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NTA CUET (UG)

Common University Entrance Test for
Undergraduate Programmes 2024

15 Mock Tests

General Tests
(Section III)

- With Latest Solved Papers 2023 & 2022
- Exactly Based on Latest NTA CUET (UG) Exam Pattern & Syllabus

Free 3 Online Mock Tests
See instructions inside

NTA

CUET (UG)

Common University Entrance Test for
Undergraduate Programmes 2024

15 Mock Tests

General Tests
(Section III)

Author
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Note : *Free Mock Tests will available only after 1st Nov, 2023*

Before preparing for Common Universities Entrance Test (CUET), a strong road map must be prepared, which includes what subject to cover, when, how many hours you should allocate for each subject, etc.

Most of you may not have clarity on your goals while in school, while a few plan it early!

If you have set your goal to get admission to one of the top central universities, you must start preparing early!

1 *Understand the Exam Pattern*

Though the number of questions is the same, the paper pattern differs for each college. Therefore, knowing the paper pattern for the particular college plays a vital role in qualifying for the entrance exam.

As per the CUET Exam Pattern, the entrance exam will include four sections:

- Section 1 A:13 Languages
- Section 1 B:20 Languages
- Section 2: Domain-specific test
- Section 3:General test

Knowing the specific exam pattern for the college you have applied to is also important. Visit the official website of the CUET to know the exam pattern for the respective colleges you have applied to. Only then start with your preparations.

2 *Know your Syllabus*

Once you understand your exam pattern, the second step is to list down the syllabus, so you know what to study. Visit the official website of CUET; it has the respective syllabus for the course and the college.

Note that the syllabus may differ for every college. Therefore, it is important to carefully review and double-check your syllabus before you start your preparations.

3 *Schedule a TimeTable*

Scheduling is something that will give fantastic results if you plan it properly. However, preparing a study plan is one of the most challenging tasks for most.

- Your everyday schedule should have time for CUET exam preparation.
- Initially, you can give 1-2 hours for the entrance exam and the rest for the board exams.
- Once the board exams get over, you can utilize the maximum of your time for the NTA CUET exam prep.

4 *Make a List of Colleges You wish to Target*

- Before starting your preparation, you must make a CUET Colleges and course list.
- Then, understand the previous year's cut-off and position of the counselling for the particular college.
- Doing this will help you understand the marks you must score in the CUET exam to get admission to a particular course in your desired college, thus helping you enhance your preparation levels for the upcoming exam.

5

Newspaper Should Be Your New Friend

- Reading the newspaper will help improve your vocabulary, grammar, and reading comprehension skills.
- To improve your English language, you can refer to the Hindu or the Time of India newspapers.
- You can prefer to read the Dainik Bharat newspaper to improve your Hindi language.
- You must spend at least 30 minutes analyzing and reading the newspaper's editorial page.

6

Practice Mock Tests

- Working on the concepts and writing mock tests based on the exam pattern is essential, as it will help you understand your strengths and weak areas, which can be improved.
- Take up at least one CUET Mock Test every week and try to analyze your performance after completing the mock test.
- Also, try to attempt as many MCQs as possible from your board exam topics. Gradually increase the number of mocks you take.

7

Revision

You should not pick a fresh topic to study at the last minute of preparations. The last days are meant for only revision, so you can revise and remember the topics you have already learned.

Revision is extremely important to have a good score. Studying without revision is "working hard, but without a plan"!

Preparation Tips for the CUET Domain-Specific Test?

The domain specific-test of the CUET entrance exam will have 27 subjects, out of which you have to choose six domains that you wish to pursue in your UG course.

The standard of questions in this section is of class 12 level. Therefore, knowing the fundamental concepts of your chosen subject will help you score well in this section.

Also, you must choose the subjects you feel are very interesting and enjoy studying in the morning. Try to attempt easy, moderate, and challenging level MCQ questions from the NCERT textbooks.

Preparation Tips for NTA CUET 2024 along with Board Exams?

You can succeed in both CUET and board exams if you are good at time management. Also, you can score better if you are consistent throughout your preparation.

A proper study plan and preparation strategies will help you Manage boards and CUET preparation together.

When preparing the timetable, focus on keeping separate time for board preparation, CUET domain-specific preparation, and lastly, allot separate time to solve the aptitude section.

Board exams must be your priority, and you should work on enhancing your domain subject knowledge during your board exam preparation. And do this till the board exams are over.

After completing your board exams, you will have roughly 30-40 days to prepare for the Common Universities Entrance Test. So, utilize this entire month to enhance your preparation levels for CUET.

CUET Preparation Tips 2024: Best Books

Opting for the right book is very important to understand the concepts in-depth and score good marks in the upcoming exam.

The following are some of the best CUET Preparation Books you can include during your preparation.

- Arihant's English Grammar & Composition by S.C. Gupta
- Arihant's Test of Arithmetic & General Knowledge by Manohar Pandey
- Arihant's CUET (UG) Self Study Guides

Is It Useful To Solve Mock Tests for CUET Exam 2024?

According to the CUET preparation tips 2024, attempting mock tests is one of the best methods to improve your speed and accuracy in the final exam.

- With the help of mock tests, you can know the difficulty level of the paper and the type of questions asked in the exam.
- You can test your preparation levels for the upcoming exam.
- Most importantly, it can help improve your confidence levels.

Conclusion

"Kya CUET bohot tough hai?", nahi bilkul bhi nahi. If you know and follow the right preparation strategy, there is nothing called as tough. In fact, CUET is in a nurturing phase, so it's not a very tough exam to crack. If you are willing and determined, you can easily crack the CUET 2024 exam. These CUET Preparation Tips are specially curated for CUET 2024 aspirants to help you use the right strategies for the exam.

SOLVED PAPER 2023*

NTA CUET (UG)
General Test

Instructions
- Attempt any 50 out of the given 60 questions. No mark will be given to unanswered for review questions.
- Each question carries 5 marks. Negative marking of 1 mark for a wrong answer.

Time : 60 Min
MM : 250

1. If SHIFT is coded as RFFBO, which word would be coded as LKUMB?
(a) MMXQG (b) MLVNC
(c) KJVLA (d) MJVLC

2. If $5\times3\times9=395$; $9\times7\times5=759$, then $7\times6\times4=?$
(a) 676 (b) 476
(c) 647 (d) 764

3. In the following question, find the missing number.

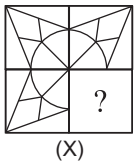
5	6	7
3	4	6
9	10	11
345	456	?

(a) 585 (b) 577
(c) 755 (d) 775

4. The total age of a mother and her daughter is 60 yr. The difference between their age is 30 yr. Find out the age of mother.
(a) 40 yr (b) 50 yr (c) 45 yr (d) 55 yr

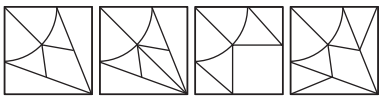
5. Which answer figure will complete the pattern of question figure?

Question Figure



(X)

Answer Figures

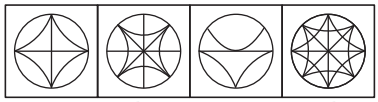

(a) (b) (c) (d)

6. Select the answer figure in which the question figure is hidden/embedded.

Question Figure

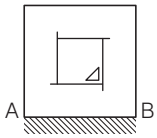
(X)

Answer Figures


(a) (b) (c) (d)

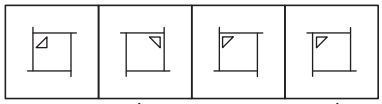
7. Which of the answer figure is exactly the mirror image of the given question figure, when the mirror is held on the line AB?

Question Figure

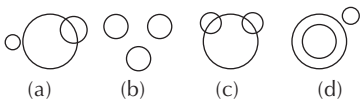


(X)

Answer Figures


(a) (b) (c) (d)

8. Which one of the following diagrams best describes the relationship among truck, goods and ship?

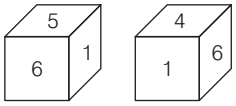

(a) (b) (c) (d)

*Based on Memory

9. There are five girls R, S, T, P and Q sitting in a row facing North. T is sitting exactly in the middle of the row. Q is sitting to the immediate right and immediate left of P and T respectively. S is not sitting at the exterme end. Who is sitting third to the left of R?
(a) P
(b) Q
(c) S
(d) T

10. Two statements are given followed by two Conclusions, I and II. You have to consider the statement to be true, even if it seems to be at variance from commonly known facts. You are to decide which of the given conclusions can definitely be drawn from the given statement. indicate your answer.
Statements All numbers are digits. All alphabets are numbers. All words are alphabets.
Conclusions
I. All words are digits.
II. Some numbers are not words.
(a) Only Conclusion II follows
(b) Both Conclusions I and II follow
(c) Neither Conclusion I nor II follows
(d) Only Conclusion I follows

11. Two different positions of the same dice are shown. Select the number that will be on the face opposite to the one having '2', if the number on the face opposite to '3' is odd.

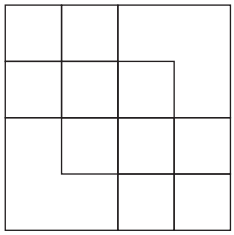


(a) 5 (b) 1
(c) 6 (d) 3

12. Select the combination of letters that when sequentially placed in the blanks of the given letter series will complete the series.
ab _ _ _ bca _ _ acb _ _ _ aac _ _
(a) aacbacabbc
(b) cbaabcabca
(c) aabcabccab
(d) cabaabcabc

13. 'Pythagoras' is related to 'Geometry' in the same way as 'Kepler' is related to '.....'.
(a) Optics
(b) Astronomy
(c) Electronics
(d) Geography

14. How many squares are present in the following figure?



(a) 16 (b) 17
(c) 18 (d) 15

15. Arrange the following words in a logical and meaningful order.
I. Heptagon II. Octagon
III. Nonagon IV. Hexagon
(a) IV, I, II, III (b) III, II, I, IV
(c) III, II, IV, I (d) IV, III, I, II

16. Which of the following order of numbers will make the below equation correct?
$36 \times 5 - 18 \div 6 + 2 = 78$
(a) $36 \times 2 - 18 \div 6 + 5$ (b) $5 \times 6 - 36 \div 18 + 2$
(c) $5 \times 2 - 18 \div 6 + 36$ (d) $18 \times 5 - 36 \div 2 + 6$

17. Select the number that can replace the question mark (?) in the following series.
1, 8, 9, 64, 25, 216, ?
(a) 256 (b) 128
(c) 343 (d) 49

18. B is the only son of A. C is the mother of D. A is the mother of C. The relation of B with D is
(a) Paternal uncle (b) Maternal uncle
(c) Brother (d) Father

19. Select the option in which the numbers share the same relationship as that shared by the given pair of numbers.
42 : 18
(a) 19 : 5 (b) 71 : 45
(c) 10 : 9 (d) 31 : 29

20. Select the option that is related to the third letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster.
CLOCK : CNSIS :: WATCH : ?
(a) WBWHO (b) WCXIP
(c) WBVFL (d) WCVEJ

21. If a certain sum at compound interest becomes double in 5 yr, then in how many years, it will be 8 times at the same rate of interest?
(a) 30 yr (b) 15 yr
(c) 20 yr (d) 10 yr

22. The LCM of two numbers is 20 times their HCF. The sum of HCF and LCM is 2520. If one of the numbers is 480, the other number is
(a) 400 (b) 480 (c) 520 (d) 600

23. If A earn 10% than B, then how many per cent less does B earn than A?
(a) $11\frac{1}{3}$ (b) $11\frac{1}{9}$ (c) 13 (d) $12\frac{1}{2}$

24. Find the value of n, if $\sqrt{3^n} = 729$
(a) 11 (b) 10
(c) 12 (d) 13

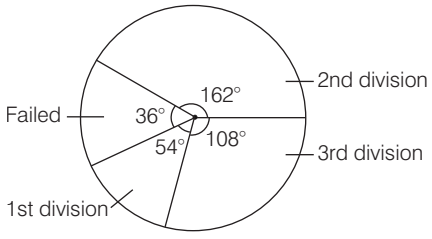
25. The average weight of 12 parcels is 1.8 kg. Addition of another new parcel reduces the average weight by 50 gm. What is the weight of the new parcel?
(a) 1.50 kg (b) 1.10 kg
(c) 1.15 kg (d) 1.0 kg

26. If the volume and surface area of a sphere are numerically the same, then its radius is
(a) 1 unit (b) 2 units
(c) 3 units (d) 4 units

27. The marked price of a watch is ₹ 1600. The shopkeeper gives successive discounts of 10% and x% to the customer. If the customer pays ₹ 1224 for the watch, the value of x is
(a) 5 (b) 10
(c) 15 (d) 20

28. Hundred apples were bought for ₹ 300. Out of these four were rotten and the rest were sold at ₹ 50 per dozen. Then, the net profit is
(a) ₹ 150 (b) ₹ 100
(c) ₹ 50 (d) ₹ 125

(Q Nos. 29-31) *The following pie-chart shows the performance in an examination in a particular year for 360° students. Study the pie-chart and answer the questions given below.*



29. The number of students who passed in 2nd division is more than those in Ist division by
(a) 111 (b) 112
(c) 109 (d) 108

30. The ratio of successful students to the failed students is
(a) 9 : 1 (b) 5 : 1
(c) 1 : 9 (d) 2 : 7

31. The cost of carpeting a room is ₹ 120. If the width had been 4 m less, the cost of the carpet would have been ₹ 20 less. The width of the room is
(a) 24 m (b) 20 m (c) 25 m (d) 18.5 m

32. A pipe can empty a tank in 40 min. A second pipe with diameter twice much as that of the first is also attached with the tank to empty it. The two together can empty the tank in
(a) 8 min (b) $13\frac{1}{3}$ min
(c) 30 min (d) 38 min

33. A reduction of 20% in the price of sugar enables a purchaser to obtain 3 kg more for ₹ 120. The original price (per kg) of sugar is
(a) ₹ 15 (b) ₹ 12
(c) ₹ 10 (d) ₹ 8

34. If $= \frac{1}{3}$ and $= \frac{1}{2}$, then x : : , is equal to
(a) 3 : 2 : 1 (b) 1 : 2 : 6
(c) 1 : 3 : 6 (d) 2 : 4 : 6

35. A train 100 m long completely passes a man walking in the same direction at 6 km/h in 5 s and a car travelling in the same direction in 6 s. At what speed was the car travelling?
(a) 15 km/h (b) 20 km/h
(c) 18 km/h (d) 16 km/h

36. What is the value of $\sin^2 45° + \cos^2 45°$?
(a) 2 (b) 1
(c) 0 (d) –1

37. If the sum of two numbers is 11 and the sum of their squares is 65, then the sum of their cubes will be
(a) 407 (b) 576
(c) 355 (d) 615

38. If $\tan\theta = \frac{20}{21}$, then the value of $\frac{\sin\theta - \cos\theta}{\sin\theta + \cos\theta}$ is
(a) $\frac{29}{35}$ (b) $\frac{-1}{41}$
(c) $\frac{27}{21}$ (d) $\frac{-29}{31}$

39. If $x^2 + \frac{1}{x^2} = 38$, then what is the value of $\left| x - \frac{1}{x} \right|$?
(a) 9 (b) 5
(c) 6 (d) 4

40. Kishore had a loss of 20% on selling an article for ₹ 7160. At what price should he have sold the item to make a profit of 30%?
(a) ₹ 11635 (b) ₹ 8988
(c) ₹ 12007 (d) ₹ 10678

41. What is Gini coefficient used for?
(a) To measure income equality
(b) To measure income inequality
(c) To measure distribution of income
(d) To measure profit and loss

42. Which of the following Articles of the Constitution of India is related to the Oath or affirmation by the President?
(a) Article-57 (b) Article-60
(c) Article-66 (d) Article-54

43. Rickets and night blindness are caused by the deficiency of ..... and ....., respectively.
(a) Vitamin-D, Vitamin-A
(b) Vitamin-D, Vitamin-C
(c) Vitamin-B_1, Vitamin-C
(d) Vitamin-E, Vitamin-A

44. After over 21 years stay in South Africa, Gandhiji returned to India in
(a) 1915 (b) 1916
(c) 1917 (d) 1919

45. Who among the following foreign travellers is not correctly matched with their respective country they hail from?
(a) Marco Polo - Italy
(b) Peter Mundy - China
(c) Ibn Battuta - Morocco
(d) Al-Biruni - Uzbekistan

46. With which of the following states is the 'Mand' or 'Maand' style of singing associated?
(a) Rajasthan (b) Gujarat
(c) Madhya Pradesh (d) Uttar Pradesh

47. Dogri language is mainly spoken in which of the following States/Union territories?
(a) Uttarakhand (b) Jammu and Kashmir
(c) Lakshadweep (d) Assam

48. Which of the following is the largest delta in the world?
(a) Ganges-Brahmaputra Delta
(b) Amazon Delta
(c) Indus River Delta
(d) Danube Delta

49. Which day is celebrated every year as 'World Environment Day'?
(a) April 5 (b) May 5
(c) June 5 (d) March 5

50. Who among the following was responsible for the partition of Bengal in 1905?
(a) Lord Mayo (b) Lord Canning
(c) Lord Ripon (d) Lord Curzon

51. Where is the Sariska Tiger Reserve located?
(a) Rajasthan (b) Haryana
(c) Gujarat (d) Karnataka

52. Which of the following mountain passes is situated in the state of Uttarakhand?
(a) Nathu La Pass
(b) Baralacha La Pass
(c) Bomdi La Pass
(d) Mangsha Dhura Pass

53. The nephron is the microscopic structural and functional unit of the
(a) kidney (b) heart
(c) lung (d) liver

54. Who was the last Viceroy of India who oversaw the creation of the independent states of India and Pakistan?
(a) Lord Canning
(b) Lord Mountbatten
(c) Lord Hastings
(d) Lord Irwin

55. National Highway-7 connects
(a) Fazilka to Mana
(b) Kashmir to Kanyakumari
(c) Varanasi to Kanyakumari
(d) Kanpur to Silchar

56. The Battle of Bedara was fought between the British Army and the Dutch Army in
(a) 1760 (b) 1759
(c) 1772 (d) 1764

57. Who among the following was the first female hockey player to have won the Rajiv Gandhi Khel Ratna Award?
(a) Gurjit Kaur (b) Reena Khokhar
(c) Rani Rampal (d) Lilima Minz

58. As per Article-80 of the Constitution of India, what can be the maximum strength of Rajya Sabha?
(a) 245 (b) 250
(c) 235 (d) 240

59. How many times did Mahmud of Ghazni invade India?
(a) 5 (b) 17
(c) 15 (d) 7

60. With which of the following is 'Operation Flood' related?
(a) India's poultry industry
(b) India's farming industry
(c) India's dairy industry
(d) India's mining industry

Right *Options*

1. (a)	**2.** (c)	**3.** (a)	**4.** (c)	**5.** (a)	**6.** (d)	**7.** (b)	**8.** (c)	**9.** (b)	**10.** (d)
11. (c)	**12.** (a)	**13.** (b)	**14.** (a)	**15.** (a)	**16.** (d)	**17.** (d)	**18.** (b)	**19.** (c)	**20.** (b)
21. (b)	**22.** (d)	**23.** (b)	**24.** (c)	**25.** (c)	**26.** (c)	**27.** (c)	**28.** (b)	**29.** (d)	**30.** (a)
31. (a)	**32.** (a)	**33.** (c)	**34.** (c)	**35.** (c)	**36.** (b)	**37.** (a)	**38.** (b)	**39.** (c)	**40.** (a)
41. (b)	**42.** (b)	**43.** (a)	**44.** (a)	**45.** (b)	**46.** (a)	**47.** (b)	**48.** (a)	**49.** (c)	**50.** (d)
51. (a)	**52.** (d)	**53.** (a)	**54.** (b)	**55.** (a)	**56.** (b)	**57.** (c)	**58.** (b)	**59.** (b)	**60.** (c)

HINTS *& SOLUTIONS*

1. *(a)* As, S H I F T → R F F B O (−1, −2, −3, −4, −5)

Similarly, M M X Q G → L K U M B (−1, −2, −3, −4, −5)

Note In the question coded from is given and original form is asked.

2. *(c)* As,

$5 \times 3 \times 9 \longrightarrow 3\ 9\ 5$

and

$9 \times 7 \times 5 \longrightarrow 7\ 5\ 9$

Similarly,

$7 \times 6 \times 4 \longrightarrow \boxed{6\ 4\ 7}$

3. *(a)* As, $(5^2 + 3^2 + 9^2) \times 3$

$= (25 + 9 + 81) \times 3 = 345$

and $(6^2 + 4^2 + 10^2) \times 3$

$= (36 + 16 + 100) \times 3 = 456$

Similarly, $(7^2 + 5^2 + 11^2) \times 3$

$= (49 + 25 + 121) \times 3 = \boxed{585}$

4. *(c)* Suppose, daughter's age be x yr.

Therefore, mother's age will be $(x + 30)$ yr.

According to the question,

$x + (x + 30) = 60$

$\Rightarrow \quad 2x + 30 = 60$

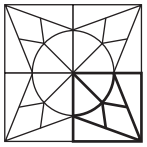
$\Rightarrow \quad 2x = 30$

$x = 15$ yr

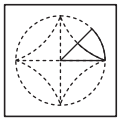
$\therefore$ Age of mother $= (x + 30)$

$\Rightarrow \quad 15 + 30 = 45$ yr

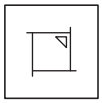
5. *(a)* Answer figure (a) will complete the pattern given question figure.



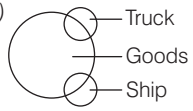
6. *(d)* Question figure is embedded in answer figure (d).



7. *(b)* Answer figure (b) will be the mirror image of figure (x).



8. *(c)*



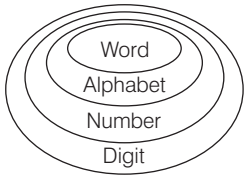
Trucks and Ship are entirely different. But some goods are carried by some trucks and some goods are carried by some ships.

9. *(b)* According to the question,

P Q T S R

It is clear from the above diagram that Q is sitting third to the left of R.

10. *(d)* Accoding to the statements venn diagram is



Conclusions I. (✓) II. (✗)

Hence, only Conclusion I follows.

11. *(c)* From position of first two dice, we get

1 6 5

1 6 4

4 will be opposite to 5, and 1 and 6, can not be opposite to each other.

Number opposite to 3 is odd i.e. 1.

Hence, number opposite to 2 will be 6.

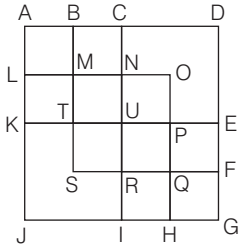
12. *(a)* From option (a),

a b a a c b c/ a b a a c b c/ a b a a c b c

$\Rightarrow$ a a c b a c a b b c

13. *(b)* As, 'Pythagoras' is related to 'Geometry'. Similarly, 'Kepler' is related to 'Astronomy'.

14. *(a)*



There are 16 squares in the given figure which are

$\Rightarrow$ ABML, BCNM, LMTK, MNUT, NOPU, TURS, UPQR, PEFQ, RQHI, QFGH, ACUK, MOQS, UEGI, ADGJ, KUIJ, and CDEU.

15. *(a)* The meaningful arrangement of words is as follows,

Hexagon $\rightarrow$ Heptagon $\rightarrow$ Octagon
IV I II
$\rightarrow$ Nonagon
III

$\Rightarrow$ IV, I, II, III is the correct arrangement.

16. *(d)* From option (d),

LHS $= 18 \times 5 - 36 \div 2 + 6$

By using BODMAS,

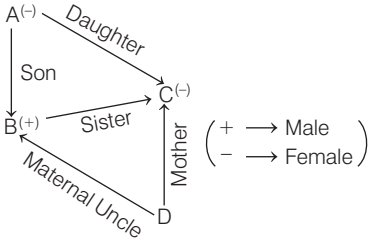
$= 18 \times 5 - 18 + 6$

$= 90 - 12 = 78$

17. *(d)* The pattern of the series is as,

1	8	9	64	25	216	49
1^2	2^3	3^2	4^3	5^2	6^3	7^2

18. *(b)* According to the question,



Hence, it is clear from the above diagram that, B is the maternal uncle of D.

19. *(c)* As, in 42 : 18

$\Rightarrow \quad 42 - 18 = 24$

(Number obtained by interchanging the digits of 42)

Similarly, in 10 : 9

$\Rightarrow \quad 10 - 9 = 1$

(Number obtained by interchanging the digits of 10)

20. *(b)* As,

C	L	O	C	K
↓+0	↓+2	↓+4	↓+6	↓+8
C	N	S	I	S

Similarly,

W	A	T	C	H
↓+0	↓+2	↓+4	↓+6	↓+8
W	C	X	I	P

21. *(b)* Here, $n_1 = 5$ yr

$x = 2y = 8$

$\Rightarrow \quad x^{\frac{1}{n_1}} = y^{\frac{1}{n_2}}$

$\Rightarrow \quad 2^{\frac{1}{5}} = 8^{\frac{1}{n_2}}$

$\Rightarrow \quad 2^{\frac{1}{5}} = 2^{\frac{3}{n_2}}$

$\Rightarrow \quad \frac{1}{5} = \frac{3}{n_2}; \; n_2 = 15$ yr

22. *(d)* Let the HCF be H.

$\therefore \quad$ LCM = 20 H

Then, H + 20 H = 2520

$\Rightarrow \quad 21\,H = 2520$

$\Rightarrow \quad H = \frac{2520}{21} = 120$

$\therefore$ LCM = 20H = $20 \times 120 = 2400$

As, First number $\times$ Second number = LCM $\times$ HCF

$\Rightarrow 480 \times$ Second number $= 2400 \times 120$

$\Rightarrow$ Second number $= \frac{2400 \times 120}{480} = 600$

23. *(b)* Required Percentage

$= \left(\frac{R}{100 - R} \times 100\right)\%$

$= \frac{10}{100 - 10} \times 100$

$= \frac{10}{90} \times 100 = 11\frac{1}{9}\%$

24. *(c)* $\sqrt{3^n} = 729 \Rightarrow \sqrt{3^n} = 3^6$

$\therefore \; 3^n = (3^6)^2 = 3^{12} \Rightarrow n = 12$

25. *(c)* $\because$ Total weight of 12 parcels

$= 12 \times 1.8 = 21.6$ kg

New average of 13 parcels

$= 1.8 - 0.05 = 1.75$ kg

$\therefore$ Total weight of 13 parcels

$= 1.75 \times 13$

$= 22.75$ kg

Hence, weight of new parcel

$= 22.75 - 21.6$

$= 1.15$ kg

26. *(c)* Let the radius of the sphere be r units.

According to the question,

$\frac{4}{3}\pi r^3 = 4\pi r^2$

$\Rightarrow \quad r = 3$ units

27. *(c)* Marked price = ₹ 1600

Equivalent discount

$= \left[10 + x - \frac{10 \times x}{100}\right]$

$= \left[10 + \frac{9x}{10}\right]\%$

and selling price = ₹ 1224

$\because$ Percentage discount

$= \left[\frac{1600 - 1224}{1600} \times 100\right]\%$

$\Rightarrow \left[10 + \frac{9x}{10}\right]\% = \left[\frac{376}{1600} \times 100\right]\%$

$\Rightarrow \quad \frac{9x}{100} = 23.5 - 10$

$\Rightarrow \quad x = \frac{13.5 \times 10}{9} = 15\ \%$

28. *(b)* Cost price of 96 apples (8 dozen) = ₹ 300 [$\because$ 4 apples were rotten]

Selling price of 96 apples (8 dozen

$= 8 \times 50 =$ ₹ 400

$\therefore$ Required gain = 400 − 300 = ₹ 100

29. *(d)* The number of students passed in 1st division

$= \frac{54°}{360°} \times 360 = 54$

The number of students passed in 2nd division.

$= \frac{162°}{360°} \times 360° = 162$

$\therefore$ Required difference $= 162 - 54 = 108$

30. *(a)* Required ratio $= \frac{54° + 108° + 162°}{36°}$

$= \frac{324}{36} = \frac{9}{1} = 9 : 1$

31. *(a)* Let the cost of carpeting per sq m be ₹ 1.

$\therefore$ Area of the room = 120 sq m

Let the breadth of the room be x m.

Length of room $= \frac{120}{x}$ m

New cost = 120 − 20 = ₹ 100

Breadth = $(x - 4)$ m

Then, $\frac{120}{x} \times (x - 4) = 100$

$\Rightarrow \quad \frac{6}{x}(x - 4) = 5$

$\Rightarrow \quad 6x - 24 = 5x$

$\Rightarrow \quad x = 24$

$\therefore$ Breadth of the room = 24 m

32. *(a)* $\because$ Area $= \pi r^2 + \pi\left(\frac{1}{2}\right)^2$

Hence, when diameter twice, than area of cross-section becomes 4 times.

$\therefore$ Second pipe empty the tank

$$= \frac{40}{4} = 10 \text{ min}$$

Thus, both the pipes will empty the tank in

$$= \frac{40 \times 10}{40 + 10} = \frac{400}{50} = 8 \text{ min}$$

33. *(c)* Let original rate = ₹ x per kg

New rate = 80% of x = ₹ $\left(\frac{80}{100}x\right)$ = ₹ $\frac{4x}{5}$

Original quantity for ₹ 120 = $\frac{120}{x}$

New quantity = $120 \times \frac{5}{4x} = \frac{150}{x}$

$\therefore \quad \frac{150}{x} - \frac{120}{x} = 3 \Rightarrow \frac{30}{x} = 3$

$\Rightarrow \quad x = \frac{30}{3} = 10$

$\therefore$ Original rate = ₹ 10 per kg

34. *(c)* $x = \frac{1}{3}y$ ...(i)

$y = 3x$ ...(ii)

$y = \frac{z}{2}$ ...(iii)

From (i), (ii) and (iii)

$x : y : z = 1 : 3 : 6$

35. *(c)* In case of man, $5 = \frac{100 \times 18}{(x-6) \times 5}$

$\Rightarrow x = 78$ km/h

In case of car, $6 = \frac{100 \times 18}{(78 - y)5}$

$y = (78 - 60) = 18$ km/h

36. *(b)* $\sin^2 45° + \cos^2 45°$

$$= \left(\frac{1}{\sqrt{2}}\right)^2 + \left(\frac{1}{\sqrt{2}}\right)^2$$

$$= \frac{1}{2} + \frac{1}{2} = 1$$

37. *(a)* Let the two numbers be x and y.

Then, $x + y = 11$ ...(i)

and $x^2 + y^2 = 65$ ...(ii)

Now, on squaring Eq. (i) both sides, we get

$$(x + y)^2 = 121$$

$\Rightarrow x^2 + y^2 + 2xy = 121$

$\Rightarrow \quad x^2 + y^2 = 121 - 2xy$

$\Rightarrow \quad x^2 + y^2 = 121 - 2 \times xy$

$\Rightarrow \quad 65 = 121 - 2xy$

$\Rightarrow \quad 2xy = 121 - 65$

$\Rightarrow \quad 2xy = 56$

$\Rightarrow \quad xy = 28$ ...(iii)

Now, we know that,

$x^3 + y^3 = (x + y)(x^2 + y^2 - xy)$

From Eqs. (ii) and (iii), we get

$\Rightarrow \quad x^3 + y^3 = 11 \times (65 - 28)$

$\Rightarrow \quad x^3 + y^3 = 11 \times 37$

$\therefore \quad x^3 + y^3 = 407$

38. *(b)* $\frac{\sin\theta - \cos\theta}{\sin\theta + \cos\theta}$

On dividing numerator and denominator by $\cos\theta$, we get

$$= \frac{\tan\theta - 1}{\tan\theta + 1} = \frac{\frac{20}{21} - 1}{\frac{20}{21} + 1} \quad \left(\because \tan\theta = \frac{20}{21}\right)$$

$$= \frac{\left(\frac{-1}{21}\right)}{\left(\frac{41}{21}\right)} = \frac{-1}{41}$$

39. *(c)* We know that,

$$(a - b)^2 = a^2 + b^2 - 2ab$$

$\therefore \quad \left(x - \frac{1}{x}\right)^2 = x^2 + \frac{1}{x^2} - 2$

$\Rightarrow \quad \left(x - \frac{1}{x}\right)^2 = 38 - 2$

$\Rightarrow \quad \left(x - \frac{1}{x}\right)^2 = 36$

$\Rightarrow \quad \left(x - \frac{1}{x}\right) = \sqrt{36}$

$\Rightarrow \quad x - \frac{1}{x} = \pm 6$

But $\left|x - \frac{1}{x}\right| = 6$ (only positive value)

40. *(a)* Selling price of an article (SP)

= ₹ 7160

Loss $(L)\%$ = 20%

Cost price (CP) of article

$$= \frac{100}{(100 - l)} \times \text{SP}$$

$$= \frac{100}{(100 - 20)} \times 7160$$

$$= ₹ \frac{100}{80} \times 7160$$

= ₹ 8950

Now, profit $(P)\%$ = 30%

New, selling price (SP)

$$= \frac{(100 + P)}{100} \times \text{CP}$$

$$= \frac{(100 + 30)}{100} \times 8950$$

$$= \frac{130}{100} \times 8950$$

= ₹ 11635

41. *(b)* Gini coefficient is used for measuring income inequality. It is named after Italian statistical and sociologist Corrado Gini who developed the coefficient. A value of 0 indicates perfect equality (where everybody has the same wealth/income) and 1 indicates perfect inequality (that is, where one person owns all the wealth in a country).

42. *(b)* According to Article-60 of the Indian Constitution, every President and every person acting as President or discharging the functions of the President shall, before entering upon his office, make and subscribe in the presence of Chief Justice of India or, in his absence, the senior-most Judge of the Supreme Court available, an oath or affirmation. He takes the oath to preserve, protect and defend the Constitution.

43. *(a)* Rickets and night blindness are caused by the deficiency of Vitamin-D and Vitamin-A, respectively.

Rickets is a softening and weakening of bones in children, usually due to inadequate Vitamin-D.

Night blindness is inability to see well at night or in poor light. It is usually caused due to inadequate Vitamin-A.

44. *(a)* Gandhiji went to South Africa in 1893 to represent an Indian merchant in a lawsuit. He lived there for 21 years and returned to India on January 09, 1915 at the age of 45. In order to commemorate his return to India, Pravasi Bharatiya Diwas (NRI Day) is celebrated every year on January 09.

45. *(b)* Peter Mundy was an Italian merchant, traveller and writer who visited India (1630-34 AD) during the reign of Shahjahan and Aurangzeb. He gave valuable information about the

living standard of the common people in the Mughal empire.

46. *(a)* 'Mand' or 'Maand' style of singing is associated with Rajasthan. It is Rajasthani folk song which is similar to thumri and the ghazal. Some well known Mand singers are - Allah Jilal Bai, Mangi Bai Arya, etc.

47. *(b)* Dogri language is mainly spoken in Union Territory of Jammu and Kashmir. It is an Indo-Aryan language spoken by about 5 million people in India. It was added in the 8th Schedule of the Constitution (92nd Constitutional Amendment) in 2003.

48. (a) Ganges-Brahmaputra Delta is the largest delta in the world. It is spread over in countries i.e. India and Bangladesh. It is one of the most fertile plains of the world. Ganges and Brahmaputra are Himalayan rivers along with their tributary they bring huge amount of sediment which gets deposited at the mouth of Bay of Bengal and leads to formations of world's biggest delta.

49. *(c)* The 'World Environment Day' is celebrated every year on June 5. the General Assembly adopted a resolution in 1972 designating June 5 as World Environment Day and urged "Governments and the organisations in the United Nations system to undertake on that day every year world-wide activities reaffirming their concern for the preservation and enhancement of the environment, with a view to deepening environmental awareness."

50. *(d)* Lord Curzon was responsible for partition of Bengal in 1905. It was done by then viceroy of India Lord Curzon (1899-1905) on July 19, 1905. This reorganisation separated the largely Muslim eastern areas from the largely Hindu western areas. It was annulled in 1911.

51. *(a)* Sariska Tiger Reserve is located in Rajasthan's Alwar district. It was given the status of Tiger Reserve under Project Tiger in 1978. It is also the first reserve in the world with successfully relocated tigers.

52. *(d)* Among the given passes, Mangsha Dhura Pass is situated in the state of Uttarakhand. It has an elevation of 5674 m. It lies in the border between India and Tibet.

Nathu La Pass is a mountain pass in East Sikkim district of Sikkim, which connects the Indian state of Sikkim with Tibet.

Baralacha La Pass is situated in Zanskar range in Himachal Pradesh.

Bomdi La Pass is situated in the state of Arunachal Pradesh.

53. *(a)* The nephron is the microscopic structural and functional unit of the kidney. It is composed of a renal corpuscle and a renal tubule. A healthy adult has 1 to 1.5 million nephrons in each kidney. It regulates water and soluble substances in the blood by filtering the blood, reabsorbing what is needed, and excreting the rest as urine.

54. *(b)* Lord Mountbatten was the last Viceroy of India who oversaw the creation of the independent states of India and Pakistan. He arrived in the country on February 20, 1947, tasked with avoiding a partition of the subcontinent, however, could not stop it. He brought forward the date of the partition from June 1948 to August 15, 1947. He played instrumental role in passage of Indian Independence Act, 1947.

55. *(a)* National Highway-7 (NH-7) connects Fazilka (Punjab) to Mana (Uttarakhand). It passes through states, such as, Punjab, Haryana, Himachal Pradesh and Uttarakhand. Its length is 845 km.

56. *(b)* The Battle of Bedara (Now, West Bengal) was fought between the British Army and the Dutch Army in 1759. Hence, option (b) is the correct answer.

After the Battle of Plassey, Mir Jafar, Titular Nawab of Bengal, invited the representatives of the Dutch East India Company to bring troops against the British. In this battle, British emerged victorious and they overthrew Mir Jafar and placed his son Mir Qasim as Bengal's Nawab.

57. *(c)* Rani Rampal is the first female hockey player to have won the Rajiv Gandhi Khel Ratna Award (now Major Dhyanchand Khel Ratna Award) in 2020. She has also received Padma Sri Award in 2020. She is currently the captain of Indian women hockey team and plays forward on her team. As of now she has played 2012 International hockey match and scored 134 goals.

58. *(b)* As per the Article-80 of the Constitution of India, the maximum strength of Rajya Sabha is 250. Rajya Sabha is the Upper House of the Indian Parliament. The members of this house are elected by the Member of Legislative Assemblies of the State and Union Territories and 12 members are nominated by the President. The tenure of member is of 6 years. Unlike Lok Sabha this House is not dissolved.

59. *(b)* Mahmud of Ghazni invaded India for 17 times during the period between 1000 and 1027 AD. The two main reasons that led to the conquest of India by Mahmud Ghazni was firstly, to accumulate the vast amount of wealth that existed in India, and secondly, to spread, Islam. He plundered one of the most revered temple of Hindu's i.e. Somnath temple in 1027. Most of the Muslim ruler invaded India to destroy the Hindu religion.

60. *(c)* The Operation Flood is related to India's dairy industry. Under Operation Flood, milk production was increased multifold by investing in basic infrastructure of dairy industry, promoting good fodder and care for the livestock. Verghese Kurien has played very significant role in launch and success of this Operation. Because of his contribution, he is known as the "Father of the White Revolution" in India.