

SATISH CHANDRA MEMORIAL SCHOOL

CASE-STUDY TEST (2024-25)

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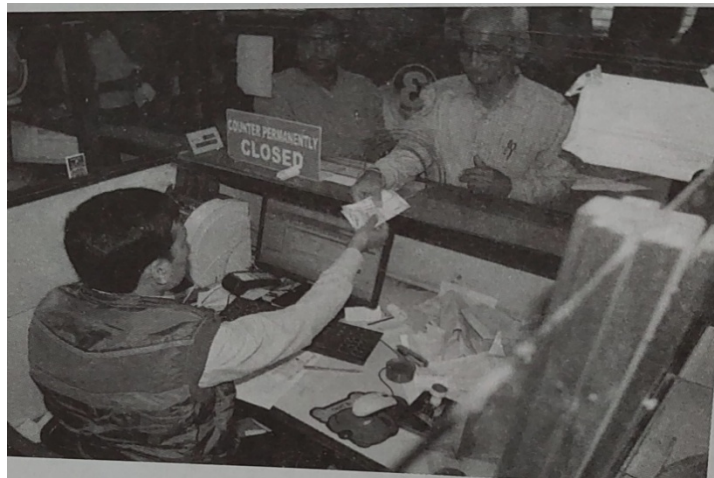
MATHEMATICS (041)

Time allowed: 30 min

Maximum Marks: $7 \times 2 = 14$

CASE –STUDY I

1) Hardik repays his loan of Rs 1,32,000 by paying every month. Starting with the first installment of Rs 1500. He increases his installment by Rs 200 every month. . $(1+1+1+2+2=7)$



Based on the above information answer the following questions:

- i) If the amount paid in successive installments from an AP then write the first term and common difference.

A) Rs 132000, Rs 200	B) Rs 200, Rs 1500
C) Rs 1500, Rs 200	D) None of these

- ii) What is the amount paid by Hardik in 15th installment?

A) Rs 4200	B) Rs 4300
C) Rs 4400	D) None of these

- iii) In which installment will he pay Rs 5500?

A) 19	B) 20
C) 21	D) None of these

iv) What is the value of k if 11, $2k+1$, $3k-1$ form an AP?

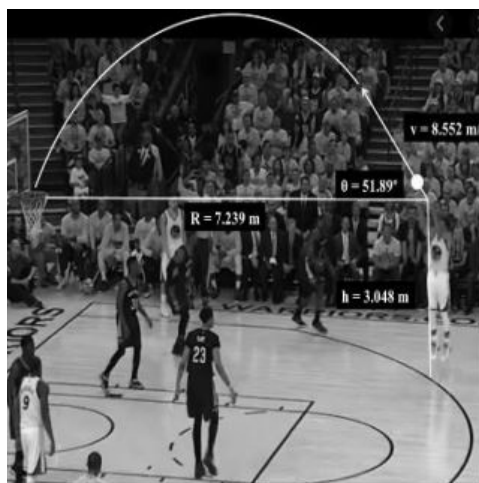
A) -12	B) -13
C) 8	D) None of these

v) How many instalments shall clear debt?

A) 26	B) 28
C) 30	D) None of these

CASE –STUDY II

- 2) Basketball and soccer are played with a spherical ball. Even though an athlete dribbles the ball in both sports, a basketball player uses his hands and a soccer player uses his feet. Usually, soccer is played outdoors on a large field and basketball is played indoor on a court made out of wood. The projectile (path traced) of soccer ball and basketball are given in the figure below of representing a polynomial. ($1+1+1+2+2=7$)



Based on the above information answer the following questions:

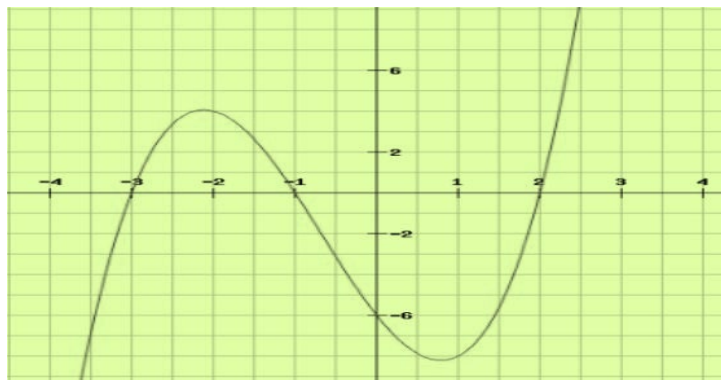
i) The shape of the path traced shown is

a) Spiral	b) Ellipse
c) Linear	d) Parabola

ii) The graph of parabola opens upwards, if _____

a) $a = 0$	b) $a < 0$
c) $a > 0$	d) $a \geq 0$

iii) Observe the following graph and answer



In the above graph, how many zeroes are there for the polynomial?

a) 0	b) 1
c) 2	d) 3

iv) The zeroes in the above shown graph are

a) 2, 3, -1	b) -2, 3, 1
c) -3, -1, 2	d) -2, -3, -1

v) If the sum of the roots is p and product of the roots is $-p$, then the quadratic polynomial is:

a) $k(px^2 + px + p)$	b) $k(px^2 - x/p - 1)$
c) $k(x^2 - px - p)$	d) $k(x^2 - px + p)$