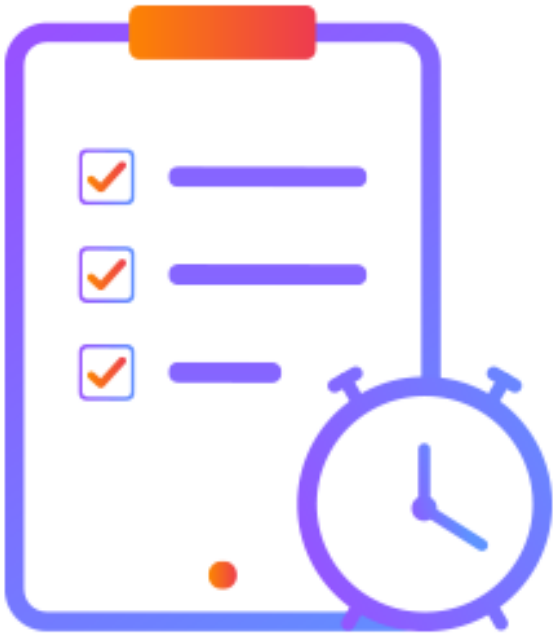
BYJU'S EXAM PREP



SNAP 2022 : Mock Test 5

Mock Test Questions & Solutions

Mock Test Solutions in English

Questions

1. The given sentences have been divided into four parts that have been marked A, B, C, and D. Choose the option that contains the part with an error as your answer.

   Entering the hotel, he ordered for a drink and an extravagant dinner.

   A. Entering the hotel,
   B. he ordered for
   C. a drink and an extravagant dinner
   D. No error

2. A word has been underlined in the excerpt below. Identify the part of speech of the underlined word.

   To thumb shut your eyes at the end

   And dissolve of sorrow.

   We make new stock from the salt.

   I notice you are <u>stark</u> naked.

   How about this suit—

   A. Adverb
   B. Adjective
   C. Noun
   D. Pronoun

3. The given sentences have been divided into four parts that have been marked A, B, C, and D. Choose the option that contains the part with an error as your answer.

   The man I came across at the gathering last night is your brother, isn't it?

   A. The man I came across
   B. at the gathering last night
   C. is your brother, isn't it?
   D. No error

4. What is the meaning of the phrasal verb ‘to keep your head’?

   A. To protect yourself
   B. To soothe others
   C. To keep your emotions in check
   D. To be angry

5. A word has been underlined in the excerpt below. Identify which one of the following does the underlined word belong to.

The stars go waltzing out in blue and red,

And arbitrary blackness gallops in:

I shut my eyes and all the world drops dead.

A. Infinitive
B. Gerund
C. Verb
D. Adverb

6. Match the highlighted word or phrase in the sentences in column 1 with their correct parts of speech in column 2:

Column 1	Column 2
1. She **made** me cut my hair.	a) Pronoun
2. I learnt swimming two years **ago**.	b) Adjective
3. She wants **more** information.	c) Adverb
4. There are **a lot of** patients in the room.	d) Verb

A. 1-c, 2-a, 3-b, 4-d
B. 1-d, 2-b, 3-c, 4-a
C. 1-b, 2-c, 3-a, 4-b
D. 1-d, 2-c, 3-b, 4-a

7. Choose the option with the correct spelling.
A. Cigarette
B. Ciggarete
C. Cigarrete
D. Cigarrette

8. Fill in the blank with the option that completes the sentence correctly.

After she received a terrible product, Reena decided that she would never _____ stuff online.
A. order
B. ordered
C. orders
D. ordering

9. Replace the part in bold with the most appropriate option.

Anish was expected to return to office, but somehow he got stuck traffic despite leaving early.

A. Anish was expecting to return to office
B. Anish needs to return to office
C. Anish was returning to office
D. No improvement

10. Choose the option that corrects the underlined part of the sentence in the best way.

You should visit Udaipur when you had been to Rajasthan.

A. should have gone to
B. were going to
C. No improvement
D. go

11. Which one of the following is not a synonym of the word 'acrimonious'?

A. Acrid
B. Rancorous
C. Tender
D. Cynical

12. The given sentences have been divided into four parts that have been marked A, B, C, and D . Choose the option that contains the part with an error as your answer.

A frigid wind blew and icy fingers of death crept up my spine

A. A frigid wind
B. blew and icy
C. crept up my spine
D. No error

13. The given sentences have been divided into four parts that have been marked A, B, C, and D . Choose the option that contains the part with an error as your answer.

IIM Ahmedabad's MBA programme is considered as the best in the country.

A. programme is considered
B. as the best in the country
C. IIM Ahmedabad's MBA
D. No error

14. Pick the most appropriate meaning of the given phrase:

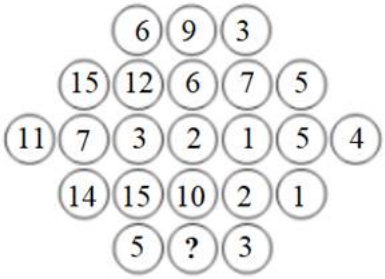
Turn down

A. Demand
B. Reject
C. Suggest
D. Attest

15. Fill in the blanks with the correct option. R. Ambedkar had warned about the fragility of Indian democracy and he must be _____: worshipping him while ignoring his warnings would be _____.

A. ignored, impractical
B. scorned, contemptuous
C. heeded, hypocrisy
D. obeyed, prudent

16. What number will come in the place of the question mark (?) in the diagram shown below?



A. 4 B. 5

C. 6 D. 7

17. **Directions:** Study the following data carefully, and answer the questions accordingly.

P, Q, R, S, T, U, V, and W are sitting around a circle and are facing the centre. P is second to the right of S, who is U's neighbour. T is not P's neighbour. V is the neighbour of U. Q sits opposite to V's neighbour. R sits fourth to the right of Q. Which of the following statements is true based on the given information?

A. R sits opposite to P. B. V sits opposite to S.

C. S sits third to the left of T. D. W sits third to the left of V.

18. Select the pair from the options which has a similar relationship to the pair in the question.

Remiss: Painstaking

A. Relapse: Recidivism B. Reminisce: Nostalgic

C. Progeny: Progenitor D. Proscribe: Prohibit

E. Prescribe: Recommend

19. Select the pair from the options which has a similar relationship to the pair in the question.

Amiable: Amicable

A. Affable: Mean B. Inimical: Hostile

C. Generous: Miserly D. Plethora: Scarce

20. A clock that shows the right time throughout the day shows 10 o'clock in the morning. Starting at this time, by how many degrees would the minute hand have rotated more than the hour hand when the clock shows 6 p.m.?

A. 2680 degrees B. 2640 degrees

C. 2440 degrees D. None of the above

21.

How much time does a watch lose per day if its minute hand and hour hand coincides every $65\frac{5}{11}$ minutes?

A. 32 minutes
B. 240 minutes
C. 654 minutes
D. 0 minutes

22. In the question below is given a statement followed by two assumptions numbered I and II. You have to consider the statement and the following assumptions and decide which of the assumptions is implicit in the statement.

Assumptions:

(I) Building a metro system will help mitigate the traffic congestion.

(II) The government has the resources to build metro systems in cities.

Mark:

A. If only assumption I is implicit
B. If only assumption II is implicit
C. If both are implicit
D. If neither I nor II is implicit

23. In the following question, there is a statement followed by 2 courses of action numbered I and II. Assuming everything in the statement to be true, which of the 2 courses of action is/are logical to follow?

Statement:

Ceenu buys board games for himself every time his mother gives him money to pay the school fee.

Courses of action:

I. The mother should ask Ceenu to stop eating for a week and pay his fee himself.

II. The mother should ask Ceenu's dad to beat him black and blue.

A. I follows
B. II follows
C. None follows
D. All follow

24. What should come in place of the question mark (?)?
49, 47, 44, 39, 32, 21, ?

A. 7
B. 8
C. 12
D. 13

25. Complete the following series.
680, 1640, 2600, 3560, 4520, ____

A. 5460 B. 5220

C. 5640 D. 5480

26. In the following question, there is a statement followed by 2 courses of action numbered I and II. Assuming everything in the statement to be true, which of the 2 courses of action is/are logical to follow?

Many analysts at a leading IT firm might be fired as they are sitting idle because of non-availability of projects.

Courses of action:

I. The analysts should be given a notice of one month before being laid off.

II. The analysts should be fired without pay as soon as possible as these employees are a liability for the company.

A. I follows B. II follows

C. None follows D. All follow

27. In each of the following questions, two statements numbered I and II are given. There may be a cause and effect relationship between the two statements or may be not. Read both the statements in each question and mark your answer as:

I. Mr. Saver, a resident of Dreamland Housing Society, reported a foul smell coming from his neighbouring apartment.

II. The RWA of Dreamland Housing Society is planning to conduct fumigation in the Society.

A. If statement I is the cause and statement II is its effect

B. If statement II is the cause and statement I is its effect

C. If both the statements I and II are independent causes

D. If both the statements I and II are independent effects

28. In each of the following questions, two statements numbered I and II are given. There may be a cause and effect relationship between the two statements or may be not. Read both the statements in each question and mark your answer as:

I. The auto drivers in Bengaluru have announced a strike for 5 days.

II. The auto drivers in Bengaluru fear loss of work due to various apps offering auto and cab rides at lower prices.

A. If statement I is the cause and statement II is its effect
B. If statement II is the cause and statement I is its effect
C. If both the statements I and II are independent causes
D. If both the statements I and II are independent effects

29. Which of the following set of letters will complete the following series:
ab_a_baa_abbab_

A. b, a, a, b
B. a, b, b, b
C. a, a, b, b
D. b, a, b, b

30. **Direction:** One statement is given below, followed by two assumptions I and II. You are required to read the statements and mark the correct answer as per the options given below.

Statement:

The causes for hair fall can be many but in most of the cases, the solution lies in our lifestyle, especially the food we eat.

Assumptions:

I. If we start eating healthy food, we need not worry about hair fall.

II. Hair fall has a lot to do with everyday stress that we handle on a daily basis.

A. Only I follows.
B. Only II follows.
C. Both follow.
D. None follows.

31. Only One among AA, BB and CC is a liar and other two are truth tellers. From the statements made by them, find out who is the liar.

AA : BB is the liar

BB : CC is the liar

CC : I am not the liar

A. AA
B. BB
C. CC
D. Cannot be determined

32. A + B means A is B's mother, A – B means A is B's brother, A % B means A is B's sister, A * B means A is B's father, and A / B means A is B's daughter, A > B means A is B's son. If the expression L + Q * X – O / C % H holds true, then How is L related to O?

A. L is the Mother of O
B. L is the Grandmother of O
C. L is the Father of O
D. The relation cannot be determined

33. In a row, some people are facing towards the south. Rupan's position is 23rd from the left end, and Bhola's position is 19th from the right end. If 13 people sit between them and Rupan sits to the left of Bhola, what could be the maximum number of people who sit in the row?

A. 60
B. 52
C. 55
D. 58

34. If in an artificial language MENTOR is coded as MFNUOS and GUIDE is coded as GVIEE, then how will ASPIRE be coded in the same language?

A. FGTHAL
B. ATPJRF
C. REWSDF
D. OIUHGJ

35. If today is Friday. What day of the week will it be on the 88th day if we couth tomorrow as the 1st day?

A. Tuesday
B. Saturday
C. Monday
D. Friday

36. In a certain language, if ABSENCE is coded as SBAEECN and CABBIES is coded as BACBSEI. How is PACHUCA coded in that language?

A. GHAYIW
B. LKOQSD
C. CAPHACU
D. BGHUIO

37. The question given below consists of a statement, followed by two arguments numbered I and II. You have to decide which of the arguments is a 'strong' argument and which is a 'weak' argument.

Should people be stripped of their citizenship if they do not pay taxes on time?

I. No, citizenship is a birthright.

II. Yes, everyone should pay taxes.

Mark:

A. If only argument I is strong.
B. If only argument II is strong.

C. If both arguments are strong.
D. If neither argument is strong.

38. The question given below consists of a statement, followed by two arguments numbered I and II. You have to decide which of the arguments is a 'strong' argument and which is a 'weak' argument.

Should employees on the payroll of a company work for the competitors of the company during their free time while working from home?

(I) Yes, everyone likes extra income.

(II) No, this is breach of contract as per the offer letter signed by the employees at the time of joining.

Mark:

A. If only argument I is strong
B. If only argument II is strong
C. If both arguments are strong
D. If neither argument is strong

39. **Direction:** Given below is a statement followed by two assumptions I and II. Consider the statement to be true and figure out whether the given assumptions follow or not.

Statement:

As per Fortune, the founders, executives, investors, and activists on this year's list are creating and seizing opportunity, empowering others, exploring new treatments for diseases that affect millions, connecting people, building upon their successes as athletes and entertainers, trailblazing in their industries, and are even building new ones.

Assumptions:

I. The people appearing in Fortune magazine's list are influencers

II. Only those people can appear in Fortune magazine who have done something influential and inspiring in their lives.

A. Only I follows
B. Only II follows
C. Both I and II follows
D. None follow

40. **Direction:** Given below is a statement followed by two conclusions I and II. Consider the statement to be true and figure out whether the given conclusions follow or not.

Statement:

NASA's uncrewed Artemis 1 mission, which will test the capabilities of both Orion and the SLS rocket on its journey to orbit the Moon, captured stunning pictures of our planet Earth.

Conclusions:

I. NASA's uncrewed Artemis 1 mission was sent to capture the unseen pictures of our planet Earth.

II. The unseen footage of our Earth as captured by Aretmis will help us in finding more details about our planet.

A. Only I follows
B. Only II follows
C. Both I and II follows
D. None follow

41. The population of a society increased by 20%, 9.09%, 15% in three consecutive years but decreased by 10% in the fourth year. If the population at the end of the fourth year was 7452, find the population at the beginning of the first year.

A. 4800
B. 5250
C. 5500
D. 4250

42. If $3f(x - 1) - f(\frac{1-x}{x}) = x$, then f(x) is:

A. $\frac{1}{8}[3(x + 1) + \frac{1}{x+1}]$
B. $\frac{1}{6}[(x + 1) + \frac{1}{x+1}]$
C. $(x + 1) + \frac{1}{x+1}$
D. $3(x - 1) + \frac{1}{x+1}$

43. The ratio of the length of a rectangle to the diameter of a circle is 6 : 7 . The area of the circle is 346.5 cm^2. If the breadth of the rectangle is 4 cm less than its length, find the area of the rectangle. (Use $\pi = \frac{22}{7}$)

A. 224 cm^2
B. 252 cm^2
C. 234 cm^2
D. 270 cm^2

44. In a school, the ratio of the number of boys to the number of girls is 4 : 7 . If some boys leave and double the number of girls join the school, the ratio of the number of boys to the number of girls will decrease by 20%. Find the ratio of the number of boys who left the school to the original number of girls in the school.

A. 4 : 67
B. 7 : 67
C. 28 : 67
D. 67 : 28

45. Ramesh has a bag containing 15 balls. On seven of these balls, a number less than 0 is written, while on

the remaining balls, a natural number is written. If three balls are selected at random, what is the probability that the product of the numbers written on them will be positive?

A. $\frac{194}{455}$ B. $\frac{204}{455}$

C. $\frac{214}{455}$ D. $\frac{224}{455}$

46. If α, β are the roots of $ax^2 + c = bx$, then the equation $(a + cy)^2 = b^2y$ in y has the roots:

A. α^2, β^2 B. $\frac{1}{\alpha^2}, \frac{1}{\beta^2}$

C. $\frac{1}{\alpha}, \frac{1}{\beta}$ D. $\frac{\alpha}{\beta}, \frac{\beta}{\alpha}$

47. What is the remainder when 13^{100} is divided by 91?

A. 78 B. 81

C. 83 D. 73

48. The speed of a boat in still water is inversely proportional to the number of persons sitting in it, irrespective of their weights. When 4 persons are sitting in the boat, it can travel a downstream distance of 48 km in 6 hours. When 6 persons are sitting in the boat, it can travel an upstream distance of 72 km in 18 hours. If the boat takes a total of 10 hours to cover a distance of 152 km downstream, find the number of persons sitting in it. (Assume that the speed of the river is the same in all the above cases).

A. 3 B. 1

C. 2 D. Cannot be determined

49. Ranjan starts walking from one corner of a park in the morning and continues moving towards the Sun. Some time later, he turns to his right. After covering some distance, he turns to his left and moves for some time. This time, he turns to his right and starts moving again. In which direction is he from the starting position?

A. North–east B. South–east

C. South–west D. South

50. If $log_3 5 = x, log_5 7 = y \; and \; log_{11} 3 = z$, then the value of $log_{693} 275 \; is$:

A. $\frac{2xz + 1}{1 - 2z - xyz}$ B. $\frac{2xz - 1}{1 - 2z - xyz}$

C. $\frac{2xz + 1}{1 + 2z + xyz}$ D. $\frac{2xz - 1}{1 + 2z + xyz}$

51. A vessel contains a mixture of juice and water in the ratio of 5 : 8, respectively. In the vessel, 39 litres of pure juice is added such that the ratio of the juice and water in the vessel reverses. What amount of water should now be added to the vessel such that the ratio of juice and water in the vessel reverses again?

A. 64 litres
B. 68.4 litres
C. 52.4 litres
D. 62.4 litres

52. A person starts writing all four-digit natural numbers. How many times has he written the digit 3?
A. 3400
B. 3500
C. 3600
D. 3700

53. Six friends went for a picnic in a seven-seater private jet. If exactly two of them know how to fly the jet, then find the number of ways in which they can be seated in the jet. (It is known that the jet will be flown by the person who knows how to fly it).
A. 1440
B. 720
C. 240
D. 480

54. Scheme A offers 12% simple interest per annum, while scheme B offers 10% compound interest per annum (interest being compounded annually). If an equal amount of money is invested in both the schemes at the same time, then calculate the minimum number of years after which the total amount (principal + interest) in scheme B will be more than the total amount (principal + interest) in scheme A .
A. 4 years
B. 5 years
C. 6 years
D. 7 years

55. If a, b, and c are positive integers and $2b + 4 = c + 2$, $3a + 9 = c$, and $a + b < c - 12$, find the minimum possible value of $a + b$.
A. 41
B. 51
C. 47
D. 38

56. A carpenter has a wooden solid made up of a cylindrical base and a conical top with a base radius of 6 cm. The ratio of the height of the cone and the cylinder is 4 : 11 . A vertical cylindrical hole is drilled through the wooden solid with height equal to one–third the height of the metal solid. Find the radius (in cm) of the hole such that the volume of the hole is one–fifth the volume of the wooden solid after drilling.
A. $\sqrt{\frac{63}{4}}$
B. $\sqrt{\frac{54}{5}}$
C. $\sqrt{\frac{74}{5}}$
D. $\sqrt{\frac{83}{4}}$

57. 2 women and 3 men can complete a task in 30 days. 4 women and 8 men can complete the task in 12 days. Find the number of days needed by 8 men and 8 women to complete the task.
A. 10
B. 12
C. 15
D. 18

58. x, y, and z are three positive integers, not necessarily distinct. If $x^3 + y^2 = 80$ and $y^3 + z^2 = 100$, then find the value of x + y + z.

A. 12
B. 14
C. 16
D. Cannot be determined

59. Direction: Study the following information carefully and answer the questions that follow.

All the students of the 7th, 8th, 9th, and 10th standards of a school took part in exactly one out of the three activities, viz., dancing, singing, and painting. The following table shows the total number of students in these classes, percentage of students who participated in dancing, and percentage of students who participated in painting.

Class	Total students	Participated in dancing	Participated in painting
7th	120	25%	40%
8th	160	20%	50%
9th	90	40%	10%
10th	150	50%	40%

The number of Std 9 students who participated in dancing is what percent of the number of students who participated in singing from all the four classes together?

A. 25%
B. 20%
C. 22%
D. 24%

60. The ratio of the marked price to the cost price of an article is in the ratio of 3 : 1 . If 2x% discount is given on the article, then x% loss is incurred. Find the value of x%.

A. 25%
B. 35%
C. 40%
D. Cannot be determined

Solutions

1. B

Sol. Here, the error lies in option B which is related to prepositions. There are certain verbs after which no preposition is placed. Hence, the use of '*for*' is surplus here, and it should be deleted to make the sentence grammatically correct.

2. A

Sol. Stark is an adverb here as it describes ‘naked’, which is an adjective.

3. C

Sol. Here, the error lies in option C. The error is related to the question tag. Question tags are made using an auxiliary verb (e.g., am, is, are, have, was, has, etc.) and a pronoun (e.g. you, they, she, etc.) in accordance with the subject of the sentence. Thus, replace ‘it’ with ‘he’ in the last part.

4. C

Sol. The phrasal verb ‘keep your head’ means to calm oneself in the face of adversity. Hence, option C is the right answer here.

5. B

Sol. Waltzing is a gerund here as waltzing is a noun made from the verb ‘waltz’.

6. D

Sol. In sentence 1, ‘made’ is a verb, so options 1 and 3 are eliminated. ‘Ago’ is an adverb. ‘More’ is an adjective describing ‘information’ and ‘a lot of’ is a pronoun for ‘patients’. Hence, D is the correct answer.

7. A

Sol. Option A is the correct answer.

8. A

Sol. Again, this is another question where you need to judge the tense correctly and pick the answer option accordingly. Besides, the answer options here are also quite easy to eliminate because we use the first form of the verb in the future simple tense. Hence, option A is the right answer.

9. D

Sol. Here, option D is the right answer. From the context, it is clear that we'll need to use a passive voice because his colleagues would have been expecting him at the office. Hence, no improvements are needed.

10. D

Sol. '**Had been**', '**should have gone**', and '**were going to**' all give the sentence a **past sense** which is not the case here. Someone is giving a suggestion to someone to visit Jaisalmer (use of '**should**'). So, the underlined part should be written as '**go**', i.e., in the **simple present tense.** Hence, option D is the correct answer.

11. C

Sol. Acrimonious means 'having or showing deep-seated resentment'. Options A, B, and D are synonyms. Option C is the opposite of acrimonious.

12. C

Sol. Here, the preposition 'on' is missing in the given sentence as the complete phrasal verb is 'creep up on someone / something (in this case, spine)', which means to approach someone quietly so that the person is suddenly surprised. Hence, option C is the correct answer.

13. C

Sol. We either say 'considered to be the best' or 'considered the best'. Hence, option C is the correct answer.

14. B

Sol. The phrase 'turn down' means to reject something that is offered. Hence, option B is the right answer here.

15. C

Sol. The sentence indicates that Ambedkar was correct, and we should not just worship him while not following what he said.

Only the words in option C complete the sentence meaningfully—we must pay attention to Ambedkar's warnings about the fragility of our democracy instead of just making a show of worshipping him because that would be hypocrisy.

Hence, option C is the correct answer.

16. D

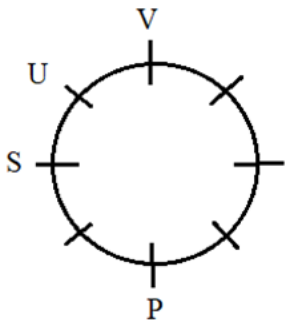
Sol. Looking at the diagram, in each row, the first circle equals the half of the sum of the numbers in the other circles. For example, in the first row, 9 + 3 = 12, and the half of 12 is 6. So, according to this, 7 will replace the question mark (?).

Hence, option D is correct.

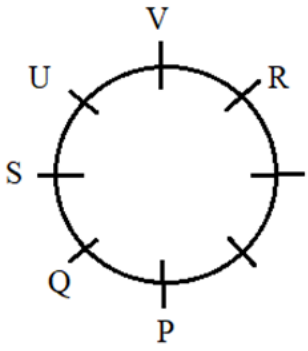
17. D

Sol.

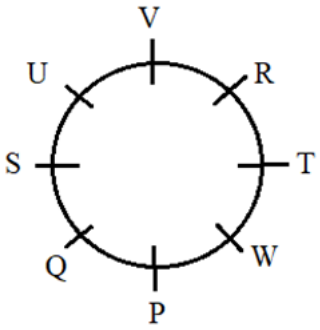
P is second to the right of S, who is the neighbour of U.
V is the neighbour of U.



Q sits opposite to V's neighbour.
R sits fourth to the right of Q.



T is not P's neighbour.



Therefore, this is the final arrangement.
W sits third to the left of V.
Hence, option D is the correct Answer

18. C

Sol.

Remiss means negligent. Painstaking means done with great care or thoroughness. So, they are antonyms. Relapse and recidivism are synonymous as they mean going back to an earlier state. To reminisce is to become nostalgic about older times. Progeny means descendants, while progenitor means ancestor. So, they are antonym pairs. Proscribe means to prohibit. Hence, only option C fits.

19. B

Sol.

The pair of words in the question are synonymous. Amiable and amicable mean friendly. Similarly, inimical means hostile.

Hence, option B is the correct answer.

20. B

Sol.

Angle traced by the minute hand in (10 o'clock in the morning – 6 p.m.)
= 360×8 = 2880 degrees

Angle traced by the hour hand in (10 o'clock in the morning – 6 p.m.) = 8 hours is

= $(360 \div 12) \times 8$ degrees

= 240 degrees

The required answer = 2880 ¯ 240 = 2640 degrees

Hence, option B is the correct Answer

21. D

Sol. The relative speed of the minute hand with respect to the hour hand = $\frac{11}{2}$ degrees per minute

Time taken for the hands to coincide = $\frac{360}{\frac{11}{2}} = \frac{720}{11} = 65\frac{5}{11}$ minutes

As the minute hand and hour hand coincide in $65\frac{5}{11}$ minutes, this watch shows the correct time all the time. So, it loses 0 minutes per day.

Hence, option D is the correct Answer

22. C

Sol. Both assumptions are implicit.

Since building the metro has been suggested as a solution, it is assumed that it will be effective in mitigating the traffic.

Again, since it has been mentioned that the government should build metros, it is assumed that the government is capable of doing it.

Hence, both are implicit.

23. C

Sol. Option C is the answer as none follows:

I is cruel as a mother should not let her child go without food.

II is also extreme as a child should not be beaten up. He might be punished mildly or counselled.

24. B

Sol. 49 − 2 = 47

47 − 3 = 44

44 − 5 = 39

39 − 7 = 32

32 − 11 = 21

21 − 13 = 8

25. D

Sol.

This is a simple subtraction series. Each number is 960 more than the previous number. Therefore, the required number is 4520 + 960 = 5480.

Hence, option D is the correct Answer

26. A

Sol. Statement:

I follows because it is ethical to lay off the employees after a notice. II is neither ethical nor considerate.

27. D

Sol. Option D is the answer as both the statements are independent effects. There is no relationship between foul smell coming from one apartment and fumigation in the whole society.

28. B

Sol. Loss of work because of apps is the reason for auto drivers to strike. Hence, the correct answer is option B.

29. D

Sol.

The series here is : a(once)b(twice)a(twice)b(once)a(twice)b(once)a(once)b(twice)a(once)b(twice)

Hence the series is : abbaabaababbabb

So the missing letters in that order are : b, a, b, b

30. C

Sol. In the statement, it has been claimed that the key to reduce hair fall lies in living a healthy lifestyle that includes food. Now, I say that if we just eat healthy food, we need not worry about hair fall. But this will be an assumption because it is stating that healthy food alone is sufficient to solve the problem of hair fall and that other aspects of a healthy lifestyle does not matter. Hence, I is an assumption. On the other hand, II can also be an assumption because stress is a part of our daily life. Hence, it can also lead to hair fall. Thus, option C is the right answer.

31. B

Sol. **Case 1 : AA is liar,**

The true statements are:

AA : BB is not the liar

BB : CC is the liar

CC : I am not the liar

There is a contradiction between statements of BB and CC, So AA is not the liar.

Case 2 : BB is liar,

The true statements are:

AA : BB is the liar

BB : CC is the not the liar

CC : I am not the liar

Here, there is only one liar, So BB is the liar.

Case 3: CC is liar,

The true statements are:

AA : BB is the liar

BB : CC is the liar

CC : I am the liar

There is a contradiction between statements of BB and AA, So CC is not the liar.

32. B

Sol.

L + Q * X – O / C % H

Decoding the given expression, we have

L + Q ⇒ L is O's mother

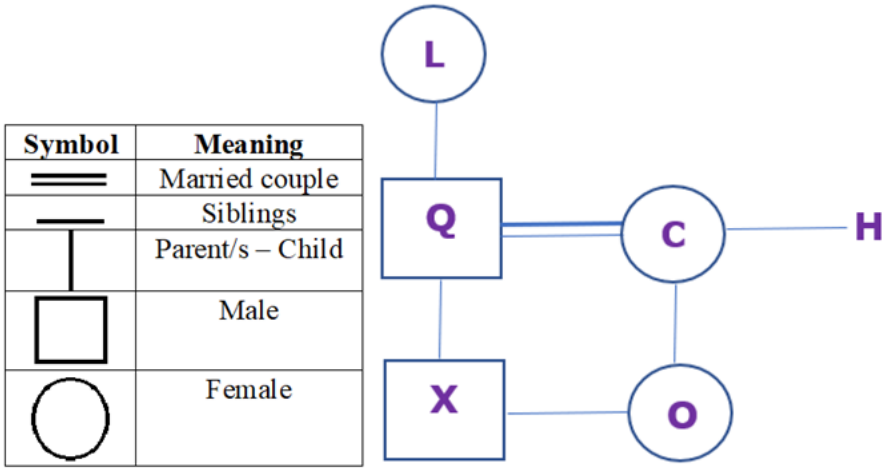
Q * X ⇒ Q is X's father

X – O ⇒ X is O's brother

O / C ⇒ O is C's daughter

C % H ⇒ C is H's sister

H's gender is not known.



Therefore, this is the final arrangement.

Thus, L is O's grandmother.

Hence, option B is the correct Answer

33. C

Sol.

Rupan's position is 23rd from the left end

Bhola's position is 19thth from the right end.

13 people sit between them.

There are two possibilities.

Rupan sits to the left of Bhola, then, Bhola (19th from the right end)--------13 people ------- Rupan (23rd from the left end)

Total number of people = 19 + 13 + 23 = 55

So, the maximum number of people is 55.

Hence, option C is correct.

34. B

Sol.

	M	E	N	T	O	R		G	U	I	D	E		A	S	P	I	R	E
If	+0	+1	0	+1	0	+1	&	+0	+1	0	+1	0	Then	+0	+1	0	+1	0	+1
	M	F	N	U	O	S		G	V	I	E	E		A	T	P	J	R	F

Therefore, option B is the correct Answer

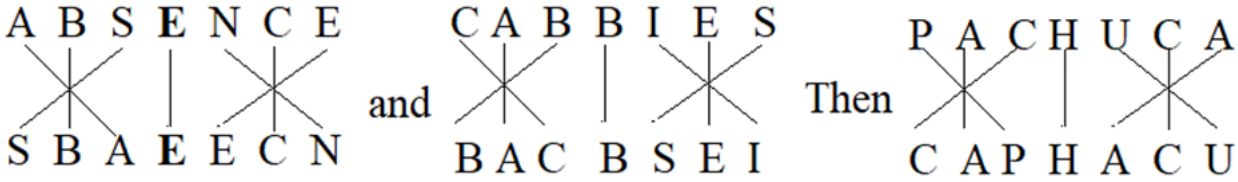
35. A

Sol.

Each day of the week is repeated after 7 days.
So, starting tomorrow after 84 days, it will be Friday.
After 88 days, it will be Friday + 4 = Tuesday.
Hence, option A is the correct Answer

36. C

Sol.



Hence, option C is the correct Answer

37. A

Sol. Option A is the correct answer as something being a birthright is a strong reason, while II mentions someone's opinion.

38. B

Sol. Argument I is weak as it does not provide a valid reason. Argument II is strong because breach of contract is a valid reason for not doing something. Hence, the correct answer is option B.

39. B

Sol. It's given in the argument that people on Fortune's list 'are creating and seizing opportunity, empowering others' Hence, I is more of an inference. II is an assumption because it is not something that can be inferred; it is something we are assuming.

We have no idea of the characteristics and the actions that are required to appear for the magazine. Hence, II is an assumption.

40. D

Sol. Here, none of the conclusions follow. It has been clearly mentioned in the passage that NASA's uncrewed Artemis 1 mission will test the capabilities of Orion and SLS rocket on its way to orbiting the moon. Hence, it can't be concluded that Artemis was sent to capture unseen footage of Earth.

On the other hand, II is also not a conclusion because the given scenario has not been discussed in the passage. Hence, option D is the right answer.

41. C

Sol. Let the population at the beginning of the first year be 'p'.

So, $p \times (1 + \frac{1}{5})(1 + \frac{1}{11})(1 + \frac{15}{100})(1 - \frac{1}{10}) = 7452$

$\Rightarrow p \times \frac{6}{5} \times \frac{12}{11} \times \frac{23}{20} \times \frac{9}{10} = 7452$

$\Rightarrow p = 5500$

Hence, option C is the correct answer.

42. A

Sol. $3f(x - 1) - f(\frac{1-x}{x}) = x \ldots(1)$

Replace x by $\frac{1}{x}$, then $3f(\frac{1}{x} - 1) - f(\frac{1-\frac{1}{x}}{\frac{1}{x}}) = \frac{1}{x}$

$\Rightarrow 3f(\frac{1-x}{x}) - f(x - 1) = \frac{1}{x} \ldots(2)$

Multiply equation (1) by 3 and then add with (2).

$8f(x - 1) = 3x + \frac{1}{x} \Rightarrow f(x - 1) = \frac{1}{8}(3x + \frac{1}{x})$

Replacing x by (x + 1), we get:

$f(x) = \frac{1}{8}[3(x + 1) + \frac{1}{x+1}]$

Hence, option A is the correct answer.

43. B

Sol. Let the length of the rectangle and the diameter of the circle be 6x cm and 7x cm, respectively.

So, radius of the circle = $\frac{7x}{2}$ = 3.5x cm

Area of the circle = $\frac{22}{7} \times 3.5x \times 3.5x$ = 346.5

$\Rightarrow x^2$ = 9

$\Rightarrow$ x = 3 (because x cannot be negative)

So, length of the rectangle = 6x = 18 cm

Breadth = 18 – 4 = 14 cm

Required area = 18 × 14 = 252 cm^2

Hence, option B is the correct answer.

44. A

Sol. Let the original numbers of boys and girls be 4x and 7x, respectively.

Let 'a' number of boys leave the school. So, number of girls who left the school = 2a

According to the question:

$\frac{4x - a}{7x + 2a} = \frac{4}{5} \times \frac{4}{7}$

140x – 35a = 112x + 32a

$\Rightarrow$ 28x = 67a

$\Rightarrow \frac{a}{x} = \frac{28}{67}$

Required ratio = $\frac{a}{7x} = \frac{28}{7 \times 67} = \frac{4}{67}$

Hence, option A is the correct answer.

45. D

Sol. Total number of possible outcomes = $^{15}C_3$ = 455

Now, the product of the numbers will be positive either when all the three numbers are positive or when two numbers are negative and one is positive.

Thus, favourable outcomes = $^{8}C_3 + {}^{8}C_1 \times {}^{7}C_2$ = 56 + 168 = 224

Required answer = $\frac{224}{455}$

Hence, option D is the correct answer.

46. B

Sol. $ax^2 - bx + c = 0$

So, $\alpha + \beta = \frac{b}{a}, \alpha.\beta = \frac{c}{a}$

Also, $(a + cy)^2 = b^2y$

$c^2y^2 - (b^2 - 2ac)y + a^2 = 0$

$(\frac{c}{a})^2y^2 - ((\frac{b}{a})^2 - 2(\frac{c}{a}))y + 1 = 0$

$\Rightarrow (\alpha\beta)^2y^2 - (\alpha^2 + \beta^2)y + 1 = 0$

Divide the above equation by $(\alpha\beta)^2$:

$\Rightarrow y^2 - (\frac{1}{\alpha^2} + \frac{1}{\beta^2})y + \frac{1}{(\alpha\beta)^2} = 0$

$\Rightarrow (y - \frac{1}{\alpha^2})(y - \frac{1}{\beta^2}) = 0$

So, the roots are $\frac{1}{\alpha^2}, \frac{1}{\beta^2}$.

Hence, option B is the correct answer.

47. A

Sol. $91 = 13 \times 7$

So, dividing both the dividend and the divisor by 13, we now have to find the remainder when 13^{99} is divided by 7.

13 divided by 7 leaves a remainder of (–1). So, 13^{99}, when divided by 7, will also leave a remainder of (–1), i.e., 6.

But the final answer will be $6 \times 13 = 78$.

Hence, option A is the correct answer.

48. C

Sol. It is given that the speed of the boat in still water is inversely proportional to the number of persons sitting in it, irrespective of their weights.

Let the speed of the river be ‘x’ km/h.

So, S_1 + x = $\frac{48}{6}$ = 8 km/h …(i)

(here, S_1 is the speed when 4 persons are sitting in the boat)

Also, S_2 – x = $\frac{72}{14}$ = 4 km/h …(ii)

Adding equations (i) and (ii), we get:

S_1 + S_2 = 12

Now, S_1 = $\frac{k}{4}$ (here, k is a proportionality constant)

Similarly, S_2 = $\frac{k}{6}$

Putting this in equation (iii), we get:

$\frac{k}{4}$ + $\frac{k}{6}$ = 12

⇒ 3k + 2k = 144

⇒ k = 28.8

Using this in equation (i), we get:

x = 0.8 km/h

Now, the boat takes a total of 10 hours to cover a distance of 152 km downstream.

Let there be ‘n’ persons sitting in the boat.

So, downstream speed = $\frac{28.8}{n}$ + 0.8

According to the question:

$\frac{152}{\frac{28.8}{n} + 0.8}$ = 10

⇒ 152 = 8 + $\frac{288}{n}$

⇒ 144 = $\frac{288}{n}$

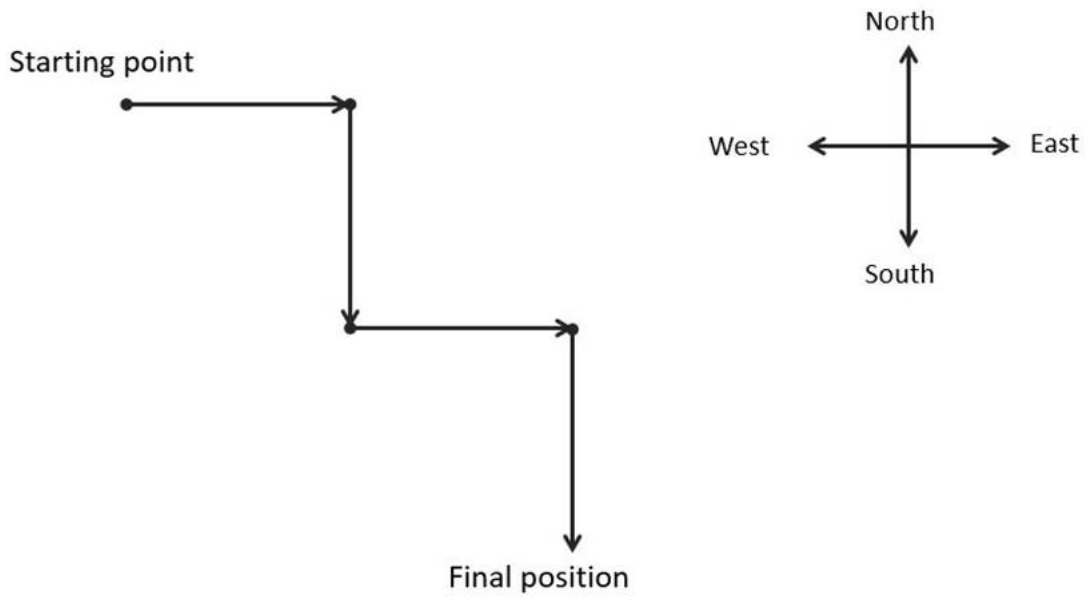
⇒ n = 2

So, 2 people are sitting in the boat.

Hence, option C is the correct answer.

49. B

Sol. According to the data given, we can draw the following figure:



Clearly, Ranjan is in the south–east direction with respect to his original position.

Hence, option B is the correct answer.

50. C

Sol. $\frac{log\ 5}{log\ 3} = x, \frac{log\ 7}{log\ 5} = y, \frac{log\ 3}{log\ 11} = z$

So, xyz = $\frac{log7}{log11}$, xz = $\frac{log5}{log11}$ …(1)

So, $log_{693}275 = \frac{log\ 275}{log\ 693} = \frac{log25 + log11}{log11 + log9 + log7} = \frac{2log5 + log11}{log11 + 2log3 + log7}$

$= \frac{2(\frac{log5}{log11}) + 1}{1 + 2(\frac{log3}{log11}) + \frac{log7}{log11}} = \frac{2xz + 1}{1 + 2z + xyz}$ {using (1)}

Hence, option C is the correct answer.

51. D

Sol. Let the original amounts of juice and water in the vessel be 5k litres and 8k litres, respectively.

According to the question:

$\frac{5k + 39}{8k} = \frac{8}{5}$

$\Rightarrow$ 25k + 195 = 64k

$\Rightarrow$ 39k = 195

$\Rightarrow$ k = 5

So, amount of juice in the mixture now = 5k + 39 = 64 litres

Amount of water in the mixture now = 8k = 40 litres

Let 'y' litres of water be added to reverse the ratio. So, we get:

$\frac{64}{40 + y} = \frac{5}{8}$

$\Rightarrow$ 512 = 200 + 5y

$\Rightarrow$ 312 = 5y

$\Rightarrow$ y = 62.4 litres

Hence, option D is the correct answer.

52. D

Sol. In total, there are 9000 consecutive numbers from 1000 to 9999.

That means, there are a total of 90 sets of 100 consecutive numbers.

So, in each set of 100 consecutive numbers, the digit 3 will be written 20 times considering both tens and units digits.

So, in 90 sets, the digit 3 will be written 90 $\times$ 20 = 1800 times.

Now, consider the digit 3 in the hundreds place. So, from 1300 to 1399, 3 appears 100 times.

Overall, the number of 3s at the hundreds place from 1000 to 9999 will be 100 $\times$ 9 = 900 times.

Now, consider the digit 3 in the thousands place.

The digit 3 will be written 1000 times at the thousands place (from 3000 to 3999).

In all, the digit 3 will be written 1800 + 900 + 1000 = 3700 times.

Hence, option D is the correct answer.

53. A

Sol. Number of ways in which the person who will fly the jet can be chosen = 2! = 2

Number of ways to select the five seats for the remaining five friends = ${}^6C_5$ = 6

Number of ways of arranging these 5 friends = 5! = 120

Required answer = $2 \times 6 \times 120$ = 1440

Hence, option A is the correct answer.

54. B

Sol. Let the amount invested in schemes A and B be Rs. 10000 each.

The following table shows the total amount (interest + principal) for both the schemes at the end of different years.

	Total amount (in Rs.)	
At the end of year	Scheme A	Scheme B
1	11200	11000
2	12400	12100
3	13600	13310
4	14800	14641
5	16000	16105.1

Thus, after a minimum of 5 years, the total amount in scheme B will be more than the total amount in scheme A.

Hence, option B is the correct answer.

55. A

Sol. 2b + 4 = c + 2

$\Rightarrow$ 2b = c – 2

$\Rightarrow$ b = $\frac{c-2}{2}$ …(i)

Similarly, 3a + 9 = c

$\Rightarrow$ a = $\frac{c-9}{3}$ …(ii)

Now, a + b < c – 12

$\Rightarrow \frac{c-9}{3} + \frac{c-2}{2} < c - 12$

$\Rightarrow 2c - 18 + 3c - 6 < 6c - 72$

$\Rightarrow 5c - 24 < 6c - 72$

$\Rightarrow c > 48$

So, the minimum possible value of c = 54 (because for c = 49 or 50 or , ...53; both 'a' and 'b' will not be integers)

So, b = 26 and a = 15

Required answer = Minimum value of a + b = 41

Hence, option A is the correct answer.

56. C

Sol. Let the heights of the cone and the cylinder be 4x and 11x, respectively.

Then, the height of the cylindrical hole = $\frac{1}{3} \times 15x = 5x$

Let the radius of the hole be 'r'.

So, the volume of the hole = $\Pi(r)^2 \times 5x$ cu cm

Now, according to the question:

$\Pi(r)^2 \times 5x = \frac{1}{5}[\frac{1}{3}\Pi(6)^2 \times 4x + \Pi(6)^2 \times 11x - \Pi(r)^2 \times 5x]$

$\Rightarrow (r)^2 \times 25 = [48 + 396 - 5(r)^2]$

$\Rightarrow 30(r)^2 = 444$

$\Rightarrow (r)^2 = \frac{444}{30} \Rightarrow r = \sqrt{\frac{74}{5}}$ cm

Hence, option C is the correct answer.

57. A

Sol. 2 women and 3 men can complete a task in 30 days.

So, in order to complete the task in 1 day, we will need 30 such teams, i.e., 60 women + 90 men

Also, 4 women and 8 men can complete the task in 12 days.

So, in order to complete the task in 1 day, we will need 12 such teams, i.e., 48 women + 96 men

Thus, 60 women + 90 men is equivalent to 48 women + 96 men

So, 12 women is equivalent to 6 men.

So, 1 man is equivalent to 2 women.

Thus, 2 women + 3 men or 2 women + 6 women = 8 women can complete the task in 30 days.

Hence, 8 men and 8 women or 16 women + 8 women = 24 women can do the same task in = $30 \times \frac{8}{24} = 10$ days.

Hence, option A is the correct answer.

58. B

Sol. $x^3 + y^2 = 80$

It is given that x, y, and z are positive integers.

So, the maximum value of x can be 4. We can try different values of x and can say that only x = 4 and y = 4 satisfies the above equation.

So, $y^3 + z^2 = 100$

Or $z^2 = 36$

Or z = 6

Required sum = x + y + z = 4 + 4 + 6 = 14

Hence, option B is the correct answer.

59. D

Sol. Number of Std 9 students who participated in dancing = 40% of 90 = 36

Number of students who participated in singing from all the four classes together = (100 – 25 – 40)% of 120 + (100 – 20 – 50)% of 160 + (100 – 40 – 10)% of 90 + (100 – 50 – 40)% of 150 = 42 + 48 + 45 + 15 = 150

Required percentage = $\frac{36}{150} \times 100 = 24\%$

Hence, option D is the correct answer.

60. C

Sol. Let the marked price and the cost price of the article be 300a and 100a, respectively.

D = 2x%

So, SP = $\frac{100-2x}{100} \times 300a = 300a - 6ax$

So, $300a - 6ax = \frac{100-x}{100} \times 100a$

$\Rightarrow 300 - 6x = (100 - x)$

$\Rightarrow$ 200 = 5x $\Rightarrow$ x = 40

Hence, option C is the correct answer.