Appendix I

ACHIEVEMENT TEST IN CREATIVE PROBLEM-SOLVING SKILLS IN MATHEMATICS

DEVELOPED BY

TEJINDARJIT KAUR GILL
DEPARTMENT OF EDUCATION
PANJAB UNIVERSITY
CHANDIGARH
ACHIEVEMENT TEST IN CREATIVE
PROBLEM-SOLVING SKILLS
IN MATHEMATICS

Name ___________________________ Class ____________
Father's name ____________________ Roll no. ____________
School __________________________ Date of birth ________
Date ____________________________

INSTRUCTIONS

You are going to face a new type of test, different from your routine tests. You are given some mathematical problems which can be solved by a number of different ways. Almost every problem has a number of solutions. Try to solve each problem giving as many different and unusual solutions as you can. Your potential or your superiority over others will be judged by the number of different and unusual solutions you give.

Read the problems thoroughly and write down as many solutions as you can, on the response sheet provided for the purpose. If space is insufficient, ask for extra sheets. Rough work can be done on extra sheets. Please attach extra sheets with the response sheet. Please be neat and clear in your writing. You may clear doubts, if any.
Part - I

Time : 15 minutes

1. Give as many numbers as you can which are divisible by 9 and end in 5.

2. Give as many terms as you can in the following series:
   1, 4, 3, 9, 5, 16, 7, 25, _________, _________, _________, _________, _________, _________, _________, _________.

3. Give as many terms as you can in the following series:
   1, 3, 7, 15, 31, 63 _________, _________, _________, _________, _________, _________.
Part - II

Time : 45 minutes

4. Add the following using different methods:
   \[31 + 32 + 33 + 34 + 35 + \ldots \ldots + 47 + 48 + 49 + 50\]

5. We can write 30 by using three identical digits as:
   \[5+5\times5 \quad \text{or} \quad 6\times6-6 \quad \text{or} \quad 33-3\]
   Can you write 24 by using three identical digits?
   (You can use signs of +, -, x, ÷ and indices)

6. You are given three 5's (i.e., 5,5,5). By using signs of +, -, x, ÷, \(\sqrt{}\) Write the following numbers in as many different ways as you can:
   (a) 0  (b) 1  (c) 2

7. Nine children are attending a flag hoisting ceremony. How can you arrange them in 3 rows with each row comprising 4 children? Give as many arrangements as you can.

8. My friend hunted some deer and some birds. When I enquired, he said that he did not know the number but the total number of legs were 20. How many birds and how many deer did he kill? Give as many solutions as you can.

9. Move only three circles from the left arrangement so that it looks like the right arrangement. You can show the displacement with the help of arrows. Give as many possibilities as you can.
10. Out of 8 matchsticks you can make many types of geometrical figures. Example: Triangle

(a) What other sorts of geometrical figures can you draw with these 8 matchsticks?

(b) State which is the biggest possible figure in area out of these figures.

11. Here is a blank circle fig. (a) In fig. (b) the circle divided into 5 parts by drawing 4 straight lines.

Now change the direction of these lines so that number of segments in the circle increase. Find all the possibilities (the lines may cut each other).

12. You have a balance and four wts. 2 kg, 5 kg, 7 kg, 9 kg. How would you use these weights to weigh out the following quantities of sugar into a container (a) 11 kg (b) 4 kg

13. A blacksmith was given a chain torn into 5 equal sections of three links each and was asked to fix it. How can he join the five links? Also find the most economical way.

14. Here is given the face of a clock, cut the face of the clock into 6 parts of any shape, but the aggregate number in each part must be the same. Give different possibilities.