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MATHEMATICS

(Special)

(Lower Grade Mathematics for Candidates with Special Learning Disabilities)

(CANDIDATES WITH PRACTICALS/INTERNAL ASSESSMENT)

Full Marks : 80

Pass Marks : 24

(NON-REGULAR, PRIVATE AND COMPARTMENTAL CANDIDATES WITHOUT PRACTICALS/ INTERNAL ASSESSMENT)

Full Marks : 100

Pass Marks : 30

Time : 3 hours

(FOR BOTH CATEGORIES OF CANDIDATES)

The figures in the margin indicate full marks for the questions

General Instructions :

(i) The question paper consists of 32 questions divided into six Sections A, B, C, D, E and F.

(ii) Question Nos. **1** to **30** (Section—A to Section—E) are to be answered by all the **Candidates**.

(iii) Question Nos. **31** and **32** of Section—F are to be answered only by the **Candidates without Practicals/Internal Assessment**.

(iv) Section—A contains 8 questions of 1 mark each.
Section—B contains 7 questions of 2 marks each.
Section—C contains 8 questions of 3 marks each.
Section—D contains 4 questions of 4 marks each.
Section—E contains 3 questions of 6 marks each.

(v) In Question Nos. **1** to **7** of Section—A and Question No. **31** sub Nos. *(a)* to *(d)* of Section—F, there are four answers marked (A), (B), (C) and (D). Only one of these answers is correct. The letter indicating the correct answer should be written in Capital in the answer book.

(vi) Use of Electronic device is not permitted.

SECTION—A

(*Marks* : 8)

(*Question Nos.* ***1*** *to* ***8*** *carry 1 mark each*)

1. The value of $\left(\frac{3}{4}\times\frac{1}{2}\right)$ is

(A) $\frac{3}{8}$

(B) $\frac{3}{4}$

(C) $\frac{6}{4}$

(D) $\frac{8}{3}$

2. The value of $(2^3)^2$ is

(A) 2^6

(B) 2^5

(C) 2

(D) $2^{\frac{1}{2}}$

3. 10% of a journey is 72 km. The whole journey is

(A) 7·2 km

(B) 72 km

(C) 720 km

(D) 7200 km

4. If the circumference of a circle is 88 cm, its radius is

(A) 88 cm

(B) 44 cm

(C) 28 cm

(D) 14 cm

5. Which of the following is a negative natural number?

(A) $\frac{3}{4}$

(B) $\frac{-8}{9}$

(C) $\frac{-34}{-61}$

(D) $\frac{4}{14}$

6. The standard form of the fraction $\frac{16}{56}$ is

(A) $\frac{8}{28}$

(B) $\frac{4}{14}$

(C) $\frac{2}{7}$

(D) $\frac{16}{56}$

7. Raj buys a book for ₹ 200 and sells it for ₹ 230, the profit is

(A) ₹ 200

(B) ₹ 230

(C) ₹ 30

(D) ₹ 430

8. State whether the following statements are *True* or *False* : ½×2=1

(a) When a number '*a*' works on another number '*b*' to create a new number '*c*', then '*b*' is called operator.

(b) The negative numbers, the positive numbers and zero together form the set of integers.

SECTION—B

(*Marks* : 14)

(*Question Nos.* ***9*** *to* ***15*** *carry 2 marks each*)

9. Express 0·75 into percentage.

10. Simplify : $\frac{3}{4} \times \frac{2}{9} \times \frac{3}{4}$

11. The diameter of a circle is 8 cm. Find the circumference of the circle. (use $\pi = \frac{22}{7}$)

Or

Find the diameter of a circle with circumference 440 mm. (use $\pi = \frac{22}{7}$)

12. Convert $\frac{4}{25}$ into decimal.

13. Find the mode of the group 3, 4, 3, 5, 3, 6, 3, 8 and 4.

14. Simplify : $5^7 \div 5^3$

Or

Find the value of $\left(\frac{2}{3}\right)^4$.

15. Simplify : 14·5 ÷ 2·9

SECTION—C

(*Marks* : 24)

(*Question Nos.* ***16*** *to* ***23*** *carry 3 marks each*)

16. Simplify : $\left(\frac{-4}{9}\right)\times\left(\frac{-7}{8}\right)$

17. The inner and outer radii of a cylindrical pipe are 5 cm and 4 cm respectively. Find the area of the cross-section of the pipe. (Use $\pi = 3{\cdot}14$)

Or

The length of a rectangular hallway is 3 times its breadth. If the perimeter of the hallway is 48 cm, find its length and breadth.

18. Find the value of $40(-23)+40(-17)$.

19. The cost of a transistor decreases from ₹ 400 to ₹ 380. Find the percentage of decrease.

20. The marks in Science of 13 students are

31, 37, 29, 41, 35, 35, 38, 36, 35, 38, 32, 29, 43

Find the mean mark.

21. A train travels 90 km in 1½ hours. How long will it travel in 3 hours 30 minutes at the same speed?

22. A bridge is to be constructed in three phases. $\frac{2}{9}$ part of the bridge was completed in phase I and $\frac{5}{14}$ in phase II. How much part of the bridge remains to be constructed in phase III?

Or

A dozen apples weigh 2·4 kg. How many apples will weigh 10·2 kg?

23. Sheela invited 24 children to her birthday party. For each boy, there were 2 girls in the party. How many girls and how many boys were there?

SECTION—D

(*Marks* : 16)

(*Question Nos.* ***24*** *to* ***27*** *carry 4 marks each*)

24. A certain sum of money doubles itself at simple interest in 8 years. In how many years will it be three times at the same rate?

25. The area of a rectangular lawn is the same as the area of an 18 cm long square. If the length of the rectangular lawn is 27 cm, find its perimeter.

Or

To make fence around a circular garden, the total cost is ₹ 26,400 at the cost of ₹ 50 per meter. Find the radius of the circle. (use $\pi = \frac{22}{7}$)

26. Simplify : $\frac{1}{3}+\left(\frac{-3}{4}\right)+\frac{7}{8}$

27. The total wages of 30 labours were ₹ 3,450 per day. What will be the total wages if 12 more labours were added to the team?

SECTION—E

(*Marks* : 18)

(*Question Nos.* ***28*** *to* ***30*** *carry 6 marks each*)

28. The letters of the word 'PROBABILITY' are placed in a bag and one letter is taken out at random. Find the probability of the letters :

(a) P

(b) B

(c) R

(d) I

Or

Use the following table to construct a bar graph to display the information above the number of geometry boxes sold by a stationer in the first half of 2020 :

Months	Jan	Feb	March	April	May	June
Number of geometry boxes sold	3	5	17	14	10	2

29. Arrange the rational numbers $\frac{5}{8}, \frac{5}{6}, \frac{-3}{4}, \frac{11}{12}$ and $\frac{2}{3}$ in the ascending order.

30. A 1·5 m wide footpath runs all along the fence outside a park 40 m long and 30 m wide. What is the perimeter of the fence and what is the area of the footpath?

Or

In a circular garden of diameter 150 m, a pond is constructed in the form of a circle with radius 20 m. Find the area of the land left out. (Use $\pi = 3{\cdot}14$)

SECTION—F

(*Marks* : 20)

(*Question Nos.* ***31*** *and* ***32*** *are for* **Candidates appearing for 100 marks**)

31. Answer the following as directed (any *eight*) : 1×8=8

(a) If x is a rational number, a and b are integers, then the value of $(x^a \times x^b)$ is

(A) $x^{(a-b)}$

(B) $x^{(a+b)}$

(C) x^{ab}

(D) $x^{\frac{a}{b}}$

(Choose the correct option)

(b) The value of $3{\cdot}6 \times 100$ is

(A) 0·036

(B) 3·600

(C) 0·36

(D) 360

(Choose the correct option)

(c) The circumference of a circle with r unit is

(A) πr units

(B) $2\pi r$ units

(C) πr^2 square units

(D) $2\pi r^2$ square units

(Choose the correct option)

(d) The value of $\frac{2}{3}$ of $\frac{3}{4}$ of 24 is

(A) 16

(B) 12

(C) 48

(D) 144

(Choose the correct option)

(e) Define mean of a data.

(f) There are infinite positive numbers greater than zero and there are infinite negative numbers lesser than zero.

(State True or False)

(g) Selling price – Cost price = _____.

(Fill in the blank)

(h) Express $\frac{33}{55}$ in the lowest term.

(i) Find 5% of ₹ 75.

(j) Simple interest + Principal = _____.

(Fill in the blank)

32. Answer any *six* from the following : 2×6=12

(a) Convert $\frac{9}{20}$ into percentage.

(b) Simplify : $\frac{-3}{4}+\frac{18}{20}$

(c) Find the mean of the data 3, 4, 3, 5, 3, 6, 3, 8 and 4.

(d) Find the value of $4{\cdot}64 \times 0{\cdot}5$.

(e) Find the area of a square whose perimeter is 64 cm.

(f) Find the rate of interest on ₹ 200 for 4 years and simple interest is ₹ 40.

(g) Simplify : $3^2 \div 3^4$

(h) Define sample space.

(i) If the circumference of a circle is 88 m, find the area of the circle. (use $\pi = \frac{22}{7}$)

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