DEPARTMENT OF EDUCATION

CENTRAL TIBETAN ADMINISTRATION

Wasatch 2024

Subject: Mathematics

Duration: $2\frac{1}{2}$ hours

M.M : 80

General Instructions

1. In this paper, there are four sections: A, B, C and D.

2. All the questions in this paper are compulsory.

3. Read and re-read carefully to understand the instructions and questions before answering them.

4. Writing neatly and clearly will always go well in your favour! If your writing cannot be read – marks can't be awarded.

SECTION A (10 MARKS)	
Direction: For each question, there are FOUR responses: A, B, C and D. Choose the correct alternative and circle it. DO not circle more than one alternative. If there are more than ONE choice circled, NO score will be awarded.	
1. Solve $\frac{1}{4}-(-\frac{5}{12})$ A) $\frac{9}{12}$ B) $\frac{-1}{3}$ C) $\frac{2}{3}$ D) $\frac{1}{2}$	
2. If the square root of 25x is 10. What is the value of x. A) 4 B) 2 C) 5 D) 6	
3. Express 81^{-2} in the power of 3. A) 3^8 B) $(\frac{1}{3})^8$ C) 3^{-6} D) $(\frac{1}{3})^6$	
4. The value of x in the equation $\frac{x-5}{2}= 8$ is A) 9 B) -11 C) 11 D) 21	
5. A USB drive can hold 16 gigabytes of data. If Pema's video used 12 gigabytes of its memory, what percent of the memory has been used. A) 25% B) 45% C) 55% D) 75%	
6. The table below shows the price of a mobile phone on sale with the different discount amounts. *Which shop offers the best discount for the mobile phone.*	

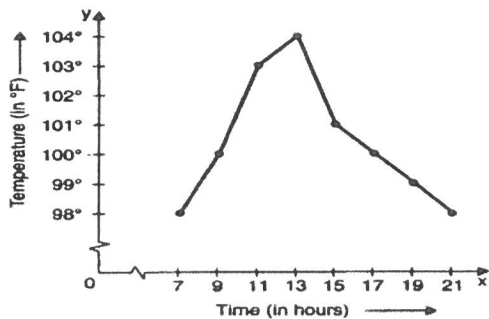| Shop	Selling Price in Rs	Discount
1	15000	25%
2	15000	Half of the price
3	15000	30%
4	15000	Rs 5000

A) Shop1   B) Shop 2   C) shop 3   D) Shop4

| 7. The volume of cube whose edge is 6cm is
 A) $216cm^2$ B) $216cm$ c) $216m^3$ D) $216cm^3$ | |

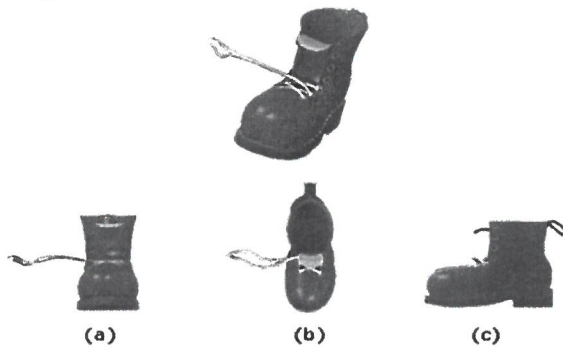|	
8. Tally marks are used to find which of the following (a) lower limits (b) upper limits (c) class marks (d) frequency	
9. Which of the following points lies on y-axis? (a) (-4, 0) (b) (4, 0) (c) (0, -4) (d) (-4, 4)	
10. Observe the following temperature time graph and answer the related questions: At what time is the temperature maximum? (A) 13 hours (B) 15 hours (C) 11 hours (d) 19 hours.	

SECTION B (20MARKS)

11. Divide 50 by half and add25. What is the answer?

12. Give a reason why the following 1057are not perfect squares.

13. Find the square of 71

14. Expand $(2x - 3y)^2$

15. Factorise $100m^2 - 81n^2$

16. Sum of two numbers is 95. If one exceeds the other by15, find the numbers.

14. A train is moving at a uniform speed of 100 km/h. How far will it travel in 20 minutes?

18. Explain how a square is a parallelogram.

19. Identify the given views of the shoe.
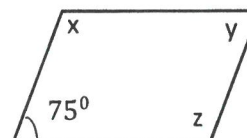

     (a)   (b)   (c)

20. The following table gives the number of vehicles passing through a busy crossing in Dharamsala in different time intervals on a particular day. Represent the below data by a bar graph.

Time intervals	8-9 hrs	9-10hrs	10-11hrs	11-12hrs	12-13 hrs	13-14hrs	14-15hrs
Number of vehicles	300	400	350	250	200	150	100

SECTION C (30MARKS)

21. Find the smallest number by which 243 must be multiplied to obtain a perfect cube.

22. If $a = \frac{1}{2}$, $b = \frac{-3}{4}$, verify the following:
    (i) $a \times b = b \times a$ (ii) $a + b = b + a$

23. Tenzin's mother is four times as old as Tenzin. After five years, his mother will be three times as old as he will be then. What are their present ages?

24. Lhakyi bought two fans for Rs 1200 each. She sold one at a loss of 5% and the other at a profit of 10%. Find the selling price of each. Also find out the total profit or loss.
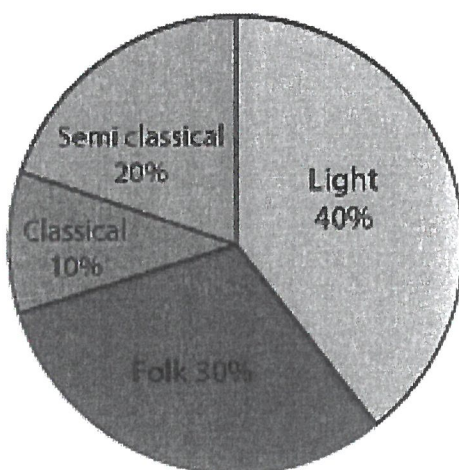
25. BEST is a parallelogram. Find the values of the unknown x, y and z.

26. The area of a trapezium is 400 cm², the distance between the parallel sides is 16 cm. If one of the parallel sides is 20 cm, find the length of the other side.

27. A rectangular metal sheet of length 44 cm and breadth 11 cm is folded along its length to form a cylinder. Find its volume.

28. The weekly wages (in Rs.) of 30 workers in a factory are: 830, 835, 890, 810, 835, 836, 869, 845, 898, 890, 820, 860, 832, 833, 855, 845, 804, 808, 812, 840, 885, 835, 835, 836, 878, 840, 868, 890, 806, 840.

    Using tally marks, make a frequency table with intervals as 800 – 810, 810 – 820 and so on.

29. A survey was made to find the type of music that a certain group of young people liked in a city. The adjoining pie chart shows the findings of this survey. From this pie chart, answer the following:

   (i) If 20 people liked classical music, how many young people were surveyed?

   (ii) If a cassette company were to make 1000 CD's, how many of each type would they make?

30. Plot the following points on a graph sheet. Verify if they lie in a line:
    (a) A(4,0), B(4,2), C(4,6), D(4,2.5).

SECTION D (20 MARKS)

31. Find x if $2^{10} - 2^9 = 2^x$

32. A mixture of paint is prepared by mixing 1 part of red pigments with 8 parts of base. In the following table, find the parts of base that need to be added.

Parts of red pigment	1	4	7	12	20
Parts of base	8	–	–	–	–

33. Construct a quadrilateral ABCD, where AB= 4cm, BC=5cm, C D=6.5cm and ∠B =105⁰ and ∠c =80⁰.

34. Find x, y, z in the given parallelogram ABCD.