# **STAFF SELECTION COMMISSION COMBINED HIGHER SECONDARY LEVEL (TIER-I)**

# SOLVED PAPER

# (23<sup>rd</sup> March 2018: Shift-1)

Time Allotted- 1 hour

Max marks- 200

# **Important Instructions:-**

 $\Rightarrow$  This paper contains 100 questions which are divided into 4 sections and each section contains 25 questions.

- ✓ English Language (Basic Knowledge)
- ✓ General Intelligence
- ✓ Quantitative Aptitude (Basic Arithmetic Skill)
- ✓ General Awareness
- ⇒ There will be 2 marks for each correct answer and also there will be negative marking of 0.50 marks for each wrong answer.
- ⇒ Each question is compulsory to attempt and there will be no negative marking for unattempted questions.

# **English Language**

1. In the following question, some part of the sentence may have errors. Find out which part of the sentence has an error and select the appropriate option. If a sentence is free from error, select 'No Error'. My first (1)/ task has (2)/ to go for shopping. (3)/ No error (4)

1.1 **2.** 2 **3.** 3 4. 4

2. In the following question, some part of the sentence may have errors. Find out which part of the sentence has an error and select the appropriate option. If a sentence is free from error, select 'No Error'.

In 2003, Delhi won the first 'Clean Cities International (1)/ Partner of the Year' award at its "bold efforts to curb (2)/ air pollution and support alternative fuel initiatives". (3)/(4)**2.** 2 1.1 **3.** 3 **4.** 4

3. In the following question, the sentence given with blank to be filled in with an appropriate word. Select the correct alternative out of the four and indicate it by selecting the appropriate option.

is not well with her.

1. This 2. Always 3. It 4. All

4. In the following question, the sentence given with blank to be filled in with an appropriate word. Select the correct alternative out of the four and indicate it by selecting the appropriate option.

A youth is \_ who is not a child anymore and is yet to enter adulthood.

- 1. someone 2. no one 3. anyone 4. every
- 5. In the following question, out of the given four alternatives, select the one which best expresses the meaning of the given word.
  - Banal

1. Original 3. Distinctive

- 2. Commonplace 4. Sharp
- 6. In the following question, out of the given four alternatives, select the one which best expresses the meaning of the given word. Contrite
- 1. Determined 2. Specific 3. Devise 4. Regretful
- 7. In the following question, out of the given four alternatives, select the one which is opposite in meaning of the given word. Benison
  - 1. Amen 2. Approval 3. Blessing 4. Execration

- 8. In the following question, out of the given four alternatives, select the one which is opposite in meaning of the given word. Drawn
- 1. Tense 2. Thin 3. Relaxed 4. Drained
- 9. Rearrange the parts of the sentence in correct order.
  - All animals have
  - **P** : have memory **O** : animals do not
  - **R** : sensation but some
  - **1.** QRP 2. PRQ
- **3.** RQP 4. PQR 10. A sentence has been given in Active/Passive Voice. Out of the four given alternatives, select the one which best expresses the same sentence in Passive/Active Voice.
  - She opened the lock.
  - 2. The lock was opened by her. 1. The lock opened by her.
  - 3. The lock is open by her. 4. The lock is to open by her.
- 11. A sentence has been given in Direct/Indirect Speech. Out of the four given alternatives, select the one which best expresses the same sentence in Indirect/Direct Speech.
  - Ram said, "I met her yesterday."
  - 1. Ram said that he met her yesterday.
  - 2. Ram said he meet her the day before.
  - 3. Ram said that he had met her the day before.
  - 4. Ram met her the day before.
- 12. In the following question, a word has been written in four different ways out of which only one is correctly spelt. Select the correctly spelt word.

1. Possetion 2. Possession 3. Poessession 4. Posesion **Comprehension:** 

For Questions 13 to 17: In the following passage, some of the words have been left out. Read the passage carefully and select the correct answer for the given blank out of the four alternatives.

We must remember that we cannot create a draconian state order to end corruption. The moral transformation of civil society must be \_ \_ and based on persuasive \_ definition of a sustainable lifestyle must leadership. A \_ be voluntarily accepted. Only \_\_\_\_\_ will the competitive urge to make more and more money end. Money should become meaningful, moral and deeply \_\_\_\_\_. If true wealth is found in a rich heart, no one will want to touch money even with a barge pole. 13. draconian state \_ \_\_\_\_ order to end corruption.

- **2.** so 1. into 3. in **4.** for 14. society must be \_\_\_\_ \_ and based on
- 1. nature 2. natural 3. naturally 4. naturism definition of a sustainable lifestyle 15. A\_
- 1. clearly 2. clarity 3. clarification4. clear

- 16. Only \_\_\_\_\_ will the competitive urge
- 1. than **2.** thus 3. so 4. then 17. moral and deeply \_ If true wealth
- 2. satisfaction 3. to satisfy 4. satisfying 1. satisfy
- 18. In the following question, out of the four alternatives, select the alternative which best expresses the meaning of the idiom/phrase. Be out of order
  - 1. Some goods which are out of stock.
  - 2. Do something against the court's ruling.
  - 3. A device not working properly or at all.
  - 4. Things kept in an organized manner.
- 19. In the following question, out of the four alternatives, select the alternative which best expresses the meaning of the idiom/ phrase. A sight for sore eyes
  - 1. An ugly sight unpleasant to the eyes.
  - 2. When one becomes tired of watching too much TV or reading.
  - 3. A person or thing that one is extremely pleased or relieved to see.
  - 4. A beautiful sight that you can visualise even with closed eves.
- 20. In the following question, out of the four alternatives, select the alternative which is the best substitute of the words/sentence. Rude in a mean-spirited and surly way
  - 1. Affable **2.** Churlish **3.** Cordial 4. Genteel
- 21. In the following question, out of the four alternatives, select the alternative which is the best substitute of the words/sentence. A characteristic of one thing that is suggestive of another 1. Antithetic 2. Disparate
  - 3. Conjecture 4. Reminiscence
- 22. In the following question, out of the four alternatives, select the alternative which will improve he bracketed part of the sentence. In case no improvement is needed, select "no improvement". The diesel engines replaced the steam engines and the old first class coaches (is replaced) by coupes in a corridor.
  - 1. was replaced 2. were replaced
  - 3. were replace 4. no improvement
- 23. In the following question, out of the four alternatives, select the alternative which will improve the bracketed part of the sentence. In case no improvement is needed, select "no improvement". We kept aside our clothes, (clean) our hiking boots and made sure we had our thick woollen socks. 2. cleans
  - 1. cleaned
  - 3. to clean 4. no improvement
- 24. The question below consists of a set of labelled sentences. Out of the four options given, select the most logical order of the sentences to form a coherent paragraph. I say a small A-prayer whenever I ring B-next assignment
  - C-the doorbell to my **1.** ABC
    - 2. CBA 3. CAB **4.** ACB
- 25. In the following question, four words are given out of which one word is correctly spelt. Select the correctly spelt word. **3.** flaunder **4.** flaundar 1. floundar 2. flounder

## **General Intelligence**

- 26. In the following question, select the related word pair from the given alternatives. Army : Soldier : : ? : ?
  - 1. Troupe : Artist 2. Principal : School
  - 3. Tyre : Car 4. Minister : Council
- 27. In the following question, select the related number from the given alternatives.

354:351::478:?

**1.** 481 2. 447 **3.** 475 4. 477

28. In the following question, select the related letter/letters from the given alternatives.

PTY: DHM:: SQZ:?

- 1. IEO **2.** GEN 3. GFN 4. IFP 29. In the following question, select the odd word pair from the given alternatives.
  - 1. Table Tennis Indoor 2. Cricket - Outdoor

3. Football – Outdoor 4. Indoor - Chess

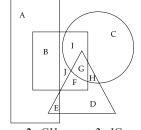
- 30. In the following question, four number pairs are given. The number on left side of (-) is related to the number on the right side of (-) with some Logic/Rule/Relation. Three are similar on basis of same Logic/Rule/Relation. Select the odd one out from the given alternatives.
- 1. 33 40**2.** 31 – 38 **3.** 21 – 28 **4.** 23 - 28**31.** In the following question, select the odd letter/letters from the given alternatives.
  - 1. IQY **2.** CKT **3.** EMU **4.** HPX
- 32. Arrange the given words in the sequence in which they occur in the dictionary.
  - 2. Inferior 1. Infect 3. Indulge 4. Induce 5. Indirect
  - **3.** 54312 1. 52143 **4.** 14532 **2.** 12453
- **33.** In the following question, select the missing number from the given series. 23, 28, 34, 41, 49, ? 2. 59 3. 56 4. 58 1. 57
- 34. A series is given with one term missing. Select the correct alternative from the given ones that will complete the series. AFMG, CHOI, EJQK, GLSM, ?
- 3. MOUP 4. INUO 1. HMVP 2. IOUH 35. Rahul is taller than Richa but not shorter than Mita. Mita and Mukesh are of same height. Rahul is shorter than Raju. Amongst the students, who is the second tallest? 1. Mita
  - 2. Rahul 3. Mukesh 4. Cannot be determined
- 36. From the given alternatives, select the word which CANNOT be formed using the letters of the given word. Benevolent
- 1. Been 4. Ben 2. Nevin 3. Lent 37. In a certain code language, "FLUTE" is written as "UOFGV".
- How is "LAMPS" written in that code language? 1. ONKPT 2. OZNPS 3. OSNPZ 4. OZNKH
- 38. In a certain code language, '÷' represents '+', '-' represents 'x', '+' represents '+' and 'x' represents '-'. Find out the answer to the following question. $6 \times 20 \div 5 - 20 + 4 = ?$ **1.** 11 **2.** 37 **3.** 14 **4.** 35
- **39.** The following equation is incorrect. Which two signs should be interchanged to correct the equation?  $16 - 2 \div 40 + 4 \ge 40$ **3.** + and  $\div$  **4.** - and +1. ÷ and – **2.** + and  $\times$
- **40.** If 1!9 = 20, 9!5 = 28 and 5!5 = 20, then find the value of 7!3 = ?1. 20 2. 15 **3.** 22 4. 24
- 41. Which of the following terms follows the trend of the given list? PQPQPRRQ, PQPQRRPQ, PQPRRQPQ, PQRRPQPQ, PRRQPQPQ,
  - 1. PQPQPQRR 2. RRPQPQPQ
  - **3.** PQPQPRRQ 4. PQPQRRPQ
- 42. A cross-country race route starts and goes 2 km East, then there is a turn towards North where the route goes on for 10 km, then there is a turn towards East where the route goes on for 7 km, then there is a right turn from where the route goes on 10 km to reach the end. What is the position of the end with respect to that start?

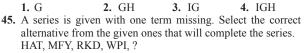
- **3.** 5 km West **4.** 9 km East
- 43. In the question two statements are given, followed by two conclusions, I and II. You have to consider the statements to be true even if it seems to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follows from the given statements. Statement I: All chains are ropes

Statement II: Some links are chains

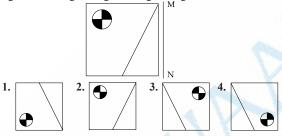
Conclusion I: Some ropes are links

- Conclusion II: All links are ropes
- 1. Only conclusion I follows
- 2. Only conclusion II follows
- 3. Both conclusions I and II follow
- 4. Neither conclusion I nor conclusion II follows
- 44. In the following figure, rectangle represents Paramedics, circle represents Athletes, triangle represents Poets and square represents Gymnasts. Which set of letters represents Gymnasts who are both Athletes as well as Poets?

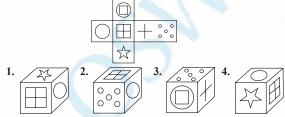




- 1. YRK 2. AWO 3. AVM 4. BUN 46. In the following question, select the missing number from the given series. 669, 660, 651, 642, 633, ?
- **2.** 620 3. 624 **4.** 618 1. 622 47. In the following question, four groups of three numbers are given. In each group the second and third number are related to the first number by a Logic/Rule/Relation. Three are similar on basis of same Logic/Rule/Relation. Select the odd one out from the given alternatives. 2. (73, 68, 63)
  - 1. (49, 45, 39)
- **3.** (94, 89, 84) 4. (66, 61, 56) 48. If a mirror is placed on the line MN, then which of the answer figures is the right image of the given figure?



49. Which of the following cube in the answer figure cannot be made based on the unfolded cube in the question figure?



50. A word is represented by only one set if number as given in any one if the alternatives. The sets of number gives in the alternatives are represented by two classes of alphabets as shown in the given two matrices. The column and rows of Matrix-I are number from 0 to 4 and that of Matrix-II are numbered from 5 to 9. A letter from these matrices can be represented first by its rows ans next by its column, for example 'C' can be represented by 30, 43 etc and 'S' can be represented by 86, 97 etc. Similarly, you have to identify the set for word 'VOLT'.

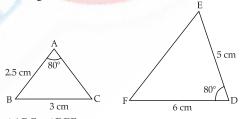
	Matrix-I					
		0	1	2	3	4
	0	Α	F	В	Ι	М
	1	F	C	J	С	В
	2	В	G	F	F	F
	3	С	L	Е	J	В
	4	K	А	М	С	Е
	Matrix–II					
		5	6	7	8	9
	5	V	U	Х	Q	Х
	6	Т	V	V	Q	Х
	7	W	Y	Т	Х	W
	8	Ζ	S	Ν	Ζ	Т
	9	Ν	0	S	Ν	Х
1. 67,96,31,65				20,8		
<b>3.</b> 43,58,31,65			4.	30,5	7,30,0	58

# **Quantitative Aptitude**

- 51. Population of Patna city is 96,000, the decreasing rate of population is 800 per year. Population of Patliputra is 68,000, the increasing rate of population is 1200 per year. In how many years will the population of both places be equal? 2. 14 3. 18 1. 10 4. 22
- 52. The cost price of 3 exam pads and 2 pencils is Rs. 96, 4 exam pads and 3 pencils cost Rs. 134. Find the total cost (in Rs.) of an exam pad and that of a pencil.

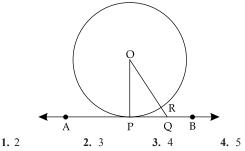
1.36 2. 38 3. 40 4. 42 53. Determine the value of  $x^2 + y^2$  when  $x^3 - y^3 = 54$ , x - y = 18and xy = 2. 1.0 2. 1 3. 2 4. 3

- 54. A zoo has few numbers of penguins and polar bears. The total number of heads of both of them is 60 and the total number of their feet is 160. How many polar bears are there in the zoo? 1. 20 2. 40 **3.** 60 4. 80
- 55. Consider the following figure shows below and choose which of the following equation is CORRECT about the similarity of both triangle?



1.  $\triangle ABC \sim \triangle DEF$ 

- **2.**  $\triangle ACB \sim \triangle DEF$
- **3.**  $\triangle ABC \sim \triangle FDE$
- 4. Both triangles are not similar.
- 56. Consider the following diagram as shown in figure in which AB is the tangent to the circle. Find the length of OQ (in cm) if the measure of largest chord of that circle is 6 cm and PQ is 4 cm.

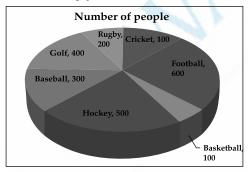


- 57. The income of P is 50% more than Q's income and the income of Q is 50% more than R's income. P's income is how much percentage more than R's income? **3.** 125 1. 225 **2.** 150 4. 100
- 58. What number should be added to each of 7, 17, 22 and 47 so that the resulting numbers will be in proportion in the given order?
- 1.1 2. 3 **3.** 2 4. 4 59. In what ratio must a mixture of 15% spirit strength be mixed with that of 25% spirit strength to get a mixture of 21% spirit strength?
- **1.** 1 : 3 **2.** 2 : 3 **3.** 3 : 4 **4.** 4 : 5 60. The average of three numbers is 58. First number is 3/4 of the third number. If the third number is 24 more than second number, then what will be the difference between the first and second number?
- 1. 24 4. 18 2. 6 **3.** 16
- 61. A sum of Rs 2500 becomes Rs 8100 in 2 years at a certain rate of compound interest. What will be the sum (in Rs) after 4 years? **4.** 26244 **2.** 36284 **3.** 41624 1, 29824
- 62. Rahul sells two helmets at the rate of Rs 1232 each. He gains 12% on one and loses 12% on the other. What will be the total loss (in Rs) in the whole transaction? 1. 54 2. 36 3. 18 4. 72
- 63. The marked price of a table is 50% more than its cost price. What discount percentage should be offered by the shopkeeper to sell his table at no profit or no loss?
  - 1. 66.66 2. 33.33 4. 25 3. 40
- 64. What is the least number that should be added to the product 7  $\times$  8  $\times$  9  $\times$  10 to make it a perfect square?
  - 1. 144 2. 1 3. 289 4. 3
- 65. Working 9 hours a day, Manish can read a book in 16 days. How many hours a day should he work so as to finish the same work in 24 days?

1.5 3. 8 4. 6 2. 7

66. Two trains are running in opposite direction with the same speed. If the length of each train is 80 metres and they cross each other in 16 seconds, then what is the speed (in km/hr) of each train?

1. 12 **2.** 18 3. 24 4. 30 The pie chart shows the results of an online survey which asked people about their favorite game. Study the diagram and answer the following question 67-70.



- 67. Which game is the favourite of most people surveyed? **2.** Football **3.** Hockey 1. Basketball 4. Baseball
- **68.** What is the total number of people who have responded to the survey?

1. 2100 **2.** 2200 4. 2500 3. 2400

- 69. The measure of the central angle of the sector representing Baseball is \_ degrees
  - 1.30 2. 60 **3.** 75 4, 45

- 70. Respondents who say their favourite game is Cricket and those who say their favourite game is Hockey constitute what percent of the total respondents?
- 1. 30% 3. 25% **2.** 33.33% **4.** 40% 71. The perimeter and the breadth of a rectangle are 52 cm and 12 cm respectively. Find its area (in cm<sup>2</sup>).
- 1.84 2. 336 **3.** 168 **4.** 252 72. Find the perimeter (in cm) of a semicircle of radius 7 cm. 3. 44 1.36 4.88
- **2.** 72 73. The curved surface area and the height of a right circular cylinder are 660 cm<sup>2</sup> and 10 cm respectively. Find its diameter (in cm). 1.14 2. 10.5 3. 21 4. 17.5
- 74. What is the value of  $(\tan 30^\circ + \sqrt{3}/2)$ ?

1. 
$$(4 + \sqrt{3})/2$$
 2.

4.  $(\sqrt{3}+1)/\sqrt{3}$ 3.  $(4+\sqrt{3})/2\sqrt{3}$ 

**75.** In  $\triangle$ XYZ measure of angle Y is 90°. If sec X = 17/8, and XY = 0.8 cm, then what is the length (in cm) of side XZ? 4. 2.5

5/2√3

1.1.7 2. 1.5 3. 2

## **General Awareness**

- 76. Economic growth is usually coupled with . 1. deflation 2. inflation
  - 4. hyper inflation 3. Stagflation
- 77. The apex body for formulating plans and coordinating research work in agriculture and allied fields is:
  - 1. Indian Council of Agricultural Research
  - 2. Regional Rural Banks
  - 3. State Trading Corporation
  - 4. National Bank of Agriculture and Rural Development (NABARD)
- 78. After the decline of the Palas, which dynasty established its rule in Bengal?
  - 1. Sena dynasty 2. Gaur dynasty
  - 3. Ilvas dvnastv 4. Ganesh dynasty
- 79. Which of the following were NOT related to the Congress Socialist Party?
  - 1. Acharya Narendradev 2. Ram Manohar Lohia
  - 3. Jai Prakash 4. Subhash Chandra Bose
- 80. Which of the following is called 'the safety valve of nature'? 2. Ozone gas 3. Volcano 4. Rivers 1. Earthquake
- 81. Which regional division the Himalayas is situated between the Kali and Tista rivers?
  - 1. Punjab Himalaya 2. Nepal Himalaya
  - **3.** Assam Himalaya 4. Kumaon Himalaya
- 82. The folk dance "Bohag Bihu" is popular in \_ 2. Bihar 4. Jharkhand 1. Assam 3. Odisha
- 83. With which country China has signed a free trade agreement on December 8, 2017.
  - 1. Pakistan 2. Nepal
  - 3. Afghanistan 4. Maldives
- 84. Who authored the book Titled 'The Story of a Brief Marriage', which won the DSC Prize 2017 for South Asian Literature? 1. Anuk Arudpragasam 2. Justin Mallik
  - 3. Premdass Nayyar 4. Aziz Sharif
- 85. The present Nepal Prime Minister K.P. Sharma Oli is belong to which political party?
  - 1. Rastriya Janata Party Nepal
  - 2. Communist Party of Nepal (Unified)
  - **3.** Nepali Congress
  - 4. Rastriya Prajatantra Party
- 86. What is the maximum number of electrons that can be present in a shell represented by shell number 'n'?
  - 1. 2n 2. 2n2 3. n **4.** n2
- 87. Which of the following is NOT an allotrope of carbon? 1. Diamond **2.** Graphite **3.** C-60 4. Methane

**88.** The definition of Money Bill is given in which article of the Indian Constitution?

1. Article 56 2. Article 110 3. Article 252 4. Article 256

- **89.** In India, which kind of emergency can be proclaimed on the grounds of war or external aggression or armed rebellion?
  - 1. National Emergency
  - 2. State Emergency
  - 3. Financial Emergency
  - 4. State and Financial Emergency both
- **90.** Buildup of which acid in our muscles during sudden activity causes cramps?

- **3.** Carbonic acid **4.** Oxalic acid
- **91.** Who presented that all the plants and animals are composed of cells and that the cell is the basic unit of life?
  - 1. M. Schleiden and T. Schwann
  - 2. Virchow
  - 3. J. E. Purkinje
  - 4. Leeuwanhoek
- **92.** In December 2017, the Prime Minister of India approved the setting up of National Nutrition Mission (NNM) with an outlay of \_\_\_\_\_\_.
  - **1.** Rs 8046.17 crore **2.** Rs 9046.17 crore
  - **3.** Rs 7046.17 crore **4.** Rs 10,000 crore
- **93.** In which country the world's largest automated container terminal opened in December 2017?
- China
   Russia
   India
   Singapore
   In January 2018, Indian Renewable Energy Development Agency (IREDA) raised \$ 300 million via \_\_\_\_\_\_ at

London Stock Exchange.

- **1.** Yellow Masala Bonds **2.** Green Masala Bonds
- **3.** Red Masala Bonds **4.** White Masala Bonds
- **95.** On 2<sup>nd</sup> January 2018, Parliament passed NABARD (Amendment) Bill, 2017 which provides that Union Government alone must hold atleast how much capital share of NABARD?
  - **1.** 48% **2.** 70% **3.** 51% **4.** 60%
- 96. A bullet of mass 10 g is fired with a velocity of 20 m/s from a gun of mass 2 kg. Find the recoil velocity (in m/s) of the gun.
  1. 1
  2. 0.2
  3. 0.1
  4. 2
- 97. The product of force and the time for which the force acts on a body is equal to the change in \_\_\_\_\_\_ of the body.
  1. acceleration 2. torque 3. momentum 4. velocity
- 99. Which of the statements given below are correct?A. Fan Zhendong won the Tennis 2017 Cincinnati Masters
  - A. Fan Zhendong won the Tennis 2017 Cincinnati Masters Men's Singles.
    - B. In 2018 IPL auctions, Mumbai Indians retained Sunil Narine.
    - C. Australia won the 2016–17 Women's FIH Hockey World
      - League Final.
  - Only B
     A, B and C
- Only C
   None of these
- 100. Computers and communication technologies affect our lives in ways that include: \_\_\_\_\_\_\_ in the way we learn and shape the course of our learning according to our own interests.
  1. Societal
  2. Technological
  - Societal
     Educational
- Personal

# Answer Key

1.	(2)	2.	(2)	3.	(4)	4.	(1)	5.	(2)	6.	(4)	7.	(4)	8.	(3)	9.	(3)	10.	(2)
11.	(3)	12.	(2)	13.	(3)	14.	(2)	15.	(4)	16.	(4)	17.	(4)	18.	(3)	19.	(3)	20.	(2)
21.	(4)	22.	(2)	23.	(1)	24.	(4)	25.	(2)	26.	(1)	27.	(3)	28.	(3)	29.	(4)	30.	(4)
31.	(2)	32.	(3)	33.	(4)	34.	(4)	35.	(2)	36.	(2)	37.	(4)	38.	(1)	39.	(1)	40.	(1)
41.	(2)	42.	(4)	43.	(1)	44.	(1)	45.	(4)	46.	(3)	47.	(1)	48.	(3)	49.	(2)	50.	(1)
51.	(2)	52.	(2)	53.	(2)	54.	(1)	55.	(4)	56.	(4)	57.	(3)	58.	(2)	59.	(2)	60.	(2)
61.	(4)	62.	(2)	63.	(2)	64.	(2)	65.	(4)	66.	(2)	67.	(2)	68.	(3)	69.	(4)	70.	(3)
71.	(3)	72.	(1)	73.	(3)	74.	(2)	75.	(1)	76.	(2)	77.	(1)	78.	(1)	79.	(4)	80.	(3)
81.	(2)	82.	(1)	83.	(4)	84.	(1)	85.	(2)	86.	(2)	87.	(4)	88.	(2)	89.	(1)	90.	(1)
91.	(1)	92.	(2)	93.	(1)	94.	(2)	95.	(3)	96.	(3)	97.	(3)	98.	(4)	99.	(4)	100.	(4)

# Answers with Explanations

## 1. Option (2) is correct.

There is an error in part 2. The verb should not be 'has'. It is supposed to be 'is' and so, 'is' is the right answer.

## 2. Option (2) is correct.

Partner of the Year' award at its "bold efforts to curb- here, instead of at, we have to use the preposition 'for'. The preposition 'for' here suggests the purpose and reason for having been awarded. The usage of 'at' is wrong here. 'For' shows 'why' it has been awarded.

## 3. Option (4) is correct.

All is not well is used to say that a situation is not satisfactory. It is an idiom. All the other three options are meaningless in this context.

## 4. Option (1) is correct.

The word someone refers to a person or an individual, but not necessarily a specific one. Here the pronoun someone is used to introduce the concept called youth.

#### 5. Option (2) is correct.

The meaning of the word 'banal' is commonplace. Original means something that has existed first. Distinctive means distinguishing and sharp means loud and piercing. So, common place is the right answer.

# 6. Option (4) is correct.

The meaning of the word determined is resolute and strongminded. The meaning of specific is exact. The meaning of devise is to plan or to invent. So, contrite means regretful.

## 7. Option (4) is correct.

Amen means agreeing with; approval means an endorsement. Blessing means god's favour and protection. Benison means a blessing. Execration is an act of cursing.

## 8. Option (3) is correct.

Drawn means tired and strained. Tense means nervous and stressed. Thin means slim. Drained means exhausted.

# 9. Option (3) is correct.

A sentence never ends with some and do not because they are determiners and helping verbs respectively; hence, we can eliminate PRQ and PQR. QRP is also incorrect because Q should be followed by a main verb and not by a noun. The correct sequence will be RQP.

#### 10. Option (2) is correct.

When we convert active into passive, the object of active must become the subject in passive. Based on the number of the subject, we must use the helping verb. Here the verb is in the past form and since the subject is in the singular form, we must use the helping verb 'was'. Then we need to use the past participle form of the verb. Connector 'by' must be added before the object. And the subject of active is made as the object of passive.

The lock was the object in active. In passive, it becomes the subject. Since 'the lock' is singular and the tense is in past form, we use the be verb 'was'. Then we use the past participle form of the verb 'open' which is 'opened'. Then we add connector 'by' and she becomes her in objective case.

#### 11. Option (3) is correct.

The exercise to be transformed is: Ram said, "I met her yesterday." Here the reporting verb 'said' is in the past form and the verb to be reported 'met' is in the past form. When both the verbs are in the past forms, the verb to be reported has to be converted as past participle. We are converting a statement into reported speech and hence, we use the connector 'that'. I refers to 'Ram' which has to be changed as 'he'. 'Yesterday' would be changed as 'the day before'.

So, the answer is 'Ram said that he had met her the day before'.

## 12. Option (2) is correct.

Possession means 'ownership' or 'control', All the other three options are wrongly spelled.

## 13. Option (3) is correct.

'In order to' is a phrase that is used to denote the purpose of doing something. Here the author is focusing on ending corruption. So, 'in' is the right option and all the other three options are meaningless in this context.

#### 14. Option (2) is correct.

The word 'natural' is an adjective. Nature and naturism are nouns and naturally is an adverb. With the noun society, we can use only an adjective.

#### 15. Option (4) is correct.

The word 'definition' in the sentence is a noun. We use only an adjective in front of a noun to modify or describe the noun. All the other three options are incorrect in this context.

#### 16. Option (4) is correct.

The correct answer is 'Then'. On reading the given sentence we find that: An adverb that means 'after that or next' should come here. Here we are speaking about something that is going to happen after something else. So, the correct adverb to be used is 'then'.

## 17. Option (4) is correct.

The word deeply is an adverb that modifies an adjective or a verb. In the given options, we have a verb 'satisfy' and an adjective 'satisfying'. The sentence does not talk about any action, but about the quality that money should have. So, the answer is 'satisfying'.

#### 18. Option (3) is correct.

Be out of order means - not working properly: not able to be used. So, the right answer is a device not working properly or at all.

## 19. Option (3) is correct.

A sight for sore eyes means someone or something seen with pleasure. So, the right option is a person or thing that one is extremely pleased or relieved to see.

# 20. Option (2) is correct.

The meaning of affable is pleasant, friendly, and sociable. Churlish means very rude. Cordial means friendly and affable. Genteel means very polite and refined.

# 21. Option (4) is correct.

Antithetic means something that is exactly the opposite of someone or something or of each other. Disparate means unequal and dissimilar. Conjecture means inference or speculation. Reminiscence means musing and recollection of something.

## 22. Option (2) is correct.

The sentence starts in past tense and the noun in the second part 'coaches' is in the plural form. Hence, it must be replaced as 'were' is the 'be verb' that we use to indicate plurals in the past form and the participle form of 'replace' is 'replaced'.

## 23. Option (1) is correct.

The whole sentence is constructed using the past form. All the verbs (kept, made, and had) in the sentences are in the past form except 'clean' which must be in the past form 'cleaned'.

# 24. Option (4) is correct.

The correct answer is ACB. The object to the verb 'pray' is needed in the first sentence. This is much revealed in A. When do I pray is answered by C and what for is answered by C.

#### 25. Option (2) is correct.

The meaning of flounder is a struggle. All the other options are wrongly spelled and hence meaningless.

## 26. Option (1) is correct.

As we know, an Army of soldier is a collective noun. Similarly, a Troupe of artist is also a collective noun.

### 27. Option (3) is correct.

Given that:	354 : 351
	354 - 351 = 3
Similarly, for	478:?
	478 - 475 = 3

-12

#### 28. Option (3) is correct.



29. Option (4) is correct.

Except for indoor chess, all others have the same pattern. 30. Option (4) is correct.

Except for 23 - 28, all others have the same pattern.

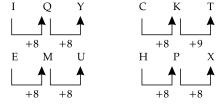
From option (1): 33 - 4040 - 33 = 731 - 38 From option (2): 38 - 31 = 7From option (3): 21 - 2828 - 21 = 723 - 28From option (4):

28 - 23 = 5, which is not equal to 7

-12

# 31. Option (2) is correct.

Except for CKT, all others have the same pattern.



# 32. Option (3) is correct.

The given words in the sequence in which they occur in the dictionary is as follows:

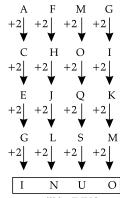
	5	4	3	1	2			
	Indirect	Induce	Indulge	Infect	Inferior			
33. Option (4) is correct.								

The pattern of the series is as follows:

23, 28, 34, 41, 49, 
$$58$$
  
 $+5$   $+6$   $+7$   $+8$   $+9$   
So, the next term will be 58.

# 34. Option (4) is correct.

The pattern of the series is as follows:



Therefore, the next term will be INUO.

## 35. Option (2) is correct.

According to the given question: Rahul > Richa but not shorter than Mita Mita = Mukesh Raj > Rahul After combining equations, we get Raju > Rahul > Mita = Mukesh > Richa and Raju > Rahul > Richa > Mita = Mukesh

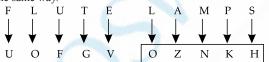
In both the cases Rahul is the second tallest person.

## 36. Option (2) is correct.

Except word Nevin, all other words can be formed. Benevolent does not contain letter I.

## 37. Option (4) is correct.

Given that FLUTE is written as UOFGV. Here, the alphabet is replaced by the alphabet which have the same positional value in reverse alphabetical series. Similarly, LAMPS is written in the same way.



Therefore, LAMPS is written as OZNKH.

## 38. Option (1) is correct.

Given expression:  $6 \times 20 \div 5 - 20 + 4$ After putting signs, the expression is as follows:  $6 - 20 + 5 \times 20 \div 4$  $6 - 20 + 5 \times 5$ 

- 6 20 + 25
- 31 20 = 11

**39.** Option (1) is correct.

Given expression: 
$$16 - 2 \div 40 + 4 \times 18 = 40$$

Upon checking option (1) and After interchanging signs, we get

$$16 \div 2 - 40 + 4 \times 18 = 40$$
  
8 - 40 + 72 = 40  
80 - 40 = 40  
40 = 40

1!9 = 20

9!5 = 28 $(+5) \times 2 = 14 \times 2 = 28$ 5!5 = 20

# 40. Option (1) is correct.

Given that 1!9 = 20, 9!5 = 28 and 5!5 = 20, and the pattern is as follows:

$$1!9 = 20$$

$$(1+9) \times 2 = 10 \times 2 = 20$$

$$9!5 = 28$$

$$(9+5) \times 2 = 14 \times 2 = 28$$
And,
$$5!5 = 20$$

$$5!5 = 20 (5+5) \times 2 = 10 \times 2 = 20$$

Similarly, for 
$$7!3 = ?$$

$$(7+3) \times 2 = 10 \times 2 = 20$$

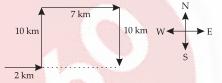
Hence, option (1) is correct answer.

41. Option (2) is correct.

The pattern of the given series is as follows: PQPQPRRQ, PQPQRRPQ, PQPRRQPQ, PQRRPQPQ, PRRQPQPQ, RRPQPQPQ

# 42. Option (4) is correct.

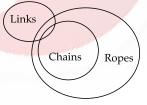
The direction diagram is as shown below:



From the above diagram, the position of the end with respect to that start is 2 km + 7 km = 9 km East.

#### 43. Option (1) is correct.

The venn diagram of the given condition is as follows:



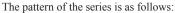
From conclusion I: some ropes are links is true. As, all chains are ropes and some links are chains.

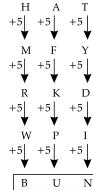
From conclusion II: all links are Ropes is false.

Therefore, only conclusion I follows the given condition.

44. Option (1) is correct.

Letter G represents Gymnasts who are both Athletes as well as Poets. 45. Option (4) is correct.





Therefore, the next term will be BUN.

# 46. Option (3) is correct.

The pattern of the series is as follows:

Therefore, the next term will be 524.

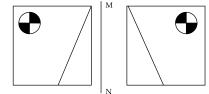
# 47. Option (1) is correct.

From option (1):	(49, 45, 39)
	(49, 49 - 45 = 4, 45 - 39 = 6)
From option (2):	(73, 68, 63)
	(73, 73 - 68 = 5, 68 - 63 = 5)
From option (3):	(94, 89, 84)
	(94, 94 - 89 = 5, 89 - 84 = 5)
And, from option (4):	(66, 61, 56)
	(66, 66 - 61 = 5, 61 - 56 = 5)

Therefore, (49, 45, 39) is different from the others.

# 48. Option (3) is correct.

The mirror image of the given figure is as follows:



## 49. Option (2) is correct.

In an open dice alternate pairs are opposite to each other. Hence, option (2) cannot be formed.

# 50. Option (1) is correct.

From option (1): 67, 96, 31, 65 = VOLT.

# 51. Option (2) is correct.

Let after *n* years both city popluation be equal,

$$\therefore \qquad 96000 - 800n = 68000 + 1200n$$

 $\Rightarrow$  96000 - 68000 = 1200*n* + 800*n* 

$$\Rightarrow$$
 28000 = 2000n

$$\rightarrow$$

$$n = \frac{28000}{2000} = 14$$
 years

## 52. Option (2) is correct.

Let cost of an exam pad and of a pencil be  $\overline{\mathbf{x}}x$  and  $\overline{\mathbf{x}}y$ . According to the question, 3x + 2y = 964x + 3y = 134

Subtract Eq. (i) from Eq. (2), 
$$x + y = 38$$

So, total cost of an exam pad and that of a pencil = x + y = ₹38

## 53. Option (2) is correct.

```
We have x^3 - y^3 = (x - y) (x^2 + y^2 + xy)

54 = 18 (x^2 + y^2 + 2)

\Rightarrow x^2 + y^2 + 2 = 3

\Rightarrow x^2 + y^2 = 1
```

## 54. Option (1) is correct.

Let number of penguins be *x* and number of polar bears be *y*. According to the question, x + y = 60 ...(i)

$$2x + 4y = 160 \implies x + 2y = 80 \qquad \dots (ii)$$

Subtract (i) from (ii)

$$x + 2y = 80$$
$$x + y = 60$$

$$y = 20$$
  

$$\Rightarrow x = 40$$
  
∴ Number of polar bears = 20.  
55. Option (4) is correct.  
In  $\triangle$  ABC and  $\triangle$  DEF  

$$\frac{AB}{ED} = \frac{2.5}{5} = \frac{1}{2} \text{ and } \frac{BC}{DF} = \frac{3}{6} = \frac{1}{2}$$
  

$$\therefore \frac{AB}{ED} = \frac{BC}{DF}$$
  
and  $\angle A = \angle D$   

$$\frac{AB}{ED} = \frac{AB}{DF} = \frac{BC}{DF}$$

Since include angle  $\angle B$  is not given so can not say about similarity.

#### 56. Option (4) is correct.

*.*..

*.*..

...(i)

...(ii)

We know that largest chord = Diameter = 6 cm

$$r = OP = 3 \text{ cm}$$

Since, radius in perpendicular to tangent at contact point. In  $\Delta OPQ$ 

$$OQ^2 = OP^2 + PQ^2 = 9 + 16 = 225$$
  
 $OQ = \sqrt{25} = 5 \text{ cm}$ 

Let R's income be ₹100

Q's income = 
$$100\left(1 + \frac{50}{100}\right) = 150$$
  
P's income =  $150\left(1 + \frac{50}{100}\right) = 225$ 

More P's income than R's income

$$= 225 - 100 = 125$$
  
More % =  $\frac{125 \times 100}{100} = 125\%$ 

Let *x* be added to each numbers

$$\therefore$$
 7 + x. 17 + x. 22 + x. and 47 + x are in proportion

$$\therefore \frac{7+x}{17+x} = \frac{22x}{47x}$$
  

$$\Rightarrow (7+x) (47+x) = (17+x) (22+x)$$
  

$$\Rightarrow 329 + 54x + x^2 = 374 + 39x + x^2$$
  

$$\Rightarrow 54x - 39x = 374 - 329$$
  

$$\Rightarrow 15x = 45 \Rightarrow x = 3$$

59. Option (2) is correct.

Let x liter of 15% spirit strength and y liter of 25% spirit strength mixed.

$$\therefore x \times \frac{15}{100} + y \times \frac{25}{100} = (x+y)\frac{21}{100}$$
$$\Rightarrow 15x + 25y = (x+y) 21$$
$$\Rightarrow 15\frac{x}{y} + 25 = \left(\frac{x}{y} + 1\right)21$$
$$\Rightarrow 21\frac{x}{y} - 15\frac{x}{y} = 25 - 21$$
$$\Rightarrow 6\frac{x}{y} = 4 \Rightarrow x : y = 2 : 3$$
$$\therefore \text{ Ratio } x : y = 2 : 3$$

# 60. Option (2) is correct.

Let the second number be x

Third number = x + 24

First number = 
$$\frac{3}{4}(x+24)$$

Average of these numbers = 58

$$\therefore \qquad x + x + 24 + \frac{3}{4} (x + 24) = 3 \times 58$$

$$\Rightarrow \qquad 2x + 24 + \frac{3}{4} (x + 24) = 174$$

$$\Rightarrow \qquad 8x + 96 + 3x + 72 = 4 \times 174$$

$$\Rightarrow \qquad 11x + 168 = 696$$

$$\Rightarrow \qquad 11x = 696 - 168 = 528$$

$$\Rightarrow \qquad x = \frac{528}{11} = 48$$

First number 
$$=\frac{3}{4}(48+24)=54$$

Second number = 48

Difference between first and second number

= 54 - 48 = 6

 $\frac{81}{25}$ 

9 5

# 61. Option (4) is correct.

Given that P = 2500, A = 8100, T = 2 years

$$\therefore A = P\left(1 + \frac{r}{100}\right)^n$$

$$8100 = 2500 \left(1 + \frac{r}{100}\right)^2$$

$$\Rightarrow \frac{8100}{2500} = \left(1 + \frac{r}{100}\right)^2 \Rightarrow 1 + \frac{r}{100} = \sqrt{100}$$

$$\Rightarrow \frac{r}{100} = \frac{9}{5} - 1 = \frac{4}{5}$$

$$\Rightarrow r = \frac{4}{5} \times 100 = 80\%$$
After 4 years A =  $2500 \left(1 + \frac{80}{100}\right)^4$ 

$$A = 2500 \times \frac{9}{5} \times \frac{9}{5} \times \frac{9}{5} \times \frac{9}{5}$$

$$= 4 \times 9 \times 9 \times 9 = 4 \times 2224$$

62. Option (2) is correct.

We have

$$C.P = \frac{S.P \times 100}{100 + gain\%}$$

For first helmets

$$C.P = \frac{1232 \times 100}{100 + 12} = \frac{1232 \times 100}{112} = 1100$$

For second helmets

$$C.P = \frac{S.P \times 100}{100 - Loss\%}$$
$$= \frac{1232 \times 100}{100 - 12} = \frac{1232 \times 100}{88} = 1400$$

Total C.P = 1100 + 1400 = 2500*:*.. Total S.P =  $2 \times 1232 = 2464$ Net loss = 2500 - 2464 = 36

63. Option (2) is correct.

Let cost price be ₹100

Marked price = 
$$100\left(1 + \frac{50}{100}\right) = 150$$

When sell at no profit or no loss

S.P = C.P = 100  
Discount = 150 - 100 = 50  
Discount % = 
$$\frac{50 \times 100}{150}$$
 = 33.33

# 64. Option (2) is correct.

÷

 $\therefore 7 \times 8 \times 9 \times 10 = 5040$ 

On dividing 5040 by 7, we get a remainder of 1.

So, 1 should be added to make perfect square.

# 65. Option (4) is correct.

Since, Manish can read 9 hours a day and finish reading a book in 16 days.

Let Manish can read x hours a day and finish reading a book in 24 days

$$9 \times 16 = x \times 24$$
$$x = \frac{9 \times 16}{24} = 6 \text{ hours.}$$

66. Option (2) is correct.

*:*..

*.*..

Let speed of both trains be x m/s

Relative speed = 2x m/s

Total distance = 80 + 80 = 160 m

Time = 
$$16 \text{ s}$$

Speed = 
$$\frac{\text{distance}}{\text{time}}$$
$$2x = \frac{160}{16} = 10$$
$$x = 5 \text{ m/s} = \frac{5 \times 60 \times 60}{1000} = 18 \text{ km/h}$$

67. Option (2) is correct.

Since more people like football (600), so it is the favourite game.

68. Option (3) is correct.

Total number of people who have responded to the survey = 300 + 400 + 200 + 300 + 600 + 100 + 500 = 2400

#### 69. Option (4) is correct.

Central angle of the sector representing

$$Baseball = \frac{300}{2400} \times 360 = 45^{\circ}$$

70. Option (3) is correct.

Total number of people like Cricket and Hockey

$$= 100 + 500 = 600$$
  
Percentage  $= \frac{600}{100} \times 100 = 25\%$ 

Percentage = 
$$\frac{000}{2400} \times 100 =$$

# 71. Option (3) is correct.

Given than perimeter = 52 cm and 
$$b = 12$$
 cm  
Parimeter =  $2(l + b)$ 

$$\therefore \qquad \text{Perimeter} = 2(l+b)$$

$$52 = 2(l+12)$$

$$\Rightarrow \qquad 26 = l+12$$

$$\Rightarrow \qquad l = 26 - 12 = 14 \text{ cm}$$

$$\therefore$$
 Area of rectangle =  $l \times b = 12 \times 14 = 168 \text{ cm}^2$ 

72. Option (1) is correct.

Perimeter of a semicircle  $= \pi r + 2r = \frac{22}{7} \times 7 + 2(7)$ 

$$= 22 + 14 = 36$$
 cm

## 73. Option (3) is correct.

Given that C.S.A = 660 cm<sup>2</sup> and h = 10 cm  $\therefore$  C.S.A of cylinder =  $2\pi rh$ 

$$660 = 2 \times \frac{22}{7} \times r \times 10$$
$$r = \frac{660 \times 7}{10} = \frac{21}{10} \text{ cm}$$

$$2 \times 22 \times 10$$
 22

$$\therefore \qquad \text{Diameter} = \frac{21}{2} \times 2 = 21 \text{ cm}$$

## 74. Option (2) is correct.

⇒

$$\tan 30^\circ + \frac{\sqrt{3}}{2} = \frac{1}{\sqrt{3}} + \frac{\sqrt{3}}{2}$$
$$2 + 3$$

$$=\frac{1}{2\sqrt{3}}=\frac{1}{2\sqrt{3}}$$

sec X = 
$$\frac{17}{8} = \frac{XZ}{XY}$$
  
 $\Rightarrow \frac{17}{8} = \frac{XZ}{0.8}$   
 $\Rightarrow XZ = \frac{17 \times 0.8}{8} = 1.7 \text{ cm}$ 

#### 76. Option (2) is correct.

Inflation is defined as an increase in the prices of everyday goods and services, such as food, clothing and housing. A certain level of inflation is required in the economy to ensure that spending is encouraged and savings are discouraged. As spending increases, so does demand, which leads to inflation. As a result, economic growth is frequently accompanied by inflation.

## 77. Option (1) is correct.

The Indian Council of Agricultural Research is in charge of developing plans and carrying out research in agriculture and related fields. It reports to the Ministry of Agriculture's Department of Agricultural Research and Education. Its president is the Union Minister of Agriculture. It is the world's largest network of agricultural research and education institutes.

# 78. Option (1) is correct.

In Bengal, Gopala established the Pala dynasty. He was elected by a group of regional chieftains because he had no royal ancestors. Dharmapala, Gopala's son, was the true founder of the Pala Dynasty because he greatly expanded the empire's borders. He was a firm believer in Buddhism. Dharmapala established the great centre of Buddhist learning, Vikramashila Monastery. After Mahipala's death, the Pala dynasty declined. Ramapala was the final powerful Pala ruler. During the reign of his son Kumarapala, the kingdom was divided. Following that, the Sena dynasty succeeded the Palas.

# 79. Option (4) is correct.

In 1934, the Congress Socialist Party was formed as a leftwing group within the Congress, with Acharya Narendra Deva as President and Jay Prakash Narayan as General Secretary. Yusuf Meherally, Rambriksh Benipuri, Ram Manohar Lohia, and Basawon Singh were among its other leaders. Subhas Chandra Bose led the Indian National Congress until 1939 when he left to found the Forward Bloc.

#### 80. Option (3) is correct.

Volcanoes are known as nature's safety valves. A safety valve is an opening that allows built-up pressure inside equipment to be released, which can cause the equipment to malfunction. As you get closer to the Earth's core, the pressures and temperatures increase dramatically. This pressure is sometimes relieved by volcanic eruptions, which release large amounts of magma, heat, and gases that have accumulated within the Earth, and is thus referred to as the planet's "safety valve."

# 81. Option (2) is correct.

The great Himalayas have been divided into four sections based on regions from west to east and Rivers flowing: The Punjab Himalayas are located between the Indus and Sutlej Rivers. They are also referred to as the Kashmir Himalaya and the Himachal Himalaya. The Kumaon Himalayas are located between the Sutlej and Kali Rivers. The Himalayas of Nepal is located between the Kali and Tista Rivers. The Assam Himalayas is situated between the Tista and Dihang Rivers.

# 82. Option (1) is correct.

Bihu dance is an indigenous folk dance of Assam, India. Young men and women typically perform this dance. The dancing style is distinguished by quick steps and hand movements. The traditional costumes of the dancers in this folk dance are colourful and centred on the red colour theme. This folk dance's origin is unknown. The first depiction of the Bihu dance can be found in 9th-century sculptures. This dance is mostly found in the Assam districts of Tezpur and Darrang. It is mentioned in 14th-century inscriptions, Chutia, and Laxminarayan as well. The name of this folk dance comes from the Bohag Bihu festival. Assam celebrates the Bohag Bihu festival as the New Year.

# 83. Option (4) is correct.

Maldives' first meeting with any country took place on December 8, 2017, during Maldivian President Abdulla Yameen's four-day visit to Beijing. After Pakistan, the Maldives has become the second South Asian country to sign a Free Trade Agreement with China.

#### 84. Option (1) is correct.

The DSC Prize for South Asian Literature was awarded to Anuk Arudpragasam's story about a young man displaced by civil war in Sri Lanka. The Story of a Brief Marriage is Arudpragasam's debut novel, which was published in English in 2016. Apart from English, the author also writes in Tamil.

## 85. Option (2) is correct.

The 38th Prime Minister of Nepal is from the Communist Party of Nepal, and he is one of the party's two chairmen. He took office on February 18, 2018, under Nepal's new constitution. He was born on February 22, 1952, in Nepal, and is a former Prime Minister of Nepal. He was prime minister for three terms, from 11<sup>th</sup> October 2015 to 3 August 2016, from 15 February 2018 to 13 May 2021 as the first prime minister appointed after the first general election under the new constitution, and from 13 May 2021 to 13 July 2021.

## 86. Option (2) is correct.

Each shell can only hold a certain number of electrons: the first shell can only hold two electrons, the second shell can only hold eight (2 + 6) electrons, the third shell can only hold 18 (2 + 6 + 10) electrons, and so on. According to the general formula, the nth shell can theoretically hold up to  $2(n_2)$  electrons.

## 87. Option (4) is correct.

Methane is a hydrocarbon compound with the formula  $CH_4$  rather than an allotrope of carbon. Because an allotrope cannot be a compound, methane is the correct answer. Allotropes are different physical forms in which an element can exist, according to the definition. Carbon allotropes include graphite, charcoal, C-60, and diamond.

## 88. Option (2) is correct.

Article 110 of the Constitution defines a money bill as "a proposed law containing primarily provisions dealing with all or any of the topics specified therein." There are only a few requirements for a bill to be classified as a money bill.

For example, see the Salary, Allowances, and Pension of Members of Parliament (Amendment) Bill 2020, the Appropriation Bill 2021, the Aadhaar and other laws (Amendment) Bill 2019, and the High Court and Supreme Court Judges (Salaries and Conditions of Service) Amendment Bill 2017.

# 89. Option (1) is correct.

A national emergency, as defined in Article 352, can be declared in India or a portion of its territory in response to external aggression or armed rebellion.

Type of Emergency	Related Article
National Emergency	Article 352
Financial Emergency	Article 360
President's Rule	Article 356 and 365

#### 90. Option (1) is correct.

When there is a sudden increase in muscle activity, the muscles cannot get enough oxygen. Anaerobic respiration occurs to meet the need for energy, producing lactic acid as a byproduct. Lactic acid causes muscle pain and stiffness.

## 91. Option (1) is correct.

The Cell Theory, proposed by Matthias Jakob Schleiden and Theodor Schwann in 1839, states that all organisms are made up of one or more cells, that cells are the fundamental unit of structure and function in all living organisms, and that all cells originate from pre-existing cells. Cells are called the 'Building Blocks of Life' or the 'Basic units of Life'.

## 92. Option (2) is correct.

The National Nutrition Mission was established with a budget of Rs 9046.17 Crore for a three-year period, with the primary goal of increasing nutritional education in the country and raising awareness about it.

# 93. Option (1) is correct.

The terminal was inaugurated at Shanghai Yangshan Deep Water Port. The project makes use of Chinese-designed and manufactured automated handling equipment. Shanghai Zhenhua Heavy Industries Company manufactures the loading and unloading

# 94. Option (2) is correct.

The five-year green Masala bond raised approximately \$300 million (INR 19.5 billion) and is the first green Masala bond to be listed on the London Stock Exchange's International Securities Market (ISM). Climate Bonds Initiative, an international, investor-focused not-for-profit that assists in the development of robust and transparent assurance frameworks for green bond investment, has certified the green bond.

## 95. Option (3) is correct.

The National Bank for Agriculture and Rural Development (Amendment) Bill, 2017, has been passed by Parliament. The Bill proposes to amend the National Bank for Agriculture and Rural Development Act of 1981. The Act creates NABARD to provide and regulate services such as credit for agricultural and industrial development in rural areas. The Bill authorises the Union Government to increase NABARD's capital from Rs. 5000 crores to Rs. 30,000 crores. Furthermore, if necessary, it allows the Union Government to increase the capital by more than Rs 30,000 crore in consultation with the Reserve Bank of India (RBI). According to the Bill, the Union Government must own at least 51% of NABARD.

## 96. Option (3) is correct.

The ejected body's mass and the recoiling body's mass are related by the law of conservation of momentum, which is derived from Newton's laws of motion. Every action has an equal and opposite reaction, according to the law of conservation of momentum. This law is illustrated by recoiling velocity. It is possible to conclude from the law that  $m_1 v_1 = -m_2 v_2$ 

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$$v_1 v_1 = -m_2 v_1$$

=

=

$$m_1$$
 and  $v_1$  are the mass and velocity of the burlet  
 $m_2$  and  $v_2$  are the mass and velocity of the gun  
Here  $m_1 = 10g = 0.01$  kg,  $v_1 = 20$  m/s and  $m_2 = 2$  kg

$$\Rightarrow m_1 v_1 - m_2 v_2$$
  
$$\Rightarrow 0.01 \times 20 = -2 \times v_2$$
  
$$\Rightarrow v_2 = \frac{0.2}{2} = 0.1 \text{ m/s}$$

## 97. Option (3) is correct.

The statement is based on Newton's Second Law of Motion, which states that the rate of change of momentum of an object is directly proportional to the resultant force applied and is directed in the same direction. The resultant force is equal to the rate of momentum change.

#### 98. Option (4) is correct.

The majority of earthquakes occur near the oceanic and continental plates' boundaries. The earth's crust (the planet's outer layer) is composed of several plates. The plates beneath the oceans are known as oceanic plates, while the rest are known as continental plates. Earthquakes are usually caused by two plates colliding or sliding past each other.

## 99. Option (4) is correct.

None of these assertions is correct. Fan Zhendong finished second at the 2017 World Table Tennis Championship. Sunil Narine was released and went on to play for the Kolkata Knight Riders. The Netherlands won the Women's FIH Hockey World League Final in 2016-17.

#### 100. Option (4) is correct.

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