SST6 Numerical Reasoning (EDU)

Simulation Test 15

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

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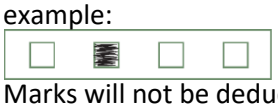
Advice for the test:

- 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:

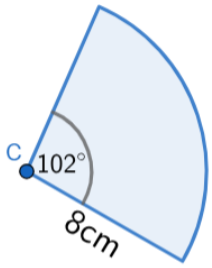
- Use a B or HB pencil.
- Write your name, student ID and test code on the sheet.
- Shade the box which indicates your answer. All answers must be completed like THIS example:



- 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. The midpoint between (-1 , 0) and (-6, 20) is
   A. (-7 , 10)
   B. (-3.5 , 20)
   C. (-7 , 20)
   D. (-3.5 , 10)
   E. (-4 , 10)

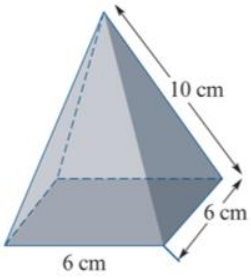
2. The shape is a sector of a circle. Which of the following is the closest approximation of its area?



   A. 40 cm^2
   B. 60 cm^2
   C. 80 cm^2
   D. $100cm^2$
   E. 200 cm^2

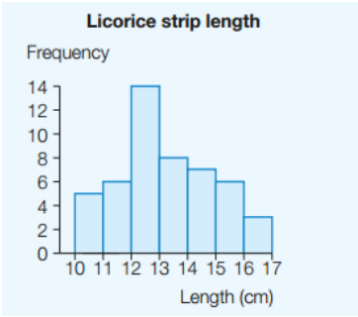
3. In a test, Amy did 36 questions correctly and scored 60%. How many questions were in the test?
   A. 40
   B. 45
   C. 50
   D. 60
   E. 90

4. Find the total surface area of the following square-based pyramid



   A. 360 cm^3
   B. 120 cm^3
   C. 156 cm^3
   D. 156 cm^2
   E. 276 cm^2

5. A packet of licorice strips contains 50 strips but the strips are different lengths as shown in the graph. What is the probability of taking a strip which has a length from 14 to 16 cm?



   A. $\frac{6}{50}$
   B. $\frac{7}{50}$
   C. $\frac{13}{50}$
   D. $\frac{14}{50}$
   E. $\frac{16}{50}$

6. Simplify $\frac{1}{8} : \frac{3}{4}$
   A. 1:3
   B. 2:3
   C. 1:6
   D. 1:4
   E. 2:4

7. A train travelling at a speed of 70km/h enters a tunnel that is 2.1 km long. The length of the train is 0.7 km. How long does it take for all of the train to pass through the tunnel from the moment the front enters to the moment the rear emerges?
   A. 18 seconds
   B. 18 minutes
   C. 1 minutes and 48 seconds
   D. 2 minutes and 24 seconds
   E. 2 minutes and 40 seconds

8. Lamp posts are positioned at intervals of 150m along Hamington Road and pots of oak trees are placed at intervals of 80m. The first pot of an oak tree is placed at the foot of the first lamp post. If the last pot of an oak tree is placed at the foot of a lamp post, find the shortest possible distance of Hamington Road.
   A. 320m
   B. 450m
   C. 640m
   D. 1200m
   E. 2400m

9. One of the numbers below was printed incorrectly.
   2 5 8 10 4 16 64
   A. 5
   B. 8
   C. 10
   D. 4
   E. 16

10. 6, 8, 11, 16, 23, ?
    A. 25
    B. 32
    C. 34
    D. 37
    E. None of the above

11. $\frac{1}{5} \times (1 + \frac{1}{6})$ is NOT the same as

    A. $\frac{1}{5} \times 1 + \frac{1}{5} \times \frac{1}{6}$
    B. $\frac{1}{5} \times 1\frac{1}{6}$
    C. $\frac{1}{5} \times \frac{7}{6}$
    D. $\frac{1}{5} \times 1 + \frac{1}{30}$
    E. $\frac{1}{5} + \frac{1}{6}$

12. How many different numbers can you make by multiplying two one-digit even numbers?
    A. 6
    B. 8
    C. 9
    D. 10
    E. 12

13. Armin and Jie are given savings accounts by their grandmother, with the same amount of money in each. Armin is a good saver and puts an extra $5 into his account each week. Jie takes $1 out of her account every week. After 10 weeks, Armin has 3 times as much in his account as Jie has in her account. What was the starting amount in each account?
    A. $30
    B. $40
    C. $50
    D. $80
    E. $100

14. The product of the ages of one daughter and her parents is 2610. The age of the daughter is the smallest prime odd number and her mother is one year older than her father. Find the age of the mother.
    A. 34
    B. 30
    C. 29
    D. 27
    E. None of the above

15. Two frogs live together in a backyard pond. One frog croaks every 5 minutes, the other frog croaks every $2\frac{1}{3}$ minutes. If they both croak together at 11am, how many times will they croak together between 11am and 1pm? (including the first time)
    A. 2 times
    B. 3 times
    C. 4 times
    D. 6 times
    E. 7 times

16. Claire's grandmother is a mathematics teacher and she sent Claire a gift card for the birthday. She wrote on the card:

Dear Claire,
Wishing you a day filled with happiness and a year filled with job. I'm giving you the following amount to spend as you wish
$\frac{1}{2} of \frac{2}{3} of \frac{3}{4} of \frac{4}{5} of \frac{5}{6} of \ldots \frac{999}{1000}\ of\ \$100\ 000.$
Love, grandmother

How much birthday money did Claire receive?
    A. $59.29
    B. $\$\frac{1999}{1000}$
    C. $\frac{999}{2}\ of\ \$100\ 000$
    D. $100
    E. None of the above

Questions 17 and 18 are based on the following information.

17. In a circular race of 1200m, Vidara and Bai start from the same point and drive at the same time with speeds of 27km/h and 45km/h respectively. They start at 10:30am in the same direction. Find when they will meet each other for the first time on the track when they are running.
    A. 10:31am
    B. 10:34am
    C. 10:40am
    D. 10:50am
    E. None of the above

18. If they drive in opposite directions, find when they will meet each other for the first time.
    A. 10:31am
    B. 10:32am
    C. 10:34am
    D. 10:40am
    E. 10:50am

19. Subtract 25% of a number from 300% of 15, resulting in 9. Find what the number is.
    A. 36
    B. 51
    C. 100
    D. 120
    E. 144

20. Which of the following quadrilateral has only one pair of parallel lines?
    A. Squares
    B. Rhombuses
    C. Kites
    D. Trapeziums
    E. Hexagons

21. There are a certain number of balls with five colours in a bucket. The probability of getting a blue or yellow ball is 2/5, while the probability of getting a red or green ball is 1/5. There are 16 black balls in the bucket. Find out the total number of balls.
    A. 36
    B. 40
    C. 42
    D. 50
    E. 52

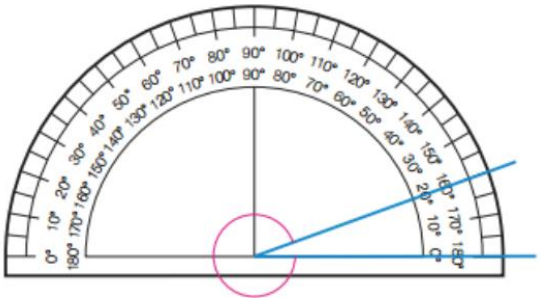
22. $(-2)^{(-2)^2}$=
    A. 6
    B. -8
    C. 8
    D. 16
    E. -16

23. What is the size of an interior angle in a regular octagon?
    A. 100 degrees
    B. 120 degrees
    C. 135 degrees
    D. 160 degrees
    E. 1080 degrees

24. The width of one rectangle is one third of its length and its perimeter is 32 cm. Find its area.
    A. 4 cm^2
    B. 12 cm^2
    C. 36 cm^2
    D. 48 cm^2
    E. 64 cm^2

25. Four DVDs and six books cost $460. One DVD is $15 more expensive than a book. How much is each book?
    A. $40
    B. $45
    C. $55
    D. $58
    E. $60

26. Jimmy uses a semicircular protractor to measure an angle larger than 180 degrees.
    Find the size of the actual angle (larger than 180 degrees) if the smaller angle he has measured is as shown in the picture.



    A. 20 degrees
    B. 160 degrees
    C. 280 degrees
    D. 340 degrees
    E. 380 degrees

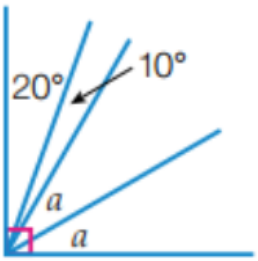
27. 9999 x 2222 + 3333x3334 =?
    A. 18976050
    B. 28946010
    C. 32578900
    D. 33330000
    E. 45782300

28. Round 69.99 to two decimal places.
    A. 69.00
    B. 69.90
    C. 70.00
    D. 70
    E. 70.0

29. The sum of the digits of a two digit number is multiplied by 8. The result is 8 more than the number. Find the two-digit number.
    A. 14
    B. 26
    C. 32
    D. 40
    E. 55

30. Alex earns 80% of Belly's wage, which is half of Steven's wage. Their wages adding together equals to $114 per hour. Find Alex's wage.
    A. $20/h
    B. $24/h
    C. $30/h
    D. $57/h
    E. $60/h

31. Find the size of the unknown angle.



    A. 15 degrees
    B. 30 degrees
    C. 45 degrees
    D. 60 degrees
    E. 90 degrees

32. $\blacksquare + \blacksquare + \blacksquare + \emptyset + \emptyset = 80$
    $\blacksquare + \emptyset = 30$
    $\forall + \emptyset = 40$
    $\emptyset + \forall + \blacksquare = ?$
    A. 45
    B. 50
    C. 60
    D. 65
    E. 70

33. Find what digit does each letter represent?

$$\begin{array}{cccc} & A & B & C \\ \times & & & A \\ \hline 1 & 0 & A & C \end{array}$$

    A. A=5, B=3, C=0
    B. A=3, B=4, C=5
    C. A=2, B=5, C=0
    D. A=5, B=3, C=5
    E. None of the above

34. For $\frac{1}{5} \div \frac{1}{5} \div \frac{1}{5} \div \ldots \div \frac{1}{5} = 5^{200}$, how many 1/5 are needed?
    A. 40
    B. 101
    C. 200
    D. 202
    E. None of the above

35. In Top Scope College, 22 students from SST 6 Class 5F scored 85 marks above in a mathematics quiz. 30 students from the same class scored 85 marks and above in an English quiz. If the class size is 42, how many students scored 85 marks and above in both quizzes?
    A. 8
    B. 10
    C. 12
    D. 22
    E. 30

36. At Mary's gymnastics camp, the gymnasts spent 1 hour and 15 minutes on the balance beam and 45 minutes practising vaulting. If the gymnastics camp ended at 11:30 A.M., what time did it start?
    A. 9:00 am
    B. 9:15 am
    C. 9:30 am
    D. 10:05 am
    E. 10:15 am

37. Ayana measured a city park and made a scale drawing. In real life, the soccer field is 78 metres wide. It is 26 millimetres wide in the drawing. What scale did Ayana use for the drawing?
    A. The scale of the drawing is 1 millimetre : 3 metres.
    B. The scale of the drawing is 3 millimetre : 1 metre.
    C. The scale of the drawing is 1 millimetre : 30 metres.
    D. The scale of the drawing is 30 millimetre : 1 metre.
    E. The scale of the drawing is 3 millimetre : 30 metre.

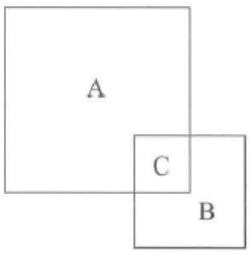
38. The product of m and 88 is a perfect square number. Which of the following is the smallest possible value of m?
    A. 4
    B. 12
    C. 16
    D. 22
    E. 88

39. Eric, Leon and Xiaoming went to the funfair. They bought the same number of ride tickets, but Eric bought them in packs of 15, Leon bought them in packs of 3 and Xiaoming bought in packs of 6. What is the smallest possible number of tickets they each bought?
    A. 18 tickets
    B. 30 tickets
    C. 35 tickets
    D. 60 tickets
    E. 120 tickets

40. Write the result of $7 \times 10^3 \times 3 \times 10^6$ in a scientific notation form.
    A. 21×10^6
    B. 21×10^9
    C. 2.1×10^{10}
    D. 21000000000
    E. 210000000000

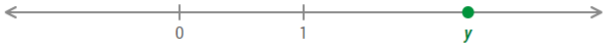
41. $If\ 3^A = 81, 4^B = 64$, the product of A and B is
    A. 3
    B. 4
    C. 9
    D. 12
    E. 16

42. The figure below is made up of A, B and C, which are squares of sides 20cm, 8cm and 4cm respectively. What is the area of the figure?



    A. $496\ cm^2$
    B. $464\ cm^2$
    C. $448\ cm^2$
    D. $400\ cm^2$
    E. $396\ cm^2$

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



    A. –y is a positive value
    B. y^2 is a value larger than 1
    C. $-\frac{1}{y} < -1$
    D. $y - 3y$ is a negative value
    E. $0 < \frac{1}{1000y} < 1$

44. What digit does each letter represent?

$$\begin{array}{cccc} & A & B & C \\ \times & & & A \\ \hline & 2 & C & 9 & 0 \end{array}$$

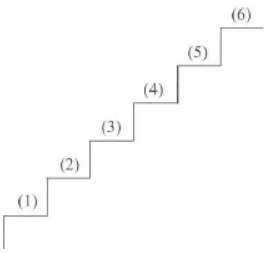
    A. A=4, B=6, C=8
    B. A=5, B=7, C=8
    C. A=6, B=5, C=4
    D. A=4, B=7, C=5
    E. A=5, B=6, C=7

45. For a sequence as 1, 1, A, 3, B, 8, 13 …, find the sum of A and 3B
    A. 5
    B. 15
    C. 17
    D. 20
    E. 24

46. There are 5 yellow balls, 6 pink balls, 10 black balls and 4 red balls. How many balls at least need to be taken to ensure that you have three balls of different colours?
    A. 12
    B. 15
    C. 18
    D. 24
    E. 27

47. The average score of 15 students in one class in Top Scope College is 72%. After 10 new students have enrolled in the class, the average becomes 70%. What is the average of the new 10 students?
    A. 65%
    B. 67%
    C. 68%
    D. 70.5%
    E. 71%

48. There is a flight of 7 steps in a staircase. David can take single or double steps each time when he climbs the staircase. In how many ways can he complete the climbing?



    A. 7
    B. 14
    C. 17
    D. 21
    E. 28

49. 1, -3, 5, 0, 25, 3, ?

    A. 6
    B. 75
    C. 125
    D. 12
    E. 28

50. It took 65 seconds for a train to pass a bridge that is 1200 m long. It took the same train, travelling at the same speed, 85 seconds to pass a tunnel that is 1600m long. How long was the train? At what speed was the train travelling?
    A. The train was 100m long and it was travelling at 20m/s.
    B. The train was 80m long and it was travelling at 25m/s.
    C. The train was 110m long and it was travelling at 20m/s.
    D. The train was 120m long and it was travelling at 40km/h.
    E. There was no sufficient information to find the answers.