2011

Roll No. | | | | | | |

Answer Sheet No._____

Sig. of Candidate._____

Sig. of Invigilator._____

MATHEMATICS SSC–II

SECTION – A (Marks 15)

Time allowed: 20 Minutes

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 **Circle the correct option i.e. A / B / C / D. Each part carries one mark.**

(i) Solution set of $3x+3=6$ is _____.

A. {4} B. {3} C. {2} D. {1}

(ii) Which of the following is a solution set of $\sqrt{x}=-3$?

A. {−3} B. { } C. {9} D. {3}

(iii) Eliminating x from the equations $x=\frac{1}{3n}$ and $x=2m$ we get _____.

A. $2mn=1$ B. $m=3n$ C. $2m=n$ D. $6mn=1$

(iv) The relation free from x for equations $x=a$ and $x=\frac{1}{b}$ is _____.

A. $a=b$ B. $b=1$ C. $a=1$ D. $ab=1$

(v) If $p^2 \propto \frac{1}{q^3}$ then _____.

A. $p^2=\frac{k}{q}$ B. $p^2=\frac{k}{q^3}$ C. $p^2=kq$ D. $p^2=kq^3$

(vi) If $x:y=u:w$, then $\frac{x}{y}$ = _____.

A. u B. w C. $\frac{u}{w}$ D. $\frac{w}{u}$

(vii) In a data the value which appears or occurs most often is called _____ of the data.

A. Mode B. Range C. Median D. Mean

(viii) The arithmetic mean of 45 numbers is 80. Their sum is _____.

A. $\frac{9}{16}$ B. $\frac{16}{9}$ C. 360 D. 3600

(ix) A triangle having all the three sides equal is called _____.

A. Congruent B. Similar

C. Equilateral triangle D. Isosceles triangle

(x) Two circles are congruent if their _____ are congruent.

A. Radii B. Diameter C. Chord D. Perpendicular

(xi) The diameter bisecting a chord is _____ to the chord.

A. Perpendicular B. Bisector C. Parallel D. Radii

(xii) All angles inscribed in a major arc are _____ angles.

A. Acute B. Obtuse

C. Complementary D. Supplementary

(xiii) A diameter is a chord which passes through the_____ of the circle.

A. Centre B. Radii C. Tangent D. Circumference

(xiv) Half of the length of diameter of the circle is called its _____.

A. Radius B. Centre C. Tangent D. Mid point

(xv) If $\sin 45°$ and $\cos 45°$ equal to $\frac{1}{\sqrt{2}}$ each, then the value of $2\sin 45° + 2\cos 45°$ is _____.

A. $\frac{4}{\sqrt{2}}$ B. $\frac{\sqrt{2}}{3}$ C. $\frac{\sqrt{2}}{4}$ D. None of these

_____

For Examiner's use only:

Total Marks: 15

Marks Obtained: ____

2011

MATHEMATICS SSC–II

Time allowed: 2:40 Hours **Total Marks Sections B and C: 60**

NOTE:- Answer any twelve parts from Section 'B' and any three questions from Section 'C' on the separately provided answer book. Use supplementary answer sheet i.e. Sheet–B if required. Write your answers neatly and legibly.

SECTION – B (Marks 36)

Q. 2 Attempt any TWELVE parts. All parts carry equal marks. **(12 x 3 = 36)**

(i) Solve the linear equation $\frac{3}{5}=\frac{1}{2}\left(\frac{x-1}{3}-\frac{x}{5}\right)$

(ii) Find the solution set and check $\sqrt{2y-3}=\sqrt{y-1}$

(iii) If the same number is added in the numerator and denominator of $7/12$ the new fraction is $3/4$. Find the number.

(iv) Find the solution set of $\frac{|2y+3|}{2}-3=8$

(v) Solve the equation by Factorization $\frac{1}{2}x^2-\frac{3}{2}x-2=0$

(vi) Find the solution set using quadratic formula $15x^2-13x+2=0$

(vii) Eliminate **u** from the following equations $v=u+at$; $s=ut+\frac{1}{2}at^2$

(viii) Eliminate **x** form the following equations $x-\frac{1}{x}=a$; $x^4+\frac{1}{x^4}=a^4$

(ix) If $a:b=3:4$ find $5a+4b:6a+9b$

(x) Find the unknown in the following continued proportions 4 , x , 16

(xi) Solve the following using componendo - dividendo property $\frac{(x-4)^2+(x-3)^2}{(x-4)^2-(x-3)^2}=\frac{5}{4}$

(xii) If $a/b=c/d$ $(where\ a,b,c,d\neq 0)$ using **K - method** prove that $\frac{c^2+d^2}{a^2+b^2}=\frac{cd}{ab}$

(xiii) Find the numbers if their sum is 60 and the ratio between them is 5:7.

(xiv) Calculate the arithmetic mean if $D=x-25$ $\sum fD=300$ and $\sum f=20$

(xv) Find the variance of the following set of observations $5, 13, 15, 25, 12, 18, 17, 19, 20, 16, 3$

(xvi) Prove that $2\cos^2\theta-1=1-2\sin^2\theta$

(xvii) Solve the triangle ABC, when $a=2cm$, $b=2\sqrt{2}\ cm$ and $m\angle B=90^\circ$

(xviii) A ladder makes an angle of 60° with the ground and reaches a height of 10m along the wall. Find the length of the ladder.

SECTION – C (Marks 24)

Note: Attempt any THREE questions. All questions carry equal marks. **(3 x 8 = 24)**

Q.3 From a point, outside a line, the perpendicular is the shortest distance form the point to the line. Prove.

Q 4. In a triangle if the sum of the squares of the measures of two sides is equal to the square of the measure of the third side, the triangle is a right angled triangle. Prove.

Q 5. If two circles touch externally, the distance between their centers is equal to the sum of their radii. Prove.

Q 6. Draw a triangle ABC with sides $\overline{AB}$ 3.5cm, $\overline{BC}$ 3.8cm, $\overline{CA}$ 4cm. Then draw a circle passing through its vertices.