**Reg. No. :**

## Question Paper Code: 95031

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2024

Electronics and communication Engineering

19UGS531 - Reasoning and Aptitude

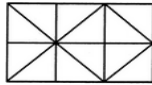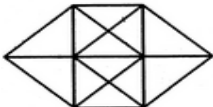Information technology

(Regulation 2019)

Duration: Three hours                                      Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1.  If a : b = 3 : 7, b : c = 2 : 5, the a : b : c is                                      CO1- U

    (a) 3 : 14 : 5          (b) 6 : 14 : 35          (c) 3 : 7 : 5          (d) 3 : 2 : 5

2.  If 9 : 8 : : x: 16 then the value of x is                                      CO1- U

    (a) 18          (b) 56          (c) 96          (d) 98

3.  If a/b = 3 / 2 then find (3a + b ) / (3a - b) =                                      CO1- U

    (a) 11/5          (b) 12/7          (c)  11/7          (d) 11/2

4.  Ratio between two numbers is 3:2 and their difference is 225, then the
    smaller number is:                                      CO1- U

    (a) 90          (b) 675          (c) 135          (d) 450

5.  2 is what percent of 50?                                      CO1- U

    (a) 25%%          (b)1%          (c) 4%          (d) 50%

6.  If 20% of a = b, then b% of 20 is the same as :                                      CO1- U

    (a) 4% of a          (b) 6% of a          (c) 8% of a          (d)10% of a

7.  Count the number of squares in the given figure                                      CO2- U

    

    (a) 6          (b) 7          (c) 9          (d) 10

8.  Find the number of triangles in the given figure                                      CO2- U

    

    (a) 20          (b) 24          (c) 32          (d) 28

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9.  Count the number of parallelograms in the given figure.                CO2- U
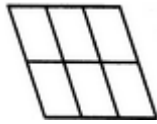


(a) 20                (b)18                (c)16                (d) 12

10. Find the minimum number of straight lines required to make the given                CO2- U
    figure.
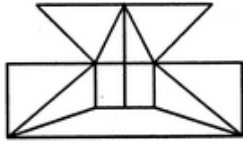


(a) 16                (b)17                (c)18                (d) 19

PART – B  ( 10 x 2 = 20 Marks)

11. Duplicate ratio of (a : b) is _____                CO1 R

12. If two numbers are in the ratio 6 : 13 and their least common multiple is 312, the sum of                CO1 U
    the numbers is _____.

13. The triplicate ratio of 3 : 11_____.                CO1 U

14. _____ is 20% of 120                CO1 U

15. 60% of 264 is the same as _____ % of 1056                CO1 U

16. 860% of 50 + 50% of 860 = _____                CO1 U

17. If CHAIR is written as '12345', RENT is written as '5678'and then REAR is written                CO2 U
    as_____

18. If NECK is written as '123%', LUCK is written as '+@3%' and LIKE is written as                CO2 U
    '+÷%2', then NICE is written as_____

19. What is the value of x? Using this given statements,                CO2 U

    Statement : A : $x^2 = 64$; B. $x^3 = 512$;

20. Among T, V, B, E and C, who is the third from the top when arranged in the descending                CO2 U
    order of their weights?

    Statements:

    I. B is heavier than T and C and is less heavier than V who is not the heaviest.

    II. C is heavier than only T.

PART – C (12 x 5 = 60)

(Answer any **twelve** of the following Questions)

21.   Find:                CO1- A    (5)

            (i) The fourth proportional to 6, 8, 15;
            (ii) The third proportional to 15 and 20;
            (iii) The mean proportional between 8 and 15.

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22. A bag contains 50 p, 25 P and 10 p coins in the ratio 5: 9: 4, amounting to Rs. 206. Find the number of coins of each type.    CO1- A   (5)

23. Sixty five percent of a number is 21 less than four fifth of that number. What is the number?    CO1- A   (5)

24. 405 sweets were distributed equally among children in such a way that the number of sweets received by each child is 20% of the total number of children. How many sweets did each child received?    CO1- A   (5)

25. In a class of 25 students in an examination in Mathematics 3 students scored 95 marks each, 3 get zero each and the average of the rest was 45. What is the average of the whole class?    CO1- A   (5)

26. The average age of a group of 10 students is 15 years. When 5 more students join the group the average age increase by 1 year. What is the average of new students?    CO1- A   (5)

27. The sum of ages of Sarvesh and his father is 46 years. 3 years back father's age was 4 times more than Sarvesh's age. Find present age of Sarvesh?    CO1- A   (5)

28. 6 years ago, mother's age was 18 years more than the son's age. If the sum of their present ages is 30, what was the age of the mother 6 years back?    CO1- A   (5)

29. The age of Suhani and Navya are in the ratio of 9 : 5 respectively. After 12 years the ratio of their ages will be 13: 9. What is the difference in years between their ages?    CO1- A   (5)

30. Read the following information carefully and answer the questions given below:    CO2- A   (5)

• Seven students, A, B, C, D, E, F and G are sitting in the first row of the class facing the teacher.
• B is third to left of C who is third to right end.
• G is second to right of D.
• F and D are at two ends.
• A is second to left of E and second to right of B.

(i) Who is sitting in the middle of the row?

(ii) Which of them is sitting to the right of G?

(iii) Who is seated between A and E?

(iv) What are the neighbors E?

31. Read the following information carefully and answer the questions given below:    CO2- A   (5)

1. A, B, C, D, E and F are six friends are sitting in a circle facing the center.

2. F is the 4th left of E

3. A is not between D and E but some other one.

4. C is next left of F.

(i) Who is left of D?

(ii) What is the position of E?

(iii) Who is sitting just right to D?

(iv) Who is right of E?

(v) Who is facing D?

32. Each of these questions are based on the information given below :  CO2- A  (5)

8 persons E, F, G, H, I, J, K and L are seated around a square table - two on each side.

There are 3 ladies who are not seated next to each other.

J is between L and F.

G is between I and F.

H, a lady member is second to the left of J.

F, a male member is seated opposite to E, a lady member.

There is a lady member between F and I.

(i) Who is the immediate left of F?

(ii) Who is second from the left in photograph?

(iii) Who is second from the right?

(iv) Who is in the middle of the photograph?

33. Sowmya Krishnan walked 20 m towards the north. Then she turned right and walks  CO2- A  (5)
30 m. Then she turns right and walks 35 m. Then she turns left and walks 15 m.
Finally she turns left and walks 15 m. In which direction and how many meters is she
from the starting position?

34. A child went 90 m in the East to look for his father, then he turned right and went 20  CO2- A  (5)
m. After this he turned right and after going 30 m he reached to his uncle's house. His
father was not there. From there he went 100 m to his north and met his father. How
far did he meet his father from the starting point?

35. Reena walked from A to B in the East 10 feet. Then she turned to the right and  CO2- A  (5)
walked 3 feet. Again she turned to the right and walked 14 feet. How far is she from
A?

36. Read the following information carefully and answer the questions given below:  CO2- A  (5)

• In a family, there are six members P, Q, R, S, T and U.

• P and Q are married couple, P is the wife.

• S is the only daughter of R who is the sister of P.

• T is brother of S.

• Q is son- in- law of U, whose wife is has died.

(i) How is U related to P?

(ii) How is T related to R?

(iii) How is R related to Q?

(iv) How many male members are there in the family?

(v) How is P related to T?

37. Study the diagram given below and answer each of the following questions: CO2- U (5)
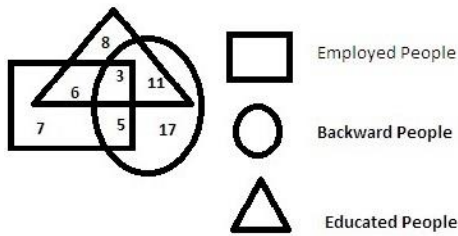


(i) How many educated people are employed?

(ii) How many backward people are educated?

(iii) How many backward uneducated people are employed?

(iv) How many backward people are not educated?

(v) How many employed People are uneducated?

38. The bar graph given below shows the data of the production of paper (in lakh tonnes) CO2- A (5) by three different companies X, Y and Z over the years.
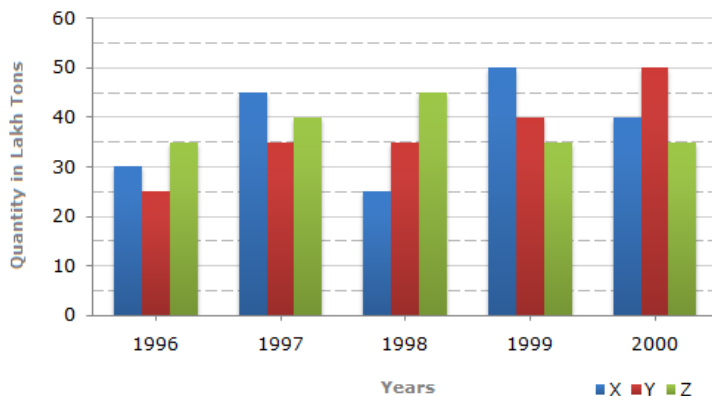


1. For which of the given years, the percentage rise/fall in production from the previous year is the maximum for Company Y?

2. What is the ratio of the average production of Company X in the period 1998-2000 to the average production of Company Y in the same period?

3. The average production for five years was maximum for which company?

4. In which year was the percentage of production of Company Z to the production of Company Y the maximum?

5. What is the percentage increase in the production of Company Y from 1996 to 1999?

39.	The circle-graph given here shows the spending of a country on various sports during CO2- A (5) a particular year. Study the graph carefully and answer the questions given below it.
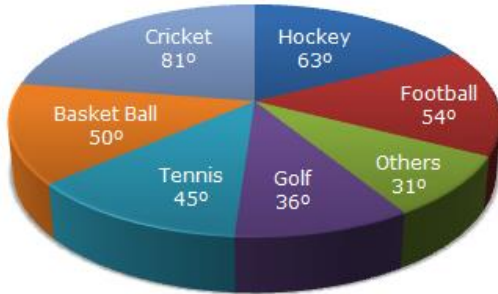


1. What percent of total spending is spent on Tennis?

2. How much percent more is spent on Hockey than that on Golf?

3. If the total amount spent on sports during the year be Rs. 1,80,00,000 , the amount spent on Basketball exceeds on Tennis by:

4. How much percent less is spent on Football than that on Cricket?

5. If the total amount spent on sports during the year was Rs. 2 crores, the amount spent on Cricket and Hockey together was:

40.	Study the following line graph and answer the questions based on it.	CO2- A (5)
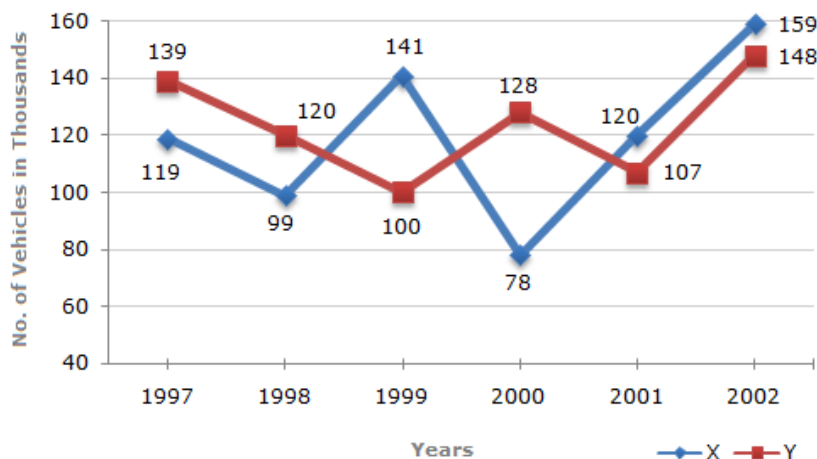


1. What is the difference between the number of vehicles manufactured by Company Y in 2000 and 2001?

2. What is the difference between the total productions of the two Companies in the given years?

3. What is the average numbers of vehicles manufactured by Company X over the given period? (rounded off to nearest integer)

4. In which of the following years, the difference between the productions of Companies X and Y was the maximum among the given years?

5. The production of Company Y in 2000 was approximately what percent of the production of Company X in the same year?

41. Decoding the following                                                 CO2- A   (5)

(i) In a certain code language, '123' means 'hot filtered coffee'. '356' means 'very hot day' and '589' means 'day and night'. Which digit stands for 'very'?

(ii) In a certain code, DECEMBER is written as ERMBCEDE. Which word will be written as ERMBVENO in that code?

(iii) If each of the letters in the English alphabet is assigned odd numerical value beginning A = 1, B = 3 and so on., the total value of the letters of the word INDIAN be?

(iv) If in a certain language, TRIANGLE is coded as SQHZMFKD, _____ word would be coded as DWZLOKD

(v) In a certain code language, 15729 is written as AEGBI and 2346 is written as BCDF, then how will 23549 be written in that language?

42. Statements: All buildings are chalks. No chalk is toffee.                         CO2- A   (5)

Conclusions:

1. No building is toffee

2. All chalks are buildings.

On the basis of the given statements, you should draw all the possible diagrams, and then derive the solution from each of these diagrams separately. Finally, the answer common to the all the diagrams is taken.

Give answer:

(A) If only (1) conclusion follows

(B) If only (2) conclusion follows

(C) If either (1) or (2) follows

(D) If neither (1) nor (2) follows and

(E) If both (1) and (2) follow.

43. In this question below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and Give answer:   CO2- A   (5)

• (A) If the data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question

• (B) If the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question

• (C) If the data either in statement I alone or in statement II alone are sufficient to answer the question

• (D) If the data given in both statements I and II together are not sufficient to answer the question and

• (E) If the data in both statements I and II together are necessary to answer the question.

Question: In which year was Rahul born?

Statements:

I. Rahul at present is 25 years younger to his mother.

II. Rahul's brother, who was born in 1964, is 35 years younger to his mother.

44.    In this question below consists of a question and two statements numbered I and II     CO2- A  (5)
given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and Give answer:

•    (A) If the data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question

•    (B) If the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question

•    (C) If the data either in statement I alone or in statement II alone are sufficient to answer the question

•    (D) If the data given in both statements I and II together are not sufficient to answer the question and

•    (E) If the data in both statements I and II together are necessary to answer the question.

Question: On which date in August was Kapil born?

Statements:

I. Kapil's mother remembers that Kapil was born before nineteenth but after fifteenth.

II. Kapil's brother remembers that Kapil was born before seventeenth but after twelfth.