SST6 Mathematics (ACER)

Simulation Test 24

Test Code: SST6M24

Student Name: _____ Student ID: _____

PLEASE READ THE INSTRUCTIONS BELOW CAREFULLY:

You may use the back of your answer sheet for your working. This is what you are given at the real exam to use as working paper.

DO NOT WRITE ANYWHERE ELSE ON THE EXAM PAPER

This test asks you to look at ___ material and to answer all the questions on this paper.

- This test paper **CANNOT BE TAKEN OUT** of the classroom
- You **MUST GIVE THE TEST PAPER BACK** before you leave the classroom
- You must **WRITE YOUR NAME AND ID** on this page and the answer sheet
- You must **PUT AWAY ALL ELECTRONIC DEVICES** and any other materials that could help you on this exam
- **DO NOT TOUCH OR DRAW ON** the barcode that is on your answer sheet

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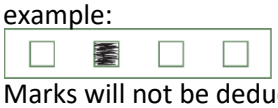
Advice for the test:

- For each question, you are given 4 or 5 possible answers marked A, B, C, D and E. Attempt to find the correct answer, and shade the corresponding bubble on the answer sheet.
- Each question is worth 1 mark, so try not to spend too long on one question – leave it for after you have finished the other questions.
- Check that the question number you are doing on the test paper is the same as the question number that you are shading on the answer sheet.
- There are no marks lost for incorrect answers, so even if you cannot solve a question, shade the box for the answer you think is most correct.

Instructions for the Answer Sheet:

- Use a B or HB pencil.
- Write your name, student ID and test code on the sheet.
- Shade the box which indicates your answer. All answers must be completed like THIS example:



- Marks will not be deducted for incorrect answers.
- No mark will be given if more than ONE answer is completed for any question.
- If you make a mistake, ERASE the incorrect answer – DO NOT cross it out.

1. $0.81 \div 0.9 =$
   A. 0.9
   B. 0.09
   C. 9
   D. 90

2. A truck travels 110 kilometres in 2 hours. How far can it travel in 4 and a half hours?
   A. 220 km
   B. 330 km
   C. 440 km
   D. 247.5 km

3. Judy throws a ball that moves at an average speed of 30 metres per second and travels for a total of 4.5 seconds. Work out the distance travelled by the ball.
   A. 120 meters
   B. 135 meters
   C. 145 meters
   D. 150 meters

4. Find the missing number in the series.
   2, 7, 9, ?, 25
   A. 11
   B. 13
   C. 16
   D. 19

5. Jasmine has one third of Lu's money and Tracy has double Lu's money. In total, they have $60. How much money does Tracy have?
   A. $36
   B. $42
   C. $32
   D. $28

6. How many ways are there of drawing 3 marbles from 10 numbered marbles from a bag, without replacement?
   A. 30
   B. 10^3
   C. 90
   D. 120

7. $(\sqrt{7})^2 - 3 \times 4 + 1 - 3!$ equals:
   A. -14
   B. -10
   C. $\sqrt{7} - 17$
   D. -13

8. Find the missing numbers.

-2	-1	0	1	2	3
$	-3	-8	-13	**&**	-23

   A. $=0, &= -20
   B. $=-1, &= -18
   C. $= -5, &= -21
   D. $= 2, &=-18

9. $100\frac{1}{9} \div \frac{1}{9} =$
   A. 100
   B. 900
   C. 901
   D. 109

10. $100 \div (100 + \frac{100}{101}) =$
   A. $\frac{100}{101}$
   B. $\frac{101}{102}$
   C. $\frac{10000}{101}$
   D. $\frac{101}{10000}$y

11. There are 3 black balls, 4 blue balls and 10 orange balls in a bucket. Find the minimum number of times required to ensure that at least one ball of each colour is taken.
   A. 3
   B. 17
   C. 15
   D. 14

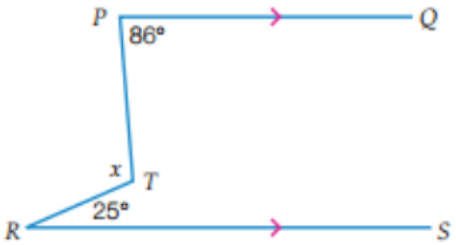
12. Andy needs to set up a six-digit password for his Minecraft account and he would like to use all the letters in his name, a, n, d, y and all the numbers in his birthday, which is August 2. Some examples of the password are: a8n2dy, d28any. How many combinations are there that can meet Andy's requirement?
   A. 8
   B. 6!
   C. 6^6
   D. $\frac{6!}{2}$

13. Find the smallest number from the following.
   A. 9.0093
   B. 9.1009
   C. 9.3
   D. 9.009

14. $\frac{15}{26} \times \frac{14}{25} =$
    A. $\frac{21}{65}$
    B. $\frac{154}{265}$
    C. $\frac{29}{51}$
    D. $\frac{210}{265}$

15. 2a(3+2b-5c)=
    A. 6a+2ab-2ac
    B. 6a+2b-5c
    C. 6a+4ab-10ac
    D. 23a+22b-25c

16. In the diagram below, PQ is parallel to RS. The value of x is



    A. 121 degrees
    B. 111 degrees
    C. 101 degrees
    D. 61 degrees

17. Kathy can row upstream at 8km/hr and downstream at 12 km/hr. What is the speed of the stream?
    A. 4km/hr
    B. 2km/hr
    C. 1.5km/hr
    D. 2.5km/hr

18. After spending 30% of his money, Shreyas has $49 left. How much did he have originally?
    A. $70
    B. $150
    C. $147
    D. $65

19. Daniel lives in the middle of Rachel's house and Top Scope College. There are four ways of travelling from Rachel's place to Daniel's place and eight ways of traveling from Daniel's place to the College. How many different ways are there of travelling from Rachel's place to the College?
    A. 12
    B. 8
    C. 32
    D. 16

20. Convert 1250 cents into dollars.
    A. $125000
    B. $12.50
    C. $1.250
    D. $125.0

21. Round 5.4597 to 2 decimal places.
    A. 5.50
    B. 5.49
    C. 5.46
    D. 5.45

22. It takes Tivona and Isabella together three hours to knit a sweater and it takes Isabella 5 hours to knit the same sweater by herself. How long does it take for Tivona to knit the sweater alone by herself?
    A. 8 hours
    B. 4 hours
    C. 6.5 hours
    D. 7.5 hours

23. Sixty five percent equals
    A. 0.65
    B. 6.5
    C. 0.0065
    D. 65

24. A map has a scale of 1:20000. If the direct length on the map between a park and a library is 1.7cm, how far is it between the two locations in real life?
    A. 3400m
    B. 340m
    C. 340000m
    D. 34km

25. Write 4500 as the product of prime factors.
    A. $45 \times 2^2 \times 5^2$
    B. $3^3 \times 2^2 \times 5^2$
    C. $5^3 \times 2^2 \times 3^2$
    D. $3^3 \times 10^2 \times 5$

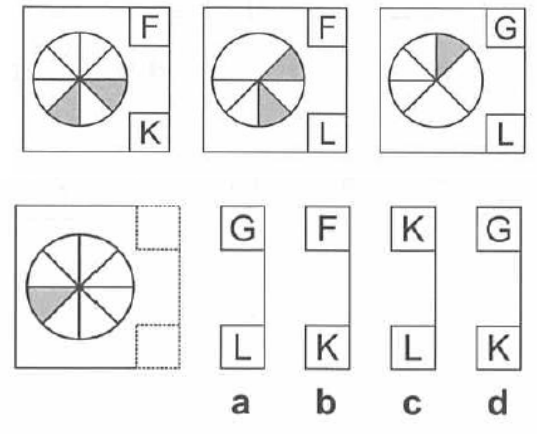
26. Which number is on the ones digit of the following product?
    $16 \times 17 \times 18 \times 19$

    A. 2
    B. 3
    C. 4
    D. 0

27. One example (triangle) has been given to show how to change the shape on the left to the shape on the right. Choose the correct changed shape.

    A. A
    B. B
    C. C
    D. D

28. In the boxes on the left are shapes with code letters. The top letters have a different meaning to the bottom ones. Work out how the letters go with the shapes and then find the code for the new shape from the five codes on the right. One example has been given:



    A. A
    B. B
    C. C
    D. D

29. The total surface area of a cube is 96 cm^2. Find its volume.
    A. 16 cm^3
    B. 64 cm^3
    C. 444 cm^3
    D. 8x8x8 cm^3

30. Which of the following is equivalent to $10 + 0.02 + \frac{9}{10} + \frac{5}{1000}$?
    A. 10.925
    B. 10.97
    C. 10.115
    D. None of the above

31. The letters in the word PROBABILITY are written on 11 cards and then one is drawn from a hat. Find the probability that a vowel is chosen.
    A. 2/11
    B. 4/11
    C. 3/11
    D. 7/11

32. $9 \times 4 \div 2 - 5 \times 4 \div 10 =$
    A. 16
    B. 5.2
    C. -0.2
    D. 8

33. 400-199 is not equivalent to
    A. 400-200+1
    B. 400-99-100
    C. 401-100-100
    D. 400-200-1

Questions 34-36 are based on the following information.

When playing with a spinner with the numbers 1 to 4 on it for ten times, the following numbers come up: 1, 4, 1, 3, 3, 1, 4, 3, 3, 2

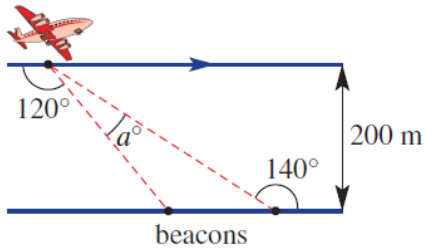
34. What is the theoretical probability of getting a 3 for this spinner?
    A. 0.25
    B. 0.33..
    C. 0.4
    D. 0.3

35. Based on the experiment, what is the experimental probability of getting a 3?
    A. 0.25
    B. 0.33…
    C. 0.4
    D. 0.3

36. Based on this experiment, how many times would you expect to get a 3 if you spin 100 times?
    A. 25
    B. 33
    C. 40
    D. 30

37. The perimeter of a regular dodecagon is 132 metres. Find the length of each side.
    A. 13.2 m
    B. 11 m
    C. 16.5 m
    D. 14.67 m

38. A plane flies horizontally 200m above the ground. It detects two beacons on the ground. Some angles are known, and these are shown in the diagram. Find the angle marked 'a' between the line of sight to the two beacons.



    A. 60 degrees
    B. 40 degrees
    C. 140 degrees
    D. 20 degrees

39. In simplest form, $4\frac{1}{3} - 2\frac{55}{66}$ =
    A. $\frac{3}{2}$
    B. $\frac{5}{2}$
    C. $\frac{19}{6}$
    D. $1\frac{33}{66}$

40. Jimmy is downloading a 3 MB file on his laptop. 2.1 MB has been downloaded. What percentage of the file has been downloaded?
    A. 2.1%
    B. 7%
    C. 21%
    D. 70%

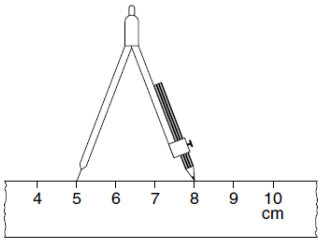
41. The number of times students had dinner at Top Scope College in one week was recorded as below. Randomly selecting a student, which of the following would be the mostly likely to happy?

The number of dinners	The number of students
0	8
1	3
2	2
3	5
4	7
5	0

    A. Had 0 dinners at the College in one week
    B. Had 4 dinners at the College in one week
    C. Had less than 2 dinners at the College in one week
    D. Had more than 2 dinners at the College in one week

42. Solve $\frac{2x}{5} - 1 = 6$
    A. x = 15
    B. x = 17.5
    C. x = 3.5
    D. x = 8

43. Mr. Pat sets the width of his compass as shown and then uses the compass to draw a circle. What is the area of the circle?



    A. $3\pi^2$ cm^2
    B. $64\pi^2$ cm^2
    C. 9π cm^2
    D. 64π cm^2

44. Ms. Liang lives northeast to Top Scope College. Which direction is it from Ms. Liang's place to Top Scope College?
    A. Northeast
    B. Northwest
    C. Southeast
    D. Southwest

45. You went to a park and saw a few people and a few dogs. You counted that there were 5 heads and 16 legs in total. How many dogs were there?
    A. 4 dogs
    B. 3 dogs
    C. 2 dogs
    D. 1 dog