



INTERNATIONAL  
**CATS CONTESTS**  
COMPETENCE & APTITUDE TESTING SERVICES  
**FASTEST GROWING CONTESTS IN PAKISTAN**

**2022**  
**QUESTION**  
**BOOKLET**

**GRADE 9 & 10**  
**ADOLESCENTS**

Time Allowed: 90 Mins.  
Maximum Marks: 90



**ICATS**  
**MATHEMATICS**  
**CONTEST 2022**

# ICATS MATHEMATICS CONTEST 2022

## ADOLESCENTS (GRADE 9 & 10)

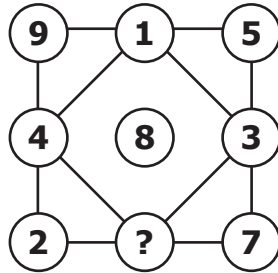
TIME ALLOWED : 90 MINUTES, MAXIMUM MARKS : 90

TOTAL QUESTIONS : 30 MCQS

### INSTRUCTIONS

1. DON'T START ATTEMPTING THE PAPER UNTIL INSTRUCTED BY THE INVIGILATORS.
2. INSTRUCTIONS FROM THE EXAMINATION INVIGILATORS MUST BE CARRIED OUT PROMPTLY.
3. CAREFULLY RECHECK YOUR NAME, FATHER NAME, SCHOOL NAME, ADDRESS ETC AT THE BUBBLE SHEET / ANSWER SHEET.
4. RECORD ALL ANSWERS ON THE BUBBLE SHEET ONLY. SELECT BEST ANSWER FROM THE FOUR GIVEN OPTIONS AND MARK ONLY ONE OPTION IN EACH QUESTION.
5. USE BLUE / BLACK INK TO FILL UP THE CIRCLES FOR YOUR ANSWERS ON THE BUBBLE SHEET. USE OF LEAD PENCIL IS NOT ALLOWED.
6. USE OF ANY HELPING MATERIAL INCLUDING CELL PHONES AND ELECTRONIC DEVICES IS STRICTLY PROHIBITED.
7. EVERY CORRECT ANSWER EARNS THREE POINTS. THERE WOULD BE NEGATIVE MARKING. ONE POINT WOULD BE DEDUCTED FOR EVERY INCORRECT ANSWER.
8. CANDIDATES MAY NOT LEAVE THE EXAMINATION ROOM UNESCORTED FOR ANY REASON, AND THIS INCLUDES USING THE WASHROOM.
9. NO MATERIALS OR ELECTRONIC DEVICES SHALL BE BROUGHT INTO THE ROOM.
10. THERE ARE FIVE CATEGORIES OF THE CONTEST AS UNDER:
  - A. TODDLERS (GRADE 1 & 2)
  - B. KIDS (GRADE 3 & 4)
  - C. JUNIORS (GRADE 5 & 6)
  - D. JUVENILES (GRADE 7 & 8)
  - E. ADOLESCENTS (GRADE 9 & 10 / O-LEVELS)
11. REGISTERED STUDENTS CAN PARTICIPATE IN THE CONTEST.
12. NO CANDIDATE SHALL TAKE OUT OF THE HALL ANY ANSWER BOOK(S) OR PART OF AN ANSWER BOOK, WHETHER USED OR UNUSED, OR OTHER SUPPLIED MATERIAL.
13. IF A PARTICIPANT DOES NOT UNDERSTAND A WORD OR PHRASE ON THE EXAM PAPER, NEITHER EXAMINER NOR INVIGILATOR IS PERMITTED TO ANSWER.
14. FOR INFORMATION ABOUT UPCOMING CONTESTS OR PROVIDING VALUABLE FEEDBACK, PLEASE VISIT [WWW.CATSCONTESTS.ORG](http://WWW.CATSCONTESTS.ORG)
15. ANY ACADEMIC MISCONDUCT OR MALPRACTICE MUST BE REPORTED TO INTERNATIONAL CATS CONTESTS AT [INFO@CATSCONTESTS.ORG](mailto:INFO@CATSCONTESTS.ORG)

**Q1.** Replace the question mark in the below problem with the appropriate number.



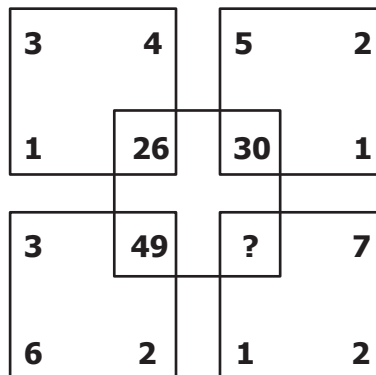
**A** 4

**B** 5

**C** 6

**D** 7

**Q2.** Which number should replace the question mark?



**A** 34

**B** 36

**C** 54

**D** 56

**Q3.** At the end of a meeting, seven board members shake hands with each other once. How many handshakes will be there altogether?

**A** 20

**B** 21

**C** 40

**D** 49



**Q4.** Using the diagram below, which of the following statement is true?

$$\triangle \triangle = \square \triangle \square, \triangle \square = \bigcirc \bigcirc, \triangle = 50$$

**A**  $\bigcirc < \triangle$

**B**  $\square > \bigcirc$

**C**  $\triangle < \square$

**D**  $\triangle < \bigcirc$



**Q5.** Machine P can print one lakh books in 8 hours. Machine Q can print the same number of books in 10 hours while machine R can print the same number of books in 12 hours. All the machines started printing at 9:00am. Machine P is stopped at 11:00am and the remaining two machines complete work. Approximately at what time will the printing of one lakh books be completed?

**A** 3 pm

**B** 2 pm

**C** 1:00 pm

**D** 11 am



**Q6.** An instrument store gives a 10% discount to all students off the original cost of an instrument. During a back to school sale an additional 15% is taken off the discounted price. Julie, a student at the local high school, purchases a flute for \$306. How much did it originally cost?

**A** 325

**B** 375

**C** 400

**D** 408

**Q7.** In an examination, 41% of students failed in Economics, 35% of students failed in Geography and 39% of students failed in History, 5% of students failed in all the three subjects, 14% of students failed in Economics and Geography, 21% of students failed in Geography and History and 18% of students failed in History and Economics. Find the percentage of students who failed in only Economics.

**A** 16%

**B** 14%

**C** 12%

**D** 10%



**Q8.** 2012 is a leap year. If Christmas was on Sunday in 2011, what day will it be in 2012?

**A** Monday

**B** Tuesday

**C** Wednesday

**D** Thursday



**Q9.** Rohit multiplies a number by 2 instead of dividing the number by 2. Resultant number is what percentage of the correct value?

**A** 200%

**B** 300%

**C** 50%

**D** 400%



**Q10.** The sum of two numbers is 5 times their difference. If the smaller number is 24, find the larger number.

**A** 30

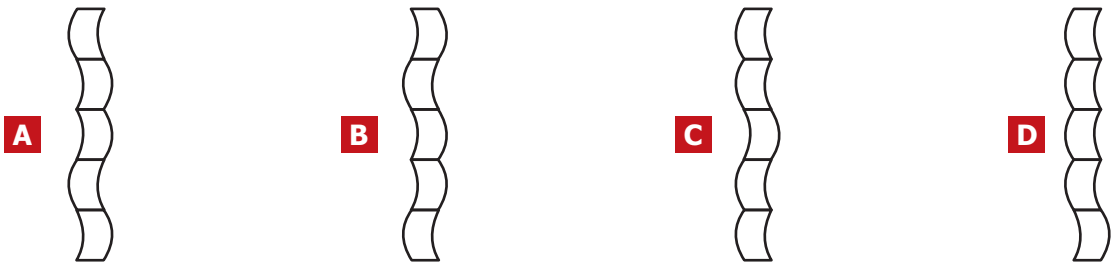
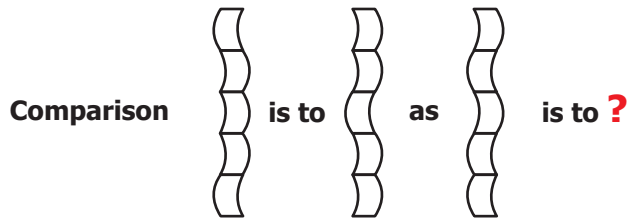
**B** 32

**C** 36

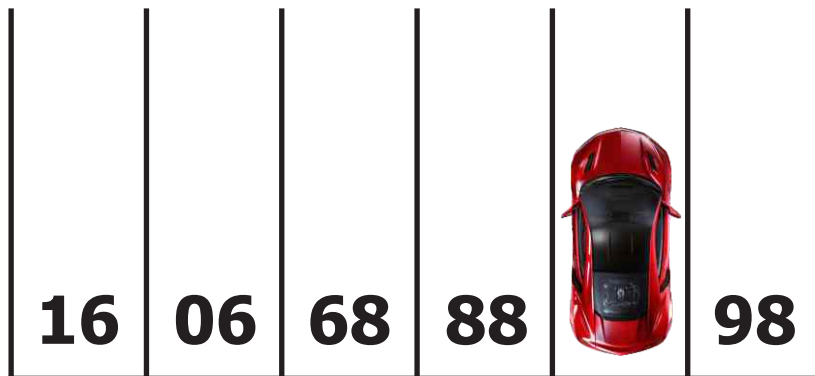
**D** 48



**Q15.** Which shape will replace the question mark?



**Q16.** What is the number of the parking space covered by the car?



**A** 48

**B** 58

**C** 87

**D** 97

**Q17.** Running at a speed of 60 km per hour, a train passed through a 1.5 km long tunnel in two minutes. What is the length of the train?

**A** 250 m

**B** 500 m

**C** 1000 m

**D** 1500 m



**Q18.** In 100 m race, A covers the distance in 36 seconds and B in 45 seconds. In this race A beats B by:

**A** 20 m

**B** 25 m

**C** 22.5 m

**D** 9 m



**Q19.** Two bikes start at the same time from two destinations 300 km apart and travel towards each other. If they cross each other at a distance of 130 km from one of the destinations, what is the ratio of their speeds?

**A** 17:13

**B** 17:30

**C** 13:30

**D** None of these



**Q20.** There are some rabbits and peacocks in a zoo. The total number of their heads is 60 and total number of their legs is 192. Find the number of total rabbits?

**A** 30

**B** 36

**C** 40

**D** 46



**Q21.** You have a 3-litre bottle and a 5-litre bottle. How can you measure 4 litres of water by using 3Lt and 5Lt bottles?

**A**

1. First, fill 3Lt bottle and pour 3 litres into 5Lt bottle.
2. Again fill the 3Lt bottle. Now pour 2 litres into the 5Lt bottle until it becomes full.
3. Now empty 5Lt bottle.
4. Pour remaining 1 litre in 3Lt bottle into 5Lt bottle.
5. Now again fill 3Lt bottle and pour 3 litres into 5Lt bottle.
6. Now you have 4 litres in the 5Lt bottle. That's it.

**B**

1. First, fill the 5Lt bottle and pour 3 litres into 3Lt bottle.
2. Empty 3Lt bottle.
3. Pour remaining 2 litres in 5Lt bottle into 3Lt bottle.
4. Again fill the 5Lt bottle and pour 1 litre into 3 Lt bottle until it becomes full.
5. Now you have 4 litres in the 5Lt bottle. That's it.

**C** None of the above.

**D** Both of the above.



**Q22.** A set of ten cards, each showing one of the digits from 0 to 9, is divided up between five envelopes so that there are two cards in each envelope. The sum of the two numbers inside it is written on each envelope:

7

8

13

14

3

What numbers could be inside the "8" envelope?

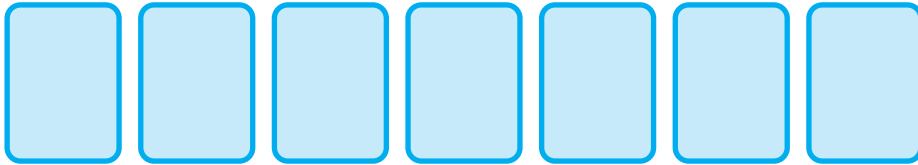
**A** 0, 8

**B** 1, 7

**C** 2, 6

**D** 4, 4

**Q23.** I have fifteen cards numbered 1– 15. I put down seven of them on the table in a row.



- The numbers on the first two cards add to 15.
- The numbers on the second and third cards add to 20.
- The numbers on the third and fourth cards add to 23.
- The numbers on the fourth and fifth cards add to 16.
- The numbers on the fifth and sixth cards add to 18.
- The numbers on the sixth and seventh cards add to 21.

What numbers can be on my cards?

**A** 8, 7, 13, 10, 6, 12, 9

**B** 6, 9, 11, 12, 4, 14, 7

**C** Both A and B

**D** None of these



**Q24.** In Arun's opinion, his weight is greater than 65 kg but less than 72 kg. His brother does not agree with Arun and he thinks that Arun's weight is greater than 60 kg but less than 70 kg. His mother's view is that his weight cannot be greater than 68 kg. If all of them are correct in their estimation, what is the average of different probable weights of Arun?

**A** 67 kg.

**B** 68 kg.

**C** 69 kg.

**D** None of these

**Q25.** Roy measured a boarding school and made a scale drawing. A building at the school is 225 centimetres long in the drawing. The actual building is 105 metres long. What is the scale of the drawing?

**A** 15cm = 5m

**B** 15cm = 7m

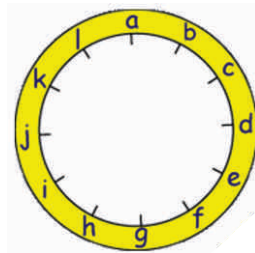
**C** 15cm = 7.5m

**D** 15cm = 10m



Read the text below and answer the following Questions 26 through 30.

There is a clock-face where the numbers have become all mixed up. Can you find out where all the numbers have got to from the ten statements below? Here is a clock-face with letters to mark the position of the numbers so that the statements are easier to read and follow.



1. No even number is between two odd numbers.
2. No consecutive numbers are next to each other.
3. The numbers on the vertical axis (a) and (g) add to 13.
4. The numbers on the horizontal axis (d) and (j) also add to 13.
5. The first set of 6 numbers [(a) - (f)] add to the same total as the second set of 6 numbers [(g) - (l)] .
6. The number at position (f) is in the correct position on the clock-face.
7. The number at position (d) is double the number at position (h).
8. There is a difference of 6 between the number at position (g) and the number preceding it (f).
9. The number at position (l) is twice the top number (a), one third of the number at position (d) and half of the number at position (e).
10. The number at position (d) is 4 times one of the numbers adjacent (next) to it.

**Q26.** What is the number at place "a"?

**A** 2

**B** 4

**C** 6

**D** 8

**Q27.** What is the sum of numbers at places "b" and "c"?

**A** 10

**B** 12

**C** 14

**D** 16



**Q28.** What is the product of numbers at places "d" and "k"?

**A** 60

**B** 72

**C** 84

**D** 96



**Q29.** What will you get by dividing number at place "i" by number at place "j"?

**A** 5

**B** 10

**C** 15

**D** 20



**Q30.** What will be the sum of all the numbers at places "a" through "l"?

**A** 68

**B** 78

**C** 88

**D** 98





National Toppers  
ICATS  
Art Contest  
2022

Student Name	Father Name	Grade	School
HUMNA NADIR	M. NADIR IKRAM	1	FOUNDATION PUBLIC SCHOOL
HAIDER ALI	ALI MUSHTAQ	2	ARMY PUBLIC SCHOOL & COLLEGE
MUHAMMAD YOUSAF	KAMRAN ASHRAF	3	KOHSAR CHILDREN'S ACADEMY
MUHAMMAD ZAID	M. SOHAIB NIZAMI	4	GENERATIONS SCHOOL
HANIA ABID	MRS. ASMA LATIF	5	FATIMA FERTILIZER SCHOOL
RUQAIYAH ALI ASGHER	ALI ASGHER KHAMBATWALA	5	MSB EDUCATIONAL INSTITUTE
RAMISHA ALI	ABID ALI MUGHAL	6	GOVT. QUEEN MARY GRADUATE COLLEGE
SYEDA FATIMA SURIYA	SYED TAHIR HUSSAIN	7	BEACONHOUSE SCHOOL SYSTEM
MANAL ARSHAD	MUHAMMAD ARSHAD	8	HABIB GIRLS SCHOOL
MARYAM SHAHID	SHAHID IQBAL	9	BAHRIA COLLEGE
AREEBA KHAN	DURAZ KHAN	10	PRESENTATION CONVENT HIGH SCHOOL

*Congratulations*

National Toppers  
ICATS  
Creative Writing  
Contest  
2022

Student Name	Father Name	Grade	School
HASSAN WASEEM	M. WASEEM	1	PAKISTAN INT'L PUBLIC SCHOOL
M. AFNAN SUFDER	SUFDER HUSSAIN	2	ARMY PUBLIC SCHOOL AND COLLEGE SYSTEM
FATIMA NOOR	BILAL YOUSAF	3	LAHORE GRAMMAR SCHOOL
M. ABDULLAH HASSAN	RIZWAN AHMAD	3	LAHORE GRAMMAR SCHOOL
SHANZAY ADNAN	ADNAN FAROOQ	3	ARMY PUBLIC SCHOOL
PRAKASH PARKASH	PARKASH LAL	4	THE CITY SCHOOL
DANIYAL SHAHZAD	SHAHZAD ASLAM	5	LAHORE GRAMMAR SCHOOL
HASSAN ALI	IMRAN ALI SHAH	6	ARMY PUBLIC SCHOOL & COLLEGE
MAIDA SOHAIL	SOHAIL AKRAM	7	BEACONHOUSE SCHOOL SYSTEM
ATIYA ATIF	MUHAMMAD ATIF NAZAR	8	ROOTS IVY INTERNATIONAL SCHOOL
AYESHA HAFEEZ	CH. GHULAM HAFEEZ	8	ISLAMABAD COLLEGE OF ARTS & SCIENCES
PARTHAM KUMAR	DOULAT RAM	9	AGA KHAN HIGHER SECONDARY SCHOOL
AMNA HUSNAIN	SYED ALI ZAFAR	10	AES SCHOOL FOR GIRLS
RASIKH JAVED	M JAVED	10	BAHRIA FOUNDATION COLLEGE

*Congratulations*

Compete  
if you are the best