence of wisdom is emancipation, as far as possible, from the tyranny of the here and the now. We cannot help the egoism of our senses. Sight, sound and touch are bound up with our own bodies and cannot be made impersonal. Our emotions start similarly from ourselves. An infant feels hunger or discomfort; gradually with the years his horizon widens, and, in proportion as his thoughts and feelings become less personal and less concerned with his own physical states, he achieves growing wisdom. This is of course a matter of degree. No one can view the world with complete impartiality; however, it is possible to make a continual approach towards impartiality, on the one hand, by knowing things somewhat remote in time or space, and, on the other hand, by giving to such things their due weight in our feelings. It is this approach towards impartiality that constitutes growth in wisdom. Perhaps in this sense the wisdom can be taught. I think that this teaching should have a larger intellectual element than has been customary in what has been thought of as moral instruction. I think that the disastrous result of hatred and narrow mindedness to those who fed them can be pointed out incidentally in the course of giving knowledge.

Knowledge and morals ought not to be too much separated. It is true that the kind of specialised knowledge which is required for various kinds of skills has very little to do with wisdom. But it should be supplemented in education by wider surveys calculated to put it in its place in the totality of human activities. Even the best technicians should also be good citizens, i.e. citizens of the world and not of any one nation. With every increase of knowledge and skill, wisdom becomes more necessary for every such increase augments our capacity of realising our purposes, and therefore augments our capacity for evil, if our purposes are unwise. The world needs wisdom as it has never needed it before; and if knowledge continues to increase, the world will need wisdom in the future even more than it does now.

27.   According to the author what results in growth of wisdom?
        (a) Widening knowledge and narrowing feelings
        (b) Acquiring specialised knowledge which is required for various kinds of skills
        (c) Viewing the world with complete impartiality
        (d) None of the above

Sol. (c)
        According to the author, viewing the world with complete impartiality results in growth of wisdom.

28.   According to the author the essence of wisdom is …………
        (a) Deliverance from the oppression of here and now
        (b) Subduing from the oppression of here and now
        (c) Captivity from the oppression of here and now
        (d) All of the above

Sol. (b)

As per the passage given, the essence of wisdom is subduing from the oppression here and now. To get emancipated or free from "the tyranny of the here and the now".

29. What according to the author is the relationship between knowledge and wisdom?
(a) As human wisdom increases there is increase in knowledge created
(b) As knowledge keeps on increasing there is lesser need of wisdom (c) As knowledge keeps on increasing there is a higher need for wisdom
(d) As growth in wisdom stops, knowledge creation stagnates.

Sol. (C) According to the author, as knowledge keeps on increasing there is a higher need for wisdom.

30. The example used by the author to explain the ways in which the pursuit of knowledge can be harmful, unless combined with wisdom, is
(a) the space mission
(b) medicine that lowers infant mortality across the world
(c) the progress of Germany
(d) None of the above

Sol. (b)
The example used by the author to explain the ways in which the pursuit of knowledge can be harmful, unless combined will wisdom, is medicine that lowers infant mortality across the world.

31. What factors according to the author, contribute to wisdom?
(a) A sense of proportion, giving knowledge, study of history, emancipation
(b) A sense of proportion, dignity, knowledge, skill
(c) Comprehensiveness, a sense of proportion, awareness of the end of human life, emancipation from the tyranny of the present
(d) None of the above

Sol. (c)
According to the author, comprehensiveness, a sense of proportion, awareness of the end of human life, emacipation from tyranny of the present, together contribute to wisdom.

Directions (Q. Nos. 32 and 33) Read each of the components of the given sentences and mark the component with grammatical error.

32. I. He is capable at II. twisting any fact III. without any suspicion IV. at any time
(a) Only I   (b) Only II   (c) Only III   (d) Only IV

Sol. (a)
In statement I 'at' must be replaced by of to make the sentence grammatically correct.

33. I. My cousin brother, who lives II. in Goa, is eager to visit us III. in Mumbai and aspires to have IV. a glimpse of the city
(a) Only I   (b) Only II   (c) Only III   (d) Only IV

Sol. (a)

In statement I, the punctuation (,) used after my cousin brother must be removed to make the sentence grammatically correct.

34.   Match the following idiomatic references to parts of the human anatomy.

List I	List II
A. Palm	1. could not tolerate the insult.
B. Foot	2. to look at with energy and desire.
C. Eye	3. to put the blame on someone else
D. Stomach	4. forced to pay the bill.

Codes
A B C D
(a) 4 2 1 3   (b) 1 3 2 4   (c) 3 4 2 1   (d) 2 4 1 3

Sol. (c)
Parts of human anatomy and their idiomatic phrases are: 1. Palm is used when blame is put on someone else. 2. Foot is used when someone is forced to pay the bill. 3. Eye is used to look at someone with envy and desire. 4. Stomach is used to refer to the act of not tolerating the insult. Hence, (c) is the correct option.

ANALYTICAL & LOGICALREASONING

35.   Choose the word that will complete the second pair in the same way as first pair Royal Bengal Tiger: India:: Snow Leopard:
        (a) Sri Lanka   (b) Bangladesh
        (c) UAE   (d) Afghanistan
Sol. (d)
There may be two possible answers for this question.
Royal Bengal Tiger resides in India, same way Snow Leopard which resides in cold areas is found in Afghanistan as well as in   Pakistan.

36.   A new species lays exactly 120 eggs out of which 50% are male and 50% are female. The female insect hatch and grow in a span of 20 days to lay eggs by themselves. On 1st May, 2019, an insect laid 120 eggs. How many eggs will be hatched, (approximately) by the end of June 2019?
        (a) 216000   (b) 25920000
        (c) 432000   (d) None of these
Sol. (d)
Eggs laid by insect on 1st May, 2019 are 120 eggs.
Number of males = (50/100) x 120 = 60
Number of females = × = (50/100) x 120 = 60

Now,
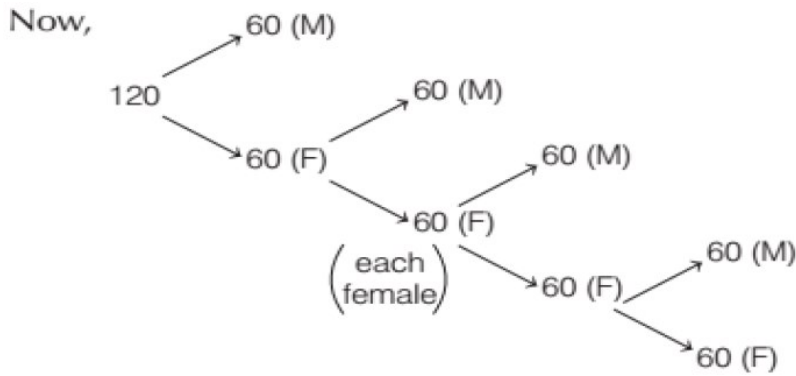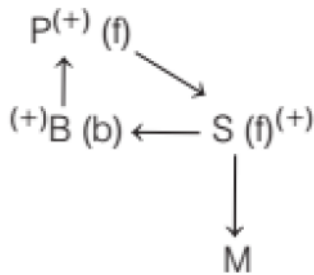

Hence, total number of eggs hatched = 60 x 60 x 60 x 60 = 12960000

37. A + B means A is sister of B, A/B means A is son of B, A = B means A is brother of B, A @ B means A is father of B.
   Which of the following shows M is grandson of P?
   (a) P = Q/M   (b) P @ B = S @ M
   (c) P @ Q + M   (d) P/Q/S + M

Sol. (b)

From the given options, option (b) only fits for the solution. Although, in this option also it is not confirmed whether M is grandson or granddaughter of P.

38. In a certain code language, if INDIA is written as 95491, then   JAPAN is written as
   (a) 81815   (b) 11614
   (c) 11715   (d) 101614

Sol. (c)
   The alphabets from A to I are coded as numerals 1 to 9. The same trend starts from J to R and from S to Z.

A	B	C I
1	2	3 9
J	K	L ....R
1	2	3 9
S	T	U ....Z
1	2	3 8

   Hence, from the above codes,

I	N	D	I	A
9	5	4	9	1

   Similarly,

J	A	P	A	N
1	1	7	1	5

39.   If 1st June, 2013 is Saturday, then 1st June, 1981 is which of   the following?
(a) Monday   (b) Tuesday
(c) Saturday   (d) Thursday

Sol. (a)
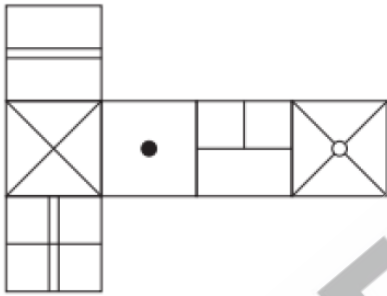
From 1st June, 2013 to 1st June, 1981 there are 32 years.

So, there are 32 odd days. The leap years between 1981 to 2013 are 1984, 1988, 1992, 1996, 2000, 2004, 2008, 2012
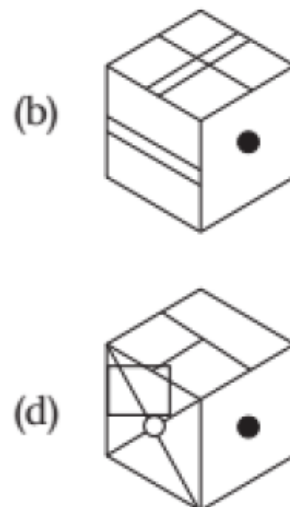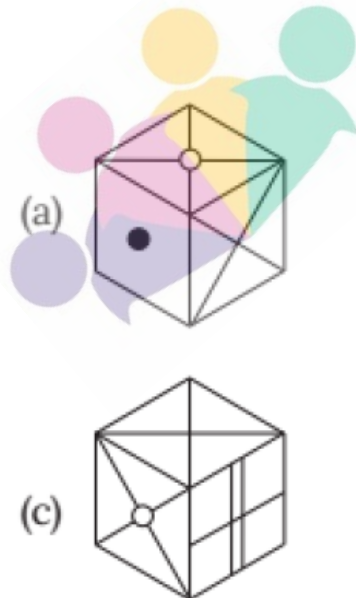
∴Total = 8 years

Hence, the total number of odd days = (32 + 8) ÷ 7 = 40 ÷ 7 days   =   5   odd days.

As 1st June, 2013 is Saturday. 1st June, 1981 will be 5 days behind Saturday that is Monday.
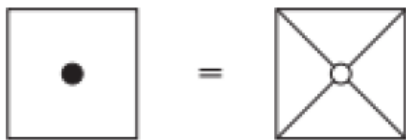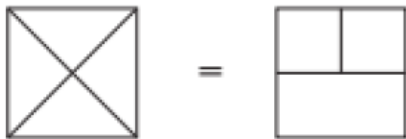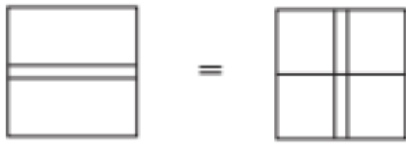
40.

An unfolded dice is given above. Find the correct answer which can be formed by folding the unfolded dice.

Sol. (c)

The opposite faces of the dice will be

Hence, the dice formed will be

41. Fill in the missing block logically

6	2	5	4
4	1	3	2
4	1	3	2
152	7	98	?

(a) 58   (b) 48   (c) 56   (d) 72

Sol. (c)

$$6^3 - 4^3 = 216 - 64 = 152$$
$$2^3 - 1^3 = 8 - 1 = 7$$
$$5^3 - 3^3 = 125 - 27 = 98$$
$$4^3 - 2^3 = 64 - 8 = 56$$

42. Anurag's grandfather has an old cuckoo clock. It takes 5s for the cuckoo clock to chime 5 cuckoos. How long will it take to chime 10 cuckoos?
    (a) 10 s   (b) 11 s   (c) 10: 25 s   (d) 11: 25 s

Sol. (d)

It takes 5 s for the cuckoo clock to chime 5 cuckoos. i.e. 1st cuckoo clock chimes at t = 0 s
5th cuckoo clock chimes at t = 5 s
Time interval = 5/4 s = 1.25 s
For the 9th chime = × = 9 x 1.25 = 11.25 seconds
Hence, the time taken to chime 10 cuckoos is 11: 25 s.

43. Deepesh wants a house such that all sides of the house face North he should build the house ......
    (a) on the South pole
    (b) on the North pole
    (c) at the equator
    (d) at an angle of 120° with the East direction

Sol. (a)
    The house build at South pole has all its sides facing North. And the house build at North pole has all its sides facing South.

44. In a shouting game, Rohit and Shiv responded in the proportion of Ram and Shyam's shouting.
    Study the table and answer accordingly, what will come at the place of question mark(?)

	Ram	Shyam	Rohit	Shiv
9:00 am	4	4	7	7
9:15 am	3	6	2	4
9:30 am	2	6	2	?

    (a) 4   (b) 8   (c) 6   (d) 2

Sol. (c) At 9:00 am the ratio of shouting of Ram and Shyam is 1: 1, hence the responding of Rohit and Shiv is at a ratio of 1: 1. Similarly, At 9: 15 am the ratio is 1: 2.
    At 9: 30 am the ratio is 1: 3.
    Hence, $1/3 = 2/x => x = 6$

45. A statement is followed by two Courses of action I and II. Assume everything in the statement to be true. Decide which of the two given suggested courses of action logically follows for pursuing. Statement Since 2018, the bulk of India's population has comprised of young working people, much more than the dependent population, children below 5 years of age and old people above 65 years of age. This trend will continue for the next 55 years.
    Courses of Action

    I. There will be a huge increase in the GDP of the country.

    II. According to a report by UNFPA, this population will be able to contribute effectively, if good health facilities, education and proper infrastructure are provided to the whole population.

    (a) None follows   (b) Only I follows
    (c) Only II follows   (d) Both I and II follow

Sol. (c)

Only II logically follows, as if good health facilities, education and proper infrastructure are provided to the whole population, the population will be of working people for the next coming years.

46. A clock gains 10 min a day. The clock was corrected at 6:00 am. what will be the correct time when the clock shows 11:00 am, following day?
(a) 10: 48 am   (b) 11: 00 am   (c) 11: 45 am   (d) 10: 30 am

Sol. (a)

Normal clock - in 24 h = 1440 min
Defective clock - in 24 h = 1450 min From today's 6 am to the following day 11:00 am. So, it will be 29 hours.
For the defective clock the minutes will be $29 \times 60 = 1740$ min

Now, following the ratio pattern,

Normal clock – 1440   ?

Defective clock – 1450   1740

           29×50 29×60

Ratio = 5 : 6

Making the equation:
$5/6 = 1440/x$
$x = 1728$ mins
1728 min = 28 h 48 min which will be 10:48 am.

47. Saddam takes 3 pills with a gap of 30 min. What is the minimum time by which Saddam will get rid of his pain?
(a) 90 min   (b) 60 min   (c) 58 min   (d) 100 min

Sol. (b)

Let the time at which pill is taken be 't'. So, first pill taken at $t_1 = 0$ min, 2nd pill taken at $t_2 = 30$ min and 3rd pill taken at $t_3 = 60$ min Hence, after 60 min Saddam will get rid of his pain.

48. In a mobile manufacturing company 6 staff members packed 6 mobiles in 6 min. The management wants 60 mobile to be packed in 60 min. How many staff member in total are required?
(a) 60   (b) 360   (c) 600   (d) 6

Sol. (d)

$M_1 T_1 / W_1 = M_2 T_2 / W_2$
where, M = Number of men
T = Time taken for doing the work,
W = Work done
$M_1 = 6$ $M_2 = k$
$T_1 = 6$ min $T_2 = 60$ min
$W_1 = 6$ mobiles $W_2 = 60$ mobiles
$\therefore (6 \times 6)/6 = (k \times 60)/60$
$k = 6$ staff members

Hence, 6 staff members in total are required to pack 60 mobiles in 60 min.

49. Choose the word that will complete the second pair in the same way as first pair.

Ornithologist: Bird:: Herpetologist:

(a) Snakes   (b) Reptiles
(c) Mammals   (d) None of these

Sol. (b)

As ornithologist studies birds, similarly herpetologist studies reptiles.

50. Amar consumed 100 Sweets from Monday to Friday. Each day, he consumed 6 more Sweets than the previous day. How many Sweets did he consume on Wednesday?

(a) 12 Sweets   (b) 20 Sweets   (c) 24 Sweets   (d) 8 Sweets

Sol. (b)

The total Sweets consumed in the 5 days from Monday to Friday = 100 Let Sweets consumed on Monday = a
There is an increase of 6 Sweets in consumption from the previous day.
Therefore,
$a + (a + 6) + (a + 12) + (a + 12) + (a + 18) + (a + 24) = 100$
$5a + 60 = 100$
Sweets consumed on Monday is 8.
Sweets consumed on Wednesday = $8 + 12 = 20$ Sweets

51. Find the missing term in the following series 0, 1, 2, 5, 20, 25,?, 157,

(a) 35   (b) 150   (c) 145   (d) 40

Sol. (b)

There is a pattern which is as follows:

$0 + 1 = 1$

$1 \times 2 = 2$
$2 + 3 = 5$
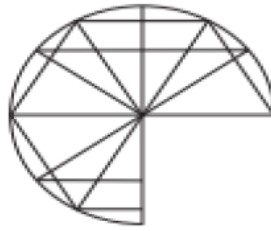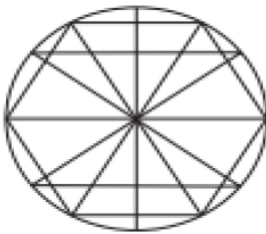$5 \times 4 = 20$
$20 + 5 = 25$
$25 \times 6 = 150$

Hence, option (b) is the answer.

52. Which of the answer figures given will complete the pattern of the question figure?

Sol. (a)

Clearly, option figure (a) completes the original figure which looks like the figure as shown below.

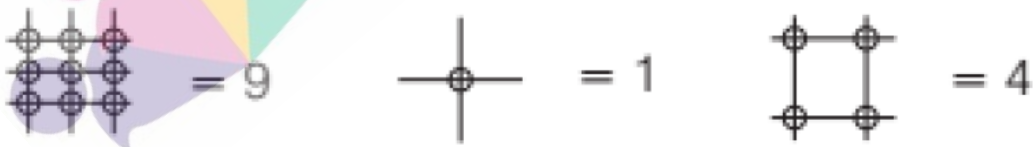53. Find what will come at the place of question mark(?).

(a) 4   (b) 8   (c) 6   (d) 16

Sol. (a)

The intersection points in the figure are taken as the answer

54. Rajnath says, "that man's father is my father's son". How is that man related to Rajnath?

(a) Uncle   (b) Son   (c) Rajnath himself   (d) Cousin

Sol. (b)

Rajnath's father's son will be either Rajnath himself or his brother. So, the man will be either Rajnath's son or his nephew. From the given options, the man will be Rajnath's son.

55. How many times does the letter 'A' appear from 0 to 100?
    (a) 2   (b) 5   (c) 1   (d) None of these

Sol. (d)

The letter 'A' appears first time in the word 'thousand'. So, the answer will be (zero) '0' which is not given in the options. So, option (d) will be the answer.

56. Population of Honululu (2 years ago) was 125000. Due to natural calamities people started migrating. So, population decreased at the rate of 4% per annum. How many migrated from this town in past 2 years?
    (a) 115200   (b) 105000   (c) 9800   (d) None of these

Sol. (c)

The population 2 yr ago = 125000
Decrease in population = 4% per annum
The present population of the town
(96/100) x (96/100) x 125000 = 115200
People migrated from the town in past 2 years = 125000 – 115200 = 9800

Directions (Q. Nos. 57-59) Read the given information carefully and answer the questions given below. Five movies – Do Bigha Jameen, Sholay, 3 idiots, Chak De, Aanand screening on Monday to Friday in any order. Movie screened on Friday remains till Sunday. Screening of Do Bigha Jameen and Chak De should not be on first and last day. Chak De should be followed by Aanand. Sholay is screened immediately after Do Bigha Jameen. There is only one movie screened between Sholay and 3 idiots.

57. Which movie was screened on Friday?
    (a) Aanand   (b) Chak De

    (c) 3 Idiots   (d) Do Bigha Jameen

58. Sholay was screened on which day?
    (a) Monday   (b) Friday
    (c) Wednesday   (d) None of these

59. 3 idiots was screened on which day?
    (a) Friday   (b) Wednesday

    (c) Tuesday   (d) Monday

Solutions (Q. Nos. 57-59)
    There is a chart of movies with their respective days:
    Mon - 3 idiots
    Tue - Do Bigha Jameen
    Wed - Sholay

Thurs - Chak De
Fri – Aanand

57.   (a) The movie Aanand was screened on Friday.

58.   (c) The movie Sholay was screened on Wednesday.

59.   (d) The movie 3 idiots was screened on Monday.

60.   Rahul asked Shyam to find N such that N! > 10N and must be the smallest integer. Shyam calculates and find N is between 10 to 15, but he asks his friend Sohan who says it is between 16 to 20. Then, Shyam asks his neighbour Suresh who says it is between 21 to 25. Then, he asks his cousin Sonal who says it is between 26 to 31. Who is correct?

    (a) Suresh   (b) Sonal   (c) Shyam   (d) None of them

Sol. (a)
    From 1, 2, 3, 4 .... 19, 20
    it is not possible i.e N! is not greater than 10N
    For 25! > 1025 It is possible.
    Hence, Suresh was correct.

Directions (Q. Nos. 61-65) Read the given information carefully and answer the questions given below. Eight boxes namely H to O are placed in a rack one above the other. The lowermost rack is numbered as 1 and above is 2 and so on. Each of the boxes is having different colors among Blue, Green, Yellow, Red, White, Orange, Indigo and Brown. Each of the boxes is having different serial numbers among 19, 23, 17, 31, 34, 37, 27 and 21. All the above information is not necessarily in the same order.

There are three boxes placed between the box which having serial number as 27 and the Indigo colored box. Box J's serial number is not 27. The Indigo colored box is placed adjacent to blue colored box. Box I's serial number is 37 and is not placed at the topmost rack. Box M is yellow colored and placed adjacent to the Red colored box. Box H is placed in the even numbered rack above fourth and it is placed adjacent to box which has serial number as 31. Not more than five boxes are placed above the Red colored box. Box J is placed in the seventh rack and Box H is placed adjacent to Box J. Two boxes are placed between the boxes having the serial number 21 and 34. Box J is White colored. Maximum numbers of boxes are placed between the Brown colored box and Orange colored box. Box H is not Brown colored. Box L is Green colored and it is placed adjacent to the Orange colored box. Box N's serial number is 21 and placed in the lowermost rack. The box which has serial number as 23 is placed three boxes above the Yellow colored box.

Box O's serial number is 19. The box which has serial number as 17 is placed above the box which has serial number as 34.

61. What is the serial number of Box H?
    (a) 23   (b) 33   (c) 17   (d) 27

62. Which among the following combination is true?
    (a) Box N - Brown - 21 - 1st rack
    (b) Box M - Yellow - 34 - 3rd rack
    (c) Box K - Blue - 31 - 5th rack
    (d) Box O - Orange - 19 - 8th rack

63. In certain way Box O is related to serial number 17, Box H is related to serial number 34 and in same way Box M is related to which of the following serial number ?

    (a) 21   (b) 23   (c) 37   (d) 27

64. Which of the following statement is true?

    (a) Only two boxes are placed below Box M

    (b) Box H is placed two boxes above the Red colored box

    (c) Box L and Box K are placed adjacent to the box which has serial number 34

    (d) None of the above

65. Three of the following four are alike in a certain way and hence form a group. Which of the following does not belong to the group?

    (a) Box L - 34   (b) Box K - 23   (c) Box H - 19   (d) Box O - 17

Solutions (Q. Nos. 61-65)
There is a table which includes every information given in the set, which is as follows:

Rack	Box	Color	Serial Number
8	O	Brown	19
7	J	White	23
6	H	Indigo	17
5	K	Blue	31
4	M	Yellow	34
3	I	Red	37
2	L	Green	27
1	N	Orange	21

Ekoching

61. (c) The serial number of Box H is 17.

62. (c) Box K - Blue - 31 - 5th rack is the correct combination.

63. (d) As, Box O → −2 Serial number 17 and Box H → −2 Serial number 34 Similarly, Box M → −2 Serial number 27; Box M is related to serial number 27.

64. (d) None of the given option is true. Hence, the correct answer is option (d).

65. (b) Following the common explanations, Box K is placed in 5th rack and Box J (serial number 23) is placed in 7th rack i.e. odd number combination. Hence, option (b) does not belong to the group.

Directions (Q. Nos. 66 and 67) In each group of question below are two conclusions followed by five set of statements. You have to choose the correct set of statements that logically satisfies given conclusions.

66. Conclusions
At least some states are district.
Some towns being district is a possibility.
Statements
I. All districts are states. Some states are village. No town is district. II. No districts is states. Some states are towns. No town is village. III. All districts are states. Some states are towns. No town is village. IV. No districts is states. Some states are towns. No town is village. V. All districts are states. Some states are village. Some town are village.

(a) Only Statement I
(b) Both Statements II and III
(c) Only Statement VI
(d) Both Statements III and V

Sol. (d)
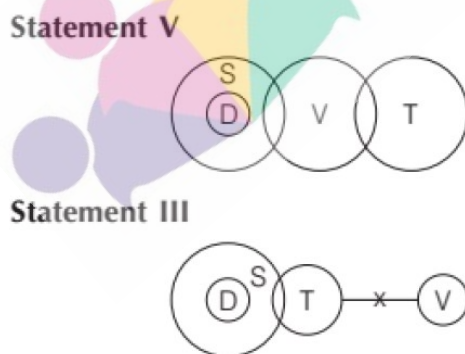
Hence, both Statements III and V follow.

67. Conclusions
No car is a bike.

All bikes being vans is a possibility.

Statements

I. All scooters are bikes. No bike is a moped. All cars are bikes. All mopeds are vans

II. Some scooters are bikes. No bike is a van. All cars are mopeds. All mopeds are vans.

III. Some scooters are bikes. No bike is a moped. All cars are bikes. All mopeds are vans.

IV. All scooters are bikes. No bike is a van. All cars are mopeds. All mopeds are vans.

V. All scooters are bikes. No bike is a moped. All cars are mopeds. All mopeds are vans
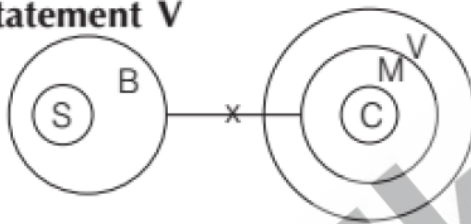
(a) Only Statement V

(b) Only Statement I

(c) Only Statement III

(d) Both Statements III and IV

Sol. (a)

Hence, only Statement V follows.

68. In a coded language LAUGH is written as 62 7 107 37 42, then SMILE will be written as (Note Do not include spaces in your answer.)

(a) 97 67 47 62 27   (b) 67 42 47 62 27

(c) 97 65 45 62 28   (d) 97 67 47 61 27

Sol. (a)

LAUGH is written as 62 7 107 37 42 In the alphabetical series order.

L = 12 A = 1 U = 21 G = 7 H = 8

The pattern in this question is:

$(n \times 5) + 2$

$62 = 12 \times 5 + 2$

$7 = 1 \times 5 + 2$

$107 = 21 \times 5 + 2$

$37 = 7 \times 5 + 2$

$42 = 8 \times 5 + 2$

Similarly, S M I L E

S = 19 M = 13 I = 9 L = 12 E = 5

$19 \times 5 + 2 = 97$

$13 \times 5 + 2 = 67$

$9 \times 5 + 2 = 47$

12 x 5 + 2 = 62
5 x 5 + 2 = 27
Hence, the code for SMILE will be 97 67 47 62 27

69. If '+' means '×', '−' means '÷', '÷' means '+' and '×' means '−', then what will be the value of 16 ÷ 64 − 4 x 4 + 3 = ?
(a) 20   (b) 52   (c) 15   (d) 12

Sol. (a)
16 ÷ 64 − 4 x 4 + 3 = ?
16 + 64 ÷ 4 − 4 × 3 = ?
16 + 16 − 4 × 3 = ?
32 − 12 = ?
? = 20

70. The question below is followed by two Arguments I and II. You have to decide which of the argument is a 'strong' argument and which is a 'weak' argument?
Statement
Should young entrepreneurs be encouraged?
Arguments I. Yes, they will help in the industrial development of the country.

II. Yes, they will reduce the burden on the employment market.
(a) If only Argument I is strong
(b) If only Argument II is strong
(c) If both I and II are strong
(d) If either I or II is strong

Sol. (c)

It is very clear that encouragement of the young entrepreneur will open up the fields for setting up of new industries. Therefore, it will help in industrial development. Consequently, more job opportunities will be created. Thus, both the arguments are strong.

QUANTATIVE DATA INTERPRETATION & SUFFICIENCY

71. Solve this: $\sqrt{\dfrac{\left(\dfrac{13}{4}\right)^4 \left(\dfrac{13}{3}\right)^4}{\left(\dfrac{13}{4}\right)^2 - \left(\dfrac{13}{3}\right)^2}}$

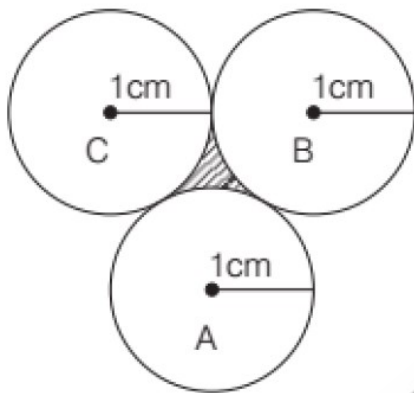(a) $7\dfrac{7}{12}$ (b) $6\dfrac{5}{12}$ (c) $5\dfrac{5}{12}$ (d) $9\dfrac{7}{12}$

Sol. (c)

$$\sqrt{\frac{(x)^4-(y)^4}{(x)^2-(y)^2}} = \sqrt{\frac{[(x)^2-(y)^2][(x)^2+(y)^2]}{(x)^2-(y)^2}}$$

Putting the values:

$$\Rightarrow \sqrt{\frac{(x)^2-(y)^2}{1}} = \sqrt{\frac{\left(\frac{13}{4}\right)^2+\left(\frac{13}{3}\right)^2}{1}} = 13\sqrt{\frac{1}{16}+\frac{1}{9}}$$

$$= 13\times(5/12) = 65/12 = 5\frac{5}{12}$$
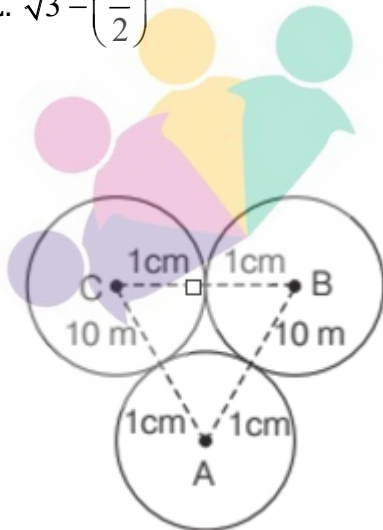
72. What is the area of the shaded portion.

A. $\sqrt{2}-\left(\dfrac{\pi}{2}\right)$

B. $\sqrt{3.5}-\left(\dfrac{\pi}{2}\right)$

C. $\sqrt{3}-\left(\dfrac{\pi}{2}\right)$

D. $\sqrt{7}-\left(\dfrac{\pi}{2}\right)$

Sol. C

ΔABC is equilateral triangle of side 2 cm.

Area of an equilateral triangle $= \dfrac{\sqrt{3}}{4} \times a^2$, where a is the side of that triangle.

Then, area of $\Delta ABC = \dfrac{\sqrt{3}}{4} \times 2 \times 2 = \sqrt{3}$

Area of 3 sector of angle 60° each and radius 1 cm each.

$= 3 \times \pi (radius)^2 \times (\theta / 360°)$

$= 3 \times \pi (1)^2 \times (60° / 360°) = \pi / 2$

Area of shaded portion = Area of ΔABC – Area of 3 sectors

$= \sqrt{3} - \left(\dfrac{\pi}{2} \right)$

73. Length of two trains is 150 m each. When they are moving in opposite direction. They cross each other in 20 s and when they are moving in same direction. Then the faster train passed slower train in 40 s. Then find the speed of faster train.

    (a) 10.50 m/s   (b) 11.25 m/s   (c) 30.75 m/s   (d) 25 m/s

Sol. (b)

Let speed of faster train = x m/s
Let speed of slower train = y m/s Distance = Speed × Time R
elative speed (in opposite direction) = (x + y) m/s Relative speed (in same direction) = (x – y) m/s
In opposite direction

$(x + y) = (150 + 150)/20 = 15$ m/s
In same direction,
$(x - y) = (150 + 150)/40 = 7.5$ m/s
Using these two equations, we get x = 11.25 m/s

74. Brigadier Rastogi travels from A to B at 40 km/h on bike. He travels from B to C at 10 km/h on cycle. The distance from A to B is equal to B to C. Then he travels from C to A via B at 24 km/h by auto-rickshaw. Find his average speed.
    (a) 20.5 km/h   (b) 21 km/h   (c) 18 km/h   (d) 19.2 km/h

Sol. (d)

Let distance from A to B LCM of 24, 10, 40 = 120 km
Time from A to B by bike = 120/40 = 3 h
Time from B to C by cycle = 120/10 = 12 h
All of us know that speed = Distance/time
Time from C to A by autorickshaw = 240/24 = 10 h
Average Speed = Total distance travelled/Total time taken
= (4 x 120)/(3 + 12 + 10) = 480/25 = 19.2 km/h

75. Rohan and Rahul are 144 km apart on point A and point B respectively. Rohan travels constantly at 8 km/h. Rahul travels 4 km in first hour, 5 km in second hour, 6 km in third hour and so on. Find the point where they well meet.
    (a) 70 km from point A
    (b) 74 km from point A
    (c) 70 km from point B
    (d) Exactly at midway between A and B

Sol. (d)

Speed of Rohan = 8 km/h Speed of Rahul in start = 4 km/h and Rahul's speed increases 1 km/h in every hour.
Relative speed in opposite direction AP series is formed = ... 12, 13, 14 = Covered distance per hour

Let they meet after n hour.
According to the question, Distance between Rohan and Rahul =Covered distance in n hours
Here, we will use the formula of sum of n terms of an A.P., which is:

$$S = \frac{n}{2}[2a + (n+1)d]$$

Where n = number of terms
a = First term of the A.P.
d = Common difference

$$144 = \frac{n}{2}[2 \times 12 + (n-1)\,1]$$

$$\Rightarrow 288 = n\,(24 + n - 1)$$

Solving this equation,

$$n^2 + 23n + 288 = 0$$
Splitting this quadratic equation,
(n – 9) (n + 32) = 0
Here, we have two values of n, which are -32 and 9, but negative value of n is not possible in this question.
So, after 9 h Rahul and Rohan meets, then distance covered by Rohan = 9 x 8 = 72 km.
It means, they meet exactly at midway between A and B.

76. Find the unit's digit of (1!)1! + (2!)2! + (3!)3! + …….. + (100!)100!.
    (a) 2   (b) 5   (c) 7   (d) 9

Sol. (c)
5! = 5 x 4 x 3 x 2 x 1 = 120
As we know, unit digit for (5!, 6!, 7!, 8! … ∞) is zero.
Also, (1!)1! + (2!)2! + (3!)3! + (4!)4! = 11 + 22 + 66 + 2424 …..…(1)
Unit digit for (1): 1 + 4 + 6 + 6 = 17

∴   Required unit digit = 7.

77.   In how many ways can 10 books on mechanics and 8 books on quantum physics be placed in a row such that two books on quantum physics may not be together?
(a) 180   (b) 170   (c) 165   (d) 175

Sol. (c)

Required ways = 11= (11 x 10 x 9)/(3 x 2 x 1) = 165

78.   In an institute, MBA Exam is conducted and sectional cut off has been introduced into it. Any candidate appearing for the exam cannot qualify unless he clears the sectional cut off. If there are 4 sections in the paper, then what is the number of ways on applicant may fail in the exam.

Sol.   There is two possibility pass (P) and Fail (F). Then, possibility of 4 sections:

$$= \begin{bmatrix} PPPF & PPFP & PFPP & FPPP \\ FFFP & FFPF & FPFF & PFFF \\ PPFF & PFFP & FFPP & FPPF \\ PFPF & FPFP & FFFF & PPPP \end{bmatrix} = 16$$

Total possibility = 16 The number of way on applicant may fail in the
exam = (16 – 1) = 15

79.   In how many ways letters of word SOTICA can be arranged such that vowel occupy at odd positions?

(a) 36   (b) 15   (c) 42   (d) 21

Sol.   (a)

SOTICA has three vowel. Then, the required ways = 3! x 3! = 6 x 6 = 36

80.   Square, Circle, Hexagon and Octagon has equal perimeter. Which has maximum area?

(a) Square   (b) Circle   (c) Hexagon   (d) Octagon

Sol.   (b) If the perimeter of figures is same then, area of figure which has maximum number of sides is maximum.

Then, circle has maximum area.

81.   In how many ways can one wrap 3 Kitkat, 2 Fivestar and 3 Bar one. If at least one Kitkat has to be there in the gift pack and the gift pack has three chocolates.

(a) 56   (b) 10   (c) 46   (d) 35

Sol. (c) Number of ways of the gift pack

$$= 8_{c_3} = 56$$

Number of ways of the gift pack without Kitkat

$$= 8_{c_3} = 10$$

Then, number of ways of the gift pack with Kitkat $= 56 - 10 = 46$

82. The difference between compound and simple interest for a loan is 114 when invested for 2 yr. The rate of interest is 6% per annum. Find the loan amount.

Sol. Difference between compound and simple interest for 2 years of a principal P

with interest rate r% per annum = $P(r/100)^2$

Using this formula:

83. $\log a + \log\left[\dfrac{a^2}{b}\right] + \log\left[\dfrac{a^3}{b^2}\right] + \ldots\ldots?$

(a) $\log\left(\dfrac{a^{n-1}}{b^{n+1}}\right)^{n/2}$ (b) $\log\left(\dfrac{b^{n-1}}{a^{n+1}}\right)^{n/2}$

(c) $\log\left(\dfrac{a^{n+1}}{b^{n-1}}\right)^{n/2}$ (d) $\log\left(\dfrac{a^{n+1}}{b^{n-1}}\right)^{n/2}$

Sol. **(c)**

Using the properties of Log, and simplifying this:

$$\log a + \log\left[\frac{a^2}{b}\right] + \log\left[\frac{a^3}{b^2}\right] + \ldots\ldots$$

$$= \log\left[a^1 \times \frac{a^2}{b} \times \frac{a^3}{b^2} \times \frac{a^4}{b^3}\ldots\ldots\right]$$

$$\left[\because \quad c\ldots\ldots) = \log a + \log b + \log c + \ldots\ldots\right]$$

$$= \log\left[\frac{a^{\frac{n(n+1)}{2}}}{b^{\frac{n(n-1)}{2}}}\right] = \log\left[\frac{a^{n+1}}{b^{n-1}}\right]^{\frac{n}{2}}$$

84. What is the coefficient of z^3 in $-7x\,y^2z^3a^2b^2$.
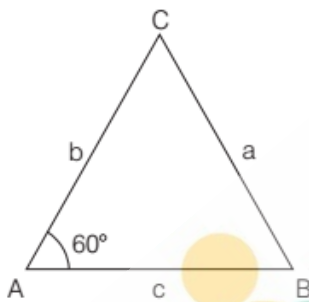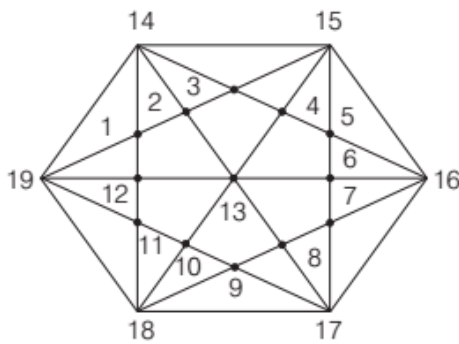
Sol. The given polynomial is $-7x\,y^2z^3a^2b^2$

If we take z^3 out of this, it becomes : $z^3(-7x\,y^2a^2b^2)$

Hence, $(-7x\,y^2a^2b^2)$ is the coefficient of z^3 in the given polynomial.

85. In a regular hexagon field, ropes are tied to connect all vertices (diagonal and side). What is the number of intersection points of ropes?

(a) 13   (b) 19   (c) 15   (d) 18

Sol. (b)

We can see that in above figure that there are 19 intersection points.

86. In the given diagram, $\angle CAB = 60°$ and BC = a, AC = b, and AB = c. Then which of the following is correct?

(a) $a^2 + b^2 + c^2 = abc$ (b) $a^2 = b^2 + c^2 - bc$

(c) $c^2 + b^2 + a^2 - ab$ (d) $b^2 + a^2 + c^2 = 2ac$

Sol. (b)

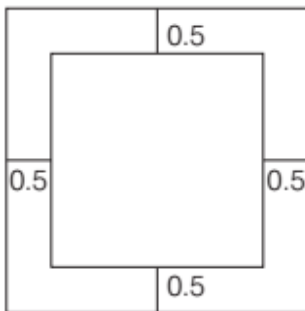Here, we are using "Cosine rule", which is as follows:

$Cos\ 60° = (b^2 + c^2 - a^2)/2bc$

Putting the value of Cos 60°, which is 1/2 and doing the cross multiplication.

$$a^2 = b^2 + c^2 - bc$$

87. In a closed wooden box, length = 20 cm breadth = 14 cm and height = 10 cm and thickness = 5 mm. If weight of empty box is 3.462 kg, then what is the weight of 1 cm 3 of wood (in gms)?

Ans: 6

Sol. Volume of cuboid = Length × Breath × Height

Volume of wood = External volume of box with wood – Internal volume of box without wood

$$= (LBH)_{external} - (LBH)_{internal}$$
$$= 20 \times 14 \times 10 = 19 \times 13 \times 9$$
$$= 577 cm^3$$

Total weight of wood = 3.462 kg

Weight of 577 cm³ of wood = 3462 gm

Then, weight of 1 cm³ of wood cm³ = 3462 / 577 = 6 gms

88. Find the number of zeros at the end of $(5!)^{5!} + (10!)^{10!} + (50!)^{50!} + (100!)^{100!}$

(a) 120   (b) 60   (c) 240   (d) 480

Sol. (a)

$(5!)^{5!}$ is add in the remaining numbers then only we have to find number of zero in $(5!)^{5!}$

$$5! = 5 \times 4 \times 3 \times 2 \times 1 = 120$$

Now, 120^{120} will have 120 zeroes.

89. Gitesh is twice as good as Jitesh. Gitesh takes 30 days less than Jitesh to finish a task. How long will Gitesh and Jitesh take to complete the task together.

(a) 30 days   (b) 20 days   (c) 60 days   (d) 15 days

Sol. **(a)**

Let efficiency of Gitesh = 2x, and efficiency of Jitesh = x

Jitesh is half efficient as Gitesh, so he will take double time to finish the task.

And, difference between their time is 30 days.

So, Jitesh's time = 2 × 30 = 60 days

And, Gitesh's time = x = 30 days

Let us assume the total work to be 60 units. Jitesh

will do 1 unit per day.

Gitesh will do 2 units per day.

Together they will do 3 units per day.

Time taken by both, when working together = 60/3 = 20 days.

90. Mohan has a 200 L container. K L of milk is kept in the container. Mohan removes 6L milk and adds 6L water. He again replaces 6L of solution with water. Now milk and water are in the ratio 9: 16. What is the value of K?

Ans 15

Sol. Water which was added =

$$\text{Initial quantity of substance} \times \left[1 - \sqrt{\frac{\text{Final Milk}}{\text{Final Mixture}}} \right]$$

Putting the values:

$$6 = K\left[1 - \sqrt{\frac{9}{25}} \right]$$

$\Rightarrow 6 = 2K/5$

$\Rightarrow K = 15$ litres

91. Indian express travels at 60 km/h and halts. For fixed time every hour. Due to halts, the average speed become 50 km/h. Find the time of halt.

(a) 10 min   (b) 20 min   (c) 15 min   (d) 12 min

Sol. (a)

Halt time = [(Faster train's speed – Slower train's speed)/Faster train's speed] x 60

[(60 – 50)/60] $\times$ 60 = 10 mins

Directions (Q. Nos. 92-95) Read the given information carefully and answer the given questions. In 2015, 100 aspirants appeared for an exam.

They had to answer four sections Maths, DI, LR and English.

The number of students who qualified in Maths = 55.

The number of students who qualified in LR= 38.

The number of students who qualified in (Maths + English) = 30.

The number of students who qualified in (LR + English) = 15.

The number of students who qualified in (Maths + LR) = 20.

The number of students who qualified in (Maths + LR + English) = 5.

The number of students who qualified in DI = 22.

The number of students who qualified in (DI + LR) = 5.

The number of students who qualified in (DI + Maths) = 5.

The number of students who qualified in (DI + Maths + LR) = 5. The number of students who qualified in English = 50.

Those who qualified in English, could not qualify in DI section.

92. How many qualified at least two sections ?

(a) 60   (b) 55   (c) 50   (d) 20

93. How many qualified in both Maths and LR, but not in any other section?

(a) 10   (b) 20   (c) 25   (d) 5

94. How many did not qualify any section?
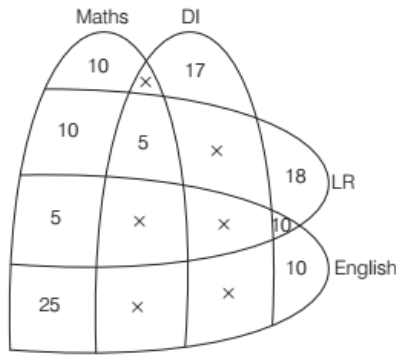
(a) 20   (b) 10   (c) 0   (d) 5

95. How many qualified only DI section?

(a) 10   (b) 25   (c) 20   (d) 17

Solutions (Q. Nos. 92-95)

Using the Venn Diagram concepts, we can draw a diagram like this:

92. (b) Qualified at least two section = 10 + 5 + 5 + 25 + 10 = 55 aspirants

93. (a) Qualified in both Maths and LR = 10 aspirants

94. (c) None of the student failed i.e. 0.

95. (d) Qualified only in DI = 17

Directions (Q. Nos. 96-98)

Year	Quantity of Rice (tonne)	% Change over previous year
20-21	134350	+ 625
30-31	1097172	+ 12.5
40-41	264280	+ 11.11
50-51	127890	− 09.09
60-61	201924	+ 20.00
70-71	112325	− 16.66
80-81	213465	− 25.00
90-91	169368	+ 33.33
00-01	100956	+ 50.00
10-11	23800	− 83.33

96. What is the approximate production of rice in year 1949-50?

(a) 132650 tonne   (b) 160479 tonne   (c) 140679 tonne   (d) 120659 tonne

Sol. (c) Production of rice in year 1950-51= 127890 tonne

Production of rice in year 1950-51 is 09.09% less than that of in year 1949-50

As we know that 09.09% is 1/11. Using it below: Then,

production of rice in 1949-50

= (11/10) x Production of rice in year 1950-51
= (11/10) x 127890 = 140679 tonne

97. What is the difference in the production of rice in 1969-70 and 1979-80?

(a) 149830 tonnes   (b) 125600 tonnes

(c) 143980 tonnes   (d) 162500 tonnes

Sol. (a)

Required difference = (Production of rice in 1979-80) – (Production of rice in 1969-70)

Using the fraction values of %:

= 213465 × (4/3) – 112325 × (6/5)

= 284620 – 134790 = 149830 tonne

98. What is the approximately production in 1959-60?

(a) 168270 tonnes   (b) 148070 tonnes

(c) 157270 tonnes   (d) 1382890 tonnes

Sol. (a) Production of rice in 1960-61= 201924 tonne

The production in 1959 – 60:

5/6 of 201924 = 168270 tonne

99. What is the sum of integers from 113 to 113113, which are divisible by 7?

(a) 899235637   (b) 867265029

(c) 913952088   (d) 752643214

Sol. (c) 119 + 126 + ... + 113113

This is the series of AP.

Let total number of terms be n.

Last number of an AP = a + (n – 1)d

Where a = first term n = number of terms

d = common difference

Putting the values in the formula:

113113 = 119 + (n – 1) x 7 n = 16143

There is another formula, and it is for sum of n terms of an AP when first and last terms are given. Sum = n/2(a + l)

= 16143/2 x (119 + 113113)

= 913952088

100. Robot is 4 m in length and placed at corner of 16 m × 30 m field. The robot is facing diagonally opposite corner and reaches the diagonally opposite corner in 15 s. What is the speed (in m/s) of robot?

(a) 5   (b) 2   (c) 3   (d) 1

Sol. (b)
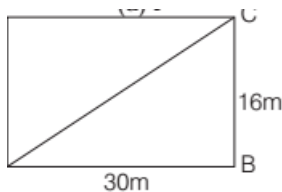
ABCD is rectangle. Then, ∠B = 90°

Using the Pythagoras Theorem:
AC = $\sqrt{256 + 900}$ = $\sqrt{1156}$ = 34.

Length of the Robot = 4 m.
Travelled distance by the Robot = 34 – 4 = 30 m
Speed of the Robot = 30/15 = 2 m/s

101. In a smart phone factory, Robot A, B, and C manufacture 25%, 35% and 40% circuit board respectively. for each of the robot faulty circuit board = 5%, 4% and 2% respectively. What is the probability that the printed circuit board is defective if 1 circuit board is picked at random?

(a) 0.034   (b) 0.027   (c) 0.091   (d) 0.030

Sol. (a) Let total circuit board manufacture in factory = 100k

Then, the circuit board manufactured by the Robots: A = 100k

(25/100) = 25k

B = 100k (35/100) = 35k

C = 100k (40/100) = 40k

Number of faulty circuit boards by Robots:

A = 25k (5/100) = 1.25k

B = 35k (4/100) = 1.4k

C = 40k (2/100) = 0.8k

Total faulty boards = 3.45k

Probability = 3.45k/100k = 0.034

102. Average stipend of a group of students is 50 per day. The difference between maximum and minimum stipend is 45. If these 2 students are excluded, the average decreases by 1. Minimum earning lie between 42 to 47 and the number of students is a prime number, where both the digit is also prime. What is the number of students initially ?

(a) 47   (b) 43   (c) 31   (d) 37

Sol. (d) Let the minimum stipend = x

Then, the maximum stipend = x + 45

Let number of students = n

Then, total stipend of a group of students = 50n ...(i)

New average = 49

Then, total stipend of a group of students = 49 (n – 2) ..... (ii)

By Equations. (i) and (ii), we get The stipend of two students

50n - 49 (n – 2) = n + 98

As per the question, n + 98 = x + x + 45

Minimum earning lie between 42 to 47. Putting x = 45.

n + 98 = 2(45) + 45 n = 37

For x = 45, n is a prime number. Number of students = 37.

103. Valve A fills a bathtub in 10 h and Valve B fills the bathtub in 15 h. When A and B are opened together, later B closed after some time. Total time taken to fill the bathtub is 5h. After how much time was B closed?

(a) 5 h   (b) 3 h   (c) 8 h   (d) 6 h

Sol. (b)

Valve A fills a bathtub = 10 h

Valve B fills the bathtub = 15 h

Let us assume the capacity of the bathtub = 150 litres

A's 1 hour filling work = 15 litres

B's 1 hour filling work = 10 litres

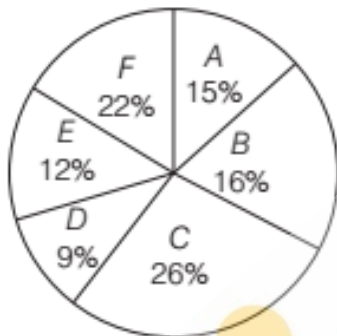A was on for 5 hours, it would have filled 15 x 5 = 75 litres. Remaining 75 litres were

filled by A + B, time taken by them to fill
this: 75/(15 + 10) = 3 h

B was on for 3 hours.

Directions (Q. Nos. 104 and 105) Refer to the pie-chart and answer the given questions.

Percentage of employees in different departments of branch 'XYZ' in the year 2014

Total number of employees = 450

104. In 2014, the number of female employees in department C was 5/13 of the total number of employees in same department. If the number of female employees in department F was 4 less than that in department C, what is the number of male employees department F?

(a) 41 (b) 42 (c) 58 (d) 54

Sol. (c) Total number of employees in department C

450 x 0.26 = 117

Female employees in department C = 117 x (5/13) = 45

Now, total number of employees in department F = 450 x (22/100) = 99

Female employees in department F = 45 – 1 = 41

Male employees in F department = 99 – 41 = 58

105. The number of employees in department E is what per cent less than the number of employees in departments A and C together?

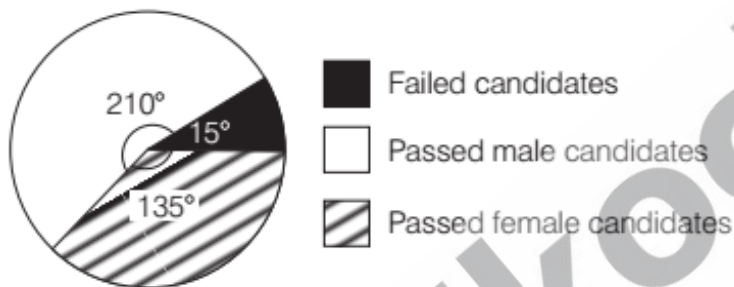(a) 72   (b) 60   (c) 65   (d) 70

Sol. (d)

As per the pie chart, E has 12%.

A and C together have 26 + 15 = 41%

Required Percentage = [(41 – 12)/41] x 100 = 70% (Approximately)

Directions (Q. Nos. 106-109) The following pie chart shows the analysis of the result of an examination in which 5 candidates have failed. Study the chart and answer the questions given below.

106. The total number of examinees was

(a) 100   (b) 120   (c) 135   (d) 150

Sol. (b)

Full circle pie chart makes the angle of 360.

15 degree is for failed students, and as per the question, there are 5 failed students. 15 degree means 5 students.

360 degree means (5/15) x 360 = 120.

107. Percentage of passed female candidates with respect to total examinees is

(a) 30   (b) 37   (c) 40   (d) 45

Sol. (b)

135 degree is for passed female candidates. Calculating the percentage = (135/360) x 100 = 37.5%

108. Percentage of passed male candidates with respect to total passed candidates is

(a) 60.8   (b) 56   (c) 71   (d) 58

Sol. (a)

210 degree is for passed male candidates.

Percentage of passed male candidates with respect to total

passed candidates is: (210/345) x 100 = 60.8 %

109. Ratio of passed male candidates to the successful female candidates is

(a) 9: 1   (b) 1: 14   (c) 14: 9   (d) 9: 14

Sol. (c)

Ratio of passed male candidates to the successful female candidates
is: 210/135 = 14 : 9

110. Find the value of m – n, if
$$\frac{9^n \times 3^2 \times \left(3^{-n/2}\right)^{-2} - (27)^n}{3^{3m} \times 2^3} = \frac{1}{27}$$

(a) 1   (b) –2   (c) –1   (d) 2

Sol. (a)

Simplifying for n, and using the properties of powers:

$$\frac{9^n \times 3^2 \times \left(3^{-n/2}\right)^{-2} - (27)^n}{3^{3m} \times 2^3} = \frac{1}{27}$$

$$\frac{3^{2n} \times 3^2 \times 3^n - 3^{3n}}{3^{3m} \times 2^3} = \frac{1}{27}$$

$$\frac{3^{3n+2} - 3^{3n}}{3^{3m} \times 8} = \frac{1}{27}$$

$$\frac{3^{3n}\left(3^2 - 1\right)}{3^{3m} \times 8} = \frac{1}{27}$$

$$\left(3^3\right)^{n-m} = 3^{-3}$$

$$n - m = -1 \text{ or } m - n = 1$$