Sig. of Candidate: $\qquad$
$\qquad$ Sig. of Invigilator: $\qquad$

## Federal Board SSC-I Examination General Mathematics Model Question Paper

## $\underline{\text { SECTION - A }}$

Time allowed: 20 minutes
Marks: 15
Note: Section-A is compulsory. All parts of this section are to be answered on the question paper itself. It should be completed in the first 20 minutes and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. Do not use lead pencil.

## Q. 1 Fill the relevant bubble for each part. Each part carries (01) mark.

i. If $x=\sqrt{5}+2$ then $\frac{1}{x}=$ ?
A. $\sqrt{5}-2$
B. $-\sqrt{5}+2$
C. $\quad-\sqrt{5}-2$
D. $5-\sqrt{2}$
ii. For what value of $k, x^{2}+4 k x-5$ is completely divisible by $x-1$ ?
A. $\frac{3}{2}$
B. 1
C. -1
D $-\frac{3}{2}$
iii. The LCM of $x^{2}-a^{2}$ and $(x+a)^{2}$ is
A. $(x-a)(x+a)$
B. $(x-a)(x+a)^{3}$
C. $(x-a)(x+a)^{2}$
D. $(x+a)^{2}$
iv. The square root of $49 x^{2}+112 x y+64 y^{2}$ is
A. $(7 x+8 y)^{2}$
B. $(7 x+8 y)$
C. $(7 x-8 y)$
D. $\pm(7 x+8 y)$
v. What is the solution set of $\sqrt{x-4}=-2$ ?
A. $\{8\}$
B. $\{0\}$
C. $\{2\}$
D. $\}$
vi. The solution set of $\quad|3 x-4|=|x|$ is:
A. $\{2,1\}$
B. $\}$
C. $\{0\}$
D. $\{2\}$
vii. What are the multiplicative factors of $(x-3)^{2}-4$ ?
A. $(x-5)(x+1)$
B. $(x+5)(x-1)$
C. $(x-5)(x-1)$
D. $(x+5)(x+1)$
viii. If $A$ and $B$ are square matrices, then which of the options is false?
A. $(A B)^{t}=B^{t} A^{t}$
B. $(A-B)^{t}=A^{t}-B^{t}$
C. $A B \neq B A$
D. $(k A)^{t}=k^{t} A^{t}$
ix. What is the value of $x$ in the figure when $y=40^{\circ}$ ?
A. $10^{\circ}$
B. $\quad 12.5$
C. $35^{\circ}$
D. $45^{\circ}$
x. What is the value of $x$ in the figure?
A. $45^{\circ}$
B. $60^{\circ}$
C. $30^{\circ}$
D. $40^{\circ}$

xi. What is the length of $\overline{A D}$ in the figure?
B. 9
D. $\sqrt{225}$
A. 8
C. 17

xii. Each side of an equilateral triangle is 10 cm . The height of triangle is
A. 5 cm
B. $5 \sqrt{3} \mathrm{~cm}$
C. $10 \sqrt{2} \mathrm{~cm}$
D. $10 \sqrt{3} \mathrm{~cm}$
xiii. The volume of a right circular cylinder having radius 2 cm and height 7 cm is
A. $\quad 88 \mathrm{~cm}^{3}$
B. $29.3 \mathrm{~cm}^{3}$
C. $\quad 33.5 \mathrm{~cm}^{3}$
D. $\quad 117.3 \mathrm{~cm}^{3}$
xiv. The perpendicular distance of the point $(-3,4)$ from $y$-axis is
A. 4
B. -3
C. 3
D. 5
xv. For what value of $x$, distance between the points $\mathrm{A}(4, x)$ and $\mathrm{B}(1,0)$ is 5 ?
A. 0
B. $\pm 2$
C. $\pm 3$
D. $\pm 4$

## Federal Board SSC-I Examination

## General Mathematics Model Question Paper

Time allowed: 2.40 hours
Total Marks: 60
Note: Attempt all parts from Section 'B' and all questions from Section 'C' on the separately provided answer book. Write your answers neatly and legibly.

## SECTION - B (Marks 36)

Note: Attempt all parts. Each part carries (04) marks.
Q2 i. Find the continued product of $(2 x-3 y)(2 x+3 y)\left(4 x^{2}+6 x y+9 y^{2}\right)\left(4 x^{2}-6 x y+9 y^{2}\right)$

## OR

Factorize $4 x^{4}-5 x^{2} y^{2}+y^{4}$
ii. If $x=\sqrt{5}+2$ then find the value of $x^{2}-\frac{1}{x^{2}}$

## OR

Simplify the expression by rationalizing the denominator: $\sqrt{x^{2}+y^{2}}-\frac{x^{2}}{y+\sqrt{x^{2}+y^{2}}}$
iii. If $P(x)=3 x^{3}+k x-26$ is divisible by $(x-2)$, then find the value of $k$, if remainder is zero.

## OR

Find the square root of $36 x^{4}-96 x^{3}+76 x^{2}-16 x+1$
iv. Find the HCF of $x^{3}+27,2 x^{2}-5 x-3, x^{2}-2 x-15$

## OR

Find the LCM of $x^{2}-y^{2}, x^{4}-y^{4}, x^{6}-y^{6}$
v. Solve $\frac{1}{2}(3+4 x) \leq 6\left(\frac{1}{3}-\frac{1}{2} x\right)-\frac{1}{4}(2+10 x)$
and show the solution set on Number Line.

## OR

Solve $\sqrt{2} x^{2}+7 \sqrt{2} x+12 \sqrt{2}=0$ by using the quadratic formula.
vi. If $A=\left[\begin{array}{ll}5 & 2 \\ 2 & 1\end{array}\right], B=\left[\begin{array}{cc}4 & 2 \\ 3 & -1\end{array}\right]$ then find $(A B)^{-1}$

## OR

If $A=\left[\begin{array}{cc}-6 & 4 \\ 3 & -2\end{array}\right]$, then verify that $A \cdot A^{-1}=I=A^{-1} \cdot A$
vii. Draw a circle of radius 3 cm with center at O . Draw a chord and shade the portion showing the major arc of the circle.

## OR

Calculate radius of a sphere of volume $850 \mathrm{~m}^{3}$
viii. Show that the points $A(-1,1), B(3,2)$ and $C(7,3)$ are collinear.

## OR

Draw a right isosceles triangle with length of equal sides 4 cm and
ix. If $\triangle A B C \cong \triangle D E F$ then find the values of $x, y$ and $z$.


OR

If square of the hypotenuse of an isosceles right triangle is $128 \mathrm{~cm}^{2}$ then find the length $x$ of each side.


## SECTION - C (Marks 24)

Note: Attempt all questions. Each question carries (08) marks.
Q. 3 Simplify $\frac{x^{2}-1}{x^{2}+x-2} \times \frac{x^{3}+8}{x^{4}+4 x^{2}+16} \div \frac{x^{3}+x}{x^{3}+2 x^{2}+4 x}$

## OR

The sum of two positive numbers is 12 and the sum of whose squares is 80 . Find the numbers.
Q. 4 At a carry-out pizza restaurant, an order of 6 slice pizza and 2 juice drinks costs $R s .360$. A second order of 12 slice pizza and 5 juice drinks costs Rs. 750 . Use Cramer's Rule to find the cost of a pizza slice and a juice drink.

## OR

The length and breadth of a rectangle are $(3 x+2) \mathrm{cm}$ and $(3 x-2) \mathrm{cm}$ respectively. Find the value of $x$ and the perimeter if area of the rectangle is $77 \mathrm{~cm}^{2}$.
Q. 5 Draw medians of a triangle $A B C$ with $m \overline{B C}=5 \mathrm{~cm}, m \angle B=60^{\circ}$ and $m \angle C=30^{\circ}$

## OR

Draw two intersecting circles with radii 4 cm and 3 cm . If their centres are 6 cm apart, then draw two direct common tangents to the circles.

