SST6 Mathematics (EDU)

Simulation Test 14

Test Code: _____

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 material.

- 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

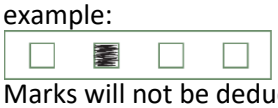
660 Warrigal Road, Malvern East VIC – Phone: 9568 6776

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. Round 30.091 to one decimal place
   A. 30
   B. 30.0
   C. 30.1
   D. 30.9
   E. 30.10

2. The hundred digit is a factor of 6 and the ten digit is a prime number. This number is also a multiple of 3 and 5. Which of the following two numbers meet the criteria?
   A. 310 and 270
   B. 675 and 330
   C. 351 and 115
   D. 230 and 125
   E. 625 and 1226

3. To make a banana smoothie, you need to blend 2 bananas, ½ cup each vanilla yogurt and milk, 2 teaspoons honey, a pinch of cinnamon and 1 cup ice. You have 3 cups of milk and would like to use all of it to make smoothies, how many bananas and cups of ice do you need to use?
   A. 12 bananas and 6 cups of ice
   B. 12 bananas and 12 cups of ice
   C. 6 bananas and 6 cups of ice
   D. 6 bananas and 3 cups of ice
   E. None of the above

4. 0.09 x 0.1=
   A. 0.090
   B. 0.091
   C. 0.009
   D. 0.9
   E. 0.0009

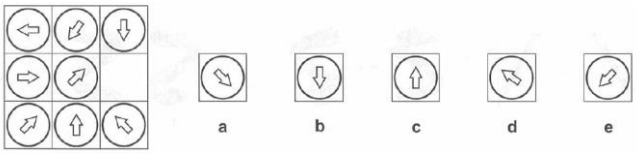
5. Alex and Stella live 35km apart and are meeting at an Italian restaurant for lunch. Alex drives at a speed of 56km/h and Stella takes the bus which has an average speed of 14km/h. How much further is Alex from the restaurant, if they leave their homes and arrive at the restaurant at the same time?
   A. 7km
   B. 21km
   C. 25km
   D. 28km
   E. 31.5km

6. Find the missing value for the sequence below
   -3, 4, 1, ?, 6
   A. -2
   B. 2
   C. 3
   D. 5
   E. 10

7. How many numbers ranging from 1 to 100 (inclusive) are multiples of 7 or divisible by 5?
   A. 14
   B. 20
   C. 32
   D. 34
   E. 35

8. The average height of one Year 7 class which has 24 students is 158 cm. The average height of girls in this class is 163 cm and the average height of boys in this class is 155cm. How many boys are there in this class?
   A. 11
   B. 12
   C. 13
   D. 15
   E. 16

9. Find which square completes the grid.



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

10. The solution to the equation $3 = \frac{2x-1}{5}$ is
    A. 15
    B. 16
    C. 8
    D. 7
    E. 10

11. $\frac{1}{2} \times (1 + \frac{1}{3})$ is NOT the same as

A. $\frac{1}{2} \times 1 + \frac{1}{2} \times \frac{1}{3}$
B. $\frac{1}{2} \times 1\frac{1}{3}$
C. $\frac{1}{2} \times \frac{4}{3}$
D. $\frac{1}{2} \times 1 + \frac{1}{6}$
E. $\frac{1}{2} + \frac{1}{3}$

12. Both the length and width of one rectangle are tripled. By what percentage has the area of the new rectangle increased by?

A. 69%
B. 300%
C. 800%
D. 90%
E. 900%

13. It costs $12 per litre to paint walls. There is a classroom with a height of 2.5m, a width of 3m and a length of 4m. Without considering windows or doors, find the cost to paint all walls including the ceiling in the classroom.

A. $564
B. $576
C. $652
D. $708
E. $1200

14. Write the following numbers in ascending order.

$-7, \quad 12, \quad 0, \quad -17, \quad 5, \quad \frac{1}{3}$

A. $-7 < -17 < 0 < \frac{1}{3} < 5 < 12$
B. $-17 < -7 < 0 < \frac{1}{3} < 5 < 12$
C. $0 < \frac{1}{3} < 5 < -7 < 12 < -17$
D. $12 > 5 > \frac{1}{3} > 0 > -7 > -17$
E. $12 > 5 > \frac{1}{3} > 0 > -17 > -17$

15. 41^3 is the same as

A. 41×3
B. $41 \times 41 \times 41$
C. $4 \times 13 \times 13 \times 13$
D. $(4 + 1)^3$
E. None of the above

16. How many different two-digit numbers can you make by multiplying two one-digit odd numbers?

A. 5
B. 6
C. 10
D. 12
E. 18

17. Find the 7th term in this number pattern

3, 6, 10, 15, 21 …

A. 26
B. 28
C. 36
D. 45
E. 55

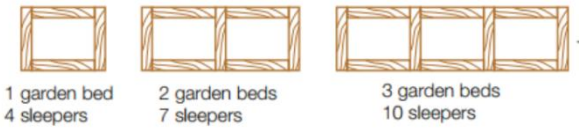
18. $\sqrt{72}$ is between which of the following range?

A. $6 < \sqrt{72} < 7$
B. $7 < \sqrt{72} < 8$
C. $8 < \sqrt{72} < 9$
D. $10 < \sqrt{72} < 11$
E. $27 < \sqrt{72} < 72$

19. $\frac{6}{7} \times \left(1\frac{2}{3} + \frac{1}{4}\right) - \frac{3}{7} =$

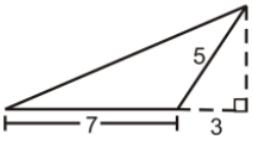
A. $1\frac{3}{14}$
B. $1\frac{7}{28}$
C. $\frac{20}{14}$
D. $2\frac{3}{14}$
E. $1\frac{5}{84}$

20. Find a general rule that connects the number of garden beds (B) to the number of sleepers (S) needed. Write the rule in an equation.



A. S=3B
B. S=3B+1
C. S=4B
D. S=4+3(B-1)
E. B=$\frac{S}{4}$

21. Find the area of the triangle.



A. 14 units
B. 15 units
C. 17.5 units
D. 28 units
E. 50 units

22. $-19-(-31)=$
A. -50
B. -12
C. 12
D. 28
E. 50

23. Angela invests $4000 in Wersley Bank which gives 2% per annum as interest. Find the interest Angela can earn after investing for 4 months to the nearest dollar.
A. $800
B. $80
C. $261
D. $27
E. None of the above

24. Matthew spends 2 hours a day to cook. Imagine that Matthew starts cooking from the age of 25 and lives up to 73 years old and cooks every day, how much time, in years, does he spend on cooking throughout his life?
A. $\frac{730}{13}$ years
B. $\frac{17520}{365}$ years
C. $\frac{\frac{17520}{365}}{2}$ years
D. 4 years
E. Impossible to calculate

25. Find which number is missing for the following pattern

-3, ?, -4, -5, -9, -14, -23

A. -4
B. -1
C. 1
D. 0
E. -6

26. Amy, Kelly and Steven are going to share 3L chocolate milk in the ratio of 2:1:3. How much more will Steven have compared to Kelly?
A. 500ml
B. 1L
C. 1.5L
D. 2L
E. None of the above

27. $1cm^2 =$_____mm^2
A. 0.1
B. 0.01
C. 10
D. 100
E. 1000

28. There are 121 balls of five colours in a bucket. The probability of getting a non-blue ball is 3/11. How many blue balls are there in the bucket?
A. 33
B. 61
C. 88
D. 101
E. Not enough information to find

29. In one class with 30 students, 18 students can play the piano and 4 students can play the cello. There are 2 students who can play both instruments. Find out how many students neither play the piano nor the cello.
A. 6 students
B. 10 students
C. 11 students
D. 12 students
E. 13 students

30. The length of a cube is doubled. How many times has its volume increased by?
A. 2 times
B. 4 times
C. 6 times
D. 8 times
E. 20 times

31. What are the equivalent values of $\frac{3}{5}$?

Number	Percentage	Decimal
$\frac{3}{5}$	—	—

A. 30% 0.6
B. 60% 0.35
C. 60% 0.6
D. 35% 0.35
E. 0.6 60%

32. $1-\frac{1}{2}\times\frac{2}{3}\times\frac{3}{4}\times\frac{4}{5}=$
A. $\frac{16}{120}$
B. $\frac{84}{120}$
C. $\frac{1}{5}$
D. $\frac{4}{5}$
E. $\frac{15}{60}$

33. Chiara and Eunice drives at average speeds of 55km/h and 60km/h respectively and live in the same apartment in Ashwood. Chiara leaves home at 10:20am and Eunice leaves home at 11:05 am. When will Eunice overtake Chiara?
A. 11: 25 am
B. 11: 40 am
C. 11: 50 am
D. 12: 05 pm
E. None of the above

34. Anna works as a childcare educator at Chadstone Afterschool Care Centre and her starting wage is \$20/h. Chadstone Afterschool Care Centre increases staffs' salaries by 10% every 6 months. Find out Anna's wage after 2 years, rounding to the nearest dollar.
A. \$22/h
B. \$28/h
C. \$29/h
D. \$32/h
E. \$48/h

35. $\frac{2}{3}\div(\frac{2}{3})^2\times\frac{2}{3}+\frac{2}{3}=$
A. $\frac{7}{9}$
B. $\frac{12}{81}$
C. 1
D. $\frac{5}{3}$
E. None of the above

36. The pocket money Jie and Gala have is in the ratio of 3:5. After Gala gives Jie \$10, the ratio becomes 7:1. Find how much money Gala had originally.
A. \$10.5
B. \$12.5
C. \$15
D. \$20
E. \$22

37. 250% of a number is 1250. What is the number?
A. 125
B. 500
C. 800
D. 1000
E. 1500

38. Xiaoliu estimated the height of a box to its nearest meter, which was 3 meters. Which of the following cannot be the exact height of the box?
A. 2.91m
B. 3.50m
C. 2.59m
D. 3.48m
E. 2.62m

39. Which of the following equation does not have a solution of x = 3?
A. $\frac{15}{x}$=5
B. $2\mathrm{x}+1=7$
C. $\frac{x}{3}=3$
D. $x+100=103$
E. $\mathrm{x}+1=2(\mathrm{x}-1)$

40. Which of the following lengths cannot make a triangle?
A. 3, 4, 5
B. 7, 10, 21
C. 21, 21, 25
D. 60, 80, 100
E. Both B and D

41. The width of one rectangle is one third of its length and its area is 48 cm^2. Find its perimeter.
A. 6 cm
B. 12 cm
C. 16 cm
D. 24 cm
E. 32 cm

42. Find the missing numbers represented by * and & respectively.

1	1
1	1

1	3
2	27

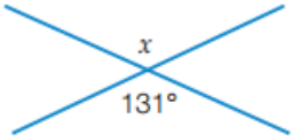
1	3
*	216

2	1
2	&

A. * = 4, &=2
B. *= 3, &=4
C. *=5, &=4
D. *=7, &=2
E. *=3, &=8

43. The mean of 5 consecutive odd numbers is 15. Find the difference between the smallest and the largest value.
A. 5
B. 8
C. 9
D. 10
E. 15

44. Find the size of the unknown angle and explain the reason.



A. 131 degrees, supplementary angles
B. 131 degrees, vertically opposite angles
C. 49 degrees, complementary angles
D. 49 degrees, vertically opposite angles
E. 49 degrees, complementary angles

45. 5% x 0.07=
A. 0.0035%
B. 0.035%
C. 0.35%
D. 3.5%
E. 35%

46. Find the shortest side of a rectangle if its area is 40 square centimetres and its perimeter is 26 square centimetres.
A. 2 cm
B. 5 cm
C. 8 cm
D. 20 cm
E. None of the above

47. Which of the following shape must have two pairs of parallel lines?
A. Kites
B. Triangles
C. Circles
D. Trapeziums
E. Rhombuses

48. Which of the following number does not meet the calculation shown as below?

$$\begin{array}{r} A\ B \\ +\ B\ A \\ \hline C\ C \end{array}$$

A. AB=35
B. AB=36
C. AB=27
D. AB=89
E. AB=90

49. Which of the following cannot be a group of interior angles for any triangle?
A. 120 degrees, 59 degrees, 11 degrees
B. 70 degrees, 58 degrees, 52 degrees
C. 60 degrees, 60 degrees, 60 degrees
D. 69 degrees, 11 degrees, 100 degrees
E. 90 degrees, 17 degrees, 73 degrees

50. For $\frac{1}{3} \div \frac{1}{3} \div \frac{1}{3} \div \ldots \div \frac{1}{3} = 3^{100}$, how many $\frac{1}{3}$ are needed?
A. 33
B. 99
C. 100
D. 101
E. 102

51. 2, 4, 6, 8, … The 101 th term in this sequence is
A. 102
B. 198
C. 200
D. 202
E. 204

Questions 52 and 53 are based on the following information.
200 students at Top Scope College are being interviewed. 168 like music and 120 like sports.

52. How many people like both music and sports?
    A. 288 people
    B. 200 people
    C. 88 people
    D. 80 people
    E. 48 people

53. How many students only like music?
    A. 80
    B. 88
    C. 92
    D. 106
    E. 114

54. Kelsey and her sister started watching a cartoon film at 1:45 P.M. The film was 1 hour and 30 minutes long. After the film, they played a card game for 1 hour and 15 minutes and then played soccer in the back garden for 45 minutes. What time was it when Kelsey and her sister finished playing soccer?
    A. 5:05 am
    B. 5:10 pm
    C. 16:15
    D. 17:15
    E. 17:35

55. Jen measured a farm and made a drawing to scale. The scale she used was 1 millimetre : 2 metres. The goat pen is 2.5 millimetres in the drawing. How wide is the actual pen?
    A. 5 millimetres
    B. 5 centimetres
    C. 5 meters
    D. 0.5 meters
    E. 0.05 meters

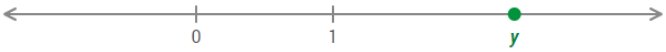
56. Suzie and her friends made dinner reservations at two local restaurants on two different days. While the first restaurant sat all the friends in groups of 4, the second restaurant sat all the friends in groups of 12. What is the smallest number of people that could be in the group?
    A. 6 people
    B. 8 people
    C. 12 people
    D. 24 people
    E. 48 people

57. 1.9×10^5 =?
    A. 190 000
    B. 1 900 000
    C. 1 900
    D. 95 000
    E. 950 000

58. Xavier went on a three-day fishing trip. On the first day, he caught 18 trout and 9 salmon. On the second day, he caught 15 trout and 7 salmon. On the third day, he caught 17 trout and 8 salmon. On which day of the fishing trip did Xavier catch a higher ratio of trout to salmon?
    A. The first day
    B. The second day
    C. The third day
    D. The second day and the third day have the same ratio.
    E. Neither, all the ratios are the same.

59. Brianna runs a day care centre. Of the last 15 children to enrol at the day care centre, 6 of them have been toddlers. What is the experimental probability, in simplest form, that the next child to enrol will be a toddler?
    A. 2/5
    B. 3/5
    C. 1/3
    D. 6/15
    E. 9/15

60. The number line below shows an unknown number, y. Decide which of the following statement is not correct.



    A. 3y is larger than 3
    B. 10 y - 3y is a positive value
    C. -5y is smaller than 5y
    D. -5y – (-2y) is a positive value
    E. –y is smaller than -1