KPS/X/041/SUMMATIVE-ASSESSMENT-I/SET II/2012-2013

Time: 3 hours M.M.: 90

K.P.S

General Instructions:

(i) All questions are compulsory.

(ii) The question paper consists of 34 questions divided into four sections A, B, C and D. Section A comprises of 8 questions of 1 mark each, Section B comprises of 6 questions of 2 marks each, Section C comprises of 10 questions of 3 marks each and Section D comprises of 10 questions of 4 marks each.

(iii) Question number 1 to 8 in Section A are multiple choice questions where you are required to select one correct option out of given four.

(iv) There is no overall choice. However internal choices have been provided in one question of 2 marks, 3 questions of 3 marks and 2 questions of 4 marks. You have to attempt only one of the alternatives in all such questions.

(v) Use of Calculator is not permitted.

Section - A

1 ⇒ The decimal representation of $\frac{93}{1500}$ will be

(A) terminating (B) Non terminating (C) Non terminating repeating (D) non terminating non repeating.

2 ⇒ The product of zeroes of polynomial $p(x) = x^2 - 3x - 0$ will be C/1

(A) -2 (B) $\frac{1}{2}$ (C) $\frac{1}{-3}$ (D) 0 0

Que = 3 ⇒ Choose the incorrect statement according Similarity criterion-

(A) All equilateral triangles are Similar (B) All rectangles are Simu

(C) All isoceles triangles are Similar (D) All circles are Similar

Q-4 ⇒ A pair of linear equations has an unique solution then corresponding lines will be -

(A) Intersecting (B) Coincident (C) parallel (D) perpendicular

Q-5 ⇒ The value of $2\left(\frac{\sin 35^\circ}{\cos 55^\circ}\right) - \frac{\tan 10^\circ}{\cot 80^\circ}$

(A) 0 (B) 2 (C) 1 (D) $-\frac{1}{2}$

Q-6 ⇒ If ABC and BDE are two equilateral triangles such that D is the mid point of BC, then the ratio of areas of $\triangle ABC$ and $\triangle BDE$ is -

(A) 1:1 (B) 2:1 (C) 4:1 (D) 1:4

Q-7 ⇒ The median class of the following frequency distribution

Classes	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	8	10	12	22	30	18

(A) 10-20 (B) 20-30 (C) 30-40 (D) 40-50

Q-8 ⇒ The value of $\frac{2\tan 30^\circ}{1+\tan^2 30^\circ}$ is

(A) $\sin 60^\circ$ (B) $\cos 60^\circ$ (C) $\tan 45^\circ$ (D) $\sin 30^\circ$

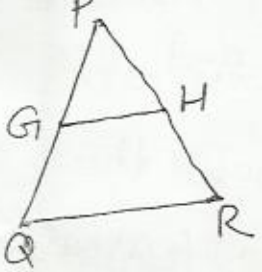
Section - B

Q-9 ⇒ Find the H.C.F. of 270 and 45 using Euclid's Division Lemma.

Q-10 ⇒ If α and β are zeroes of polynomial $p(x) = x^2 - 3$ find $\frac{1}{\alpha} + \frac{1}{\beta}$ ...

If $\sqrt{3}\tan\theta - 1 = 0$ then find the value of $\sin\theta + \cos^2\theta - 1$, where θ be an acute angle.

Ques-12 ⇒ If the given figure, G is the mid point of side PQ of $\triangle PQR$ and $GH \parallel QR$, Prove that H is the mid point of side PR of the triangle PQR



Q-13 ⇒ Find the mode of the distribution

Classes	25-30	30-35	35-40	40-45	45-50	50-55
frequency	25	34	50	42	38	14

Or

For which value of k the pair of equations $x+y-1=0$ and $2x+3y-k$ has unique solution.

Q-14 ⇒ If the altitudes of two similar triangles are in the ratio 2:3, then find the ratio of their areas.

C.I.

Section - C

Q-15 ⇒ Prove that $\sqrt{3}$ is an irrational number.

Ques-16 ⇒ If α and β are zeroes of polynomial $p(x) = x^2 - 7x + 6$, then find the value of $\alpha^2 + \beta^2$.

Or

Find the value of b for which $(2x+3)$ is a factor of $2x^3 + 9x^2 - x - b$.

Q-17 ⇒ Prove that $\sqrt{\frac{1+\sin\theta}{1-\sin\theta}} = \sec\theta + \tan\theta$

Q-18 ⇒ Express $\sin A$ and $\sec A$ in terms of $\cot A$.

Ques-19 ⇒ Solve for x and y:

$$\frac{6}{x-1} - \frac{3}{y-2} = 1 \quad , \quad \frac{5}{x-1} + \frac{1}{y-2} = 2$$

Where $x \neq 1$, $y \neq 2$

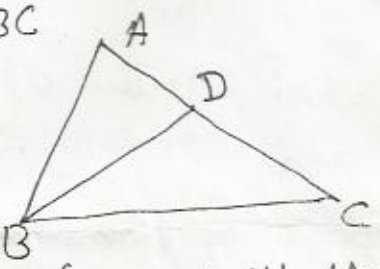
Q-20 ⇒ ABCD is a quadrilateral in which the diagonals AC and BD intersect at O such that $\frac{AO}{OC} = \frac{BO}{OD}$

Show that quadrilateral ABCD is a trapezium.

Q-21 ⇒ If areas of two similar triangles are equal, then prove that they are congruent.

OR

In the given figure, ABC is a triangle in which $AB = AC$ and D is a mid point of AC such that $BC^2 = AC \times CD$. Prove that $BD = BC$



Q-22 For which values of p and q will the following pair of linear equations have infinetly many solutions.?

$$(p-1)x + 3y = 2$$
$$6x + (2-q)y = 6$$

Q-23 ⇒ The sum of digits of the two digit number is 12. the number obtained by interchanging the digits exceeds the given number by 18. Find the number.

Q-24 ⇒ Using relationship connecting the three measures of central tendency. Find the mean of the data which has mode 35 and median 28.

OR

State and Prove Pythagoras theorem.

Section D

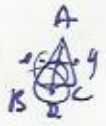
Q-25. Prove that square of any positive integer is of the form $3n$ or $3n+1$. Using Euclid's Division Lemma

Q-26. Find the value of p and q so that $1, -2$ are the zeroes of the polynomial $f(x) = x^3 + 10x^2 + px + q$. Also find its third zero.

Q-27. Draw the graph of the equations $x - y + 1 = 0$ and $3x + 2y - 12 = 0$. Determin the co-ordinates of the vertices of the triangle formed by these lines and x-axis.

Q-28. If $\tan\theta + \sin\theta = p$ and $\tan\theta - \sin\theta = q$ then prove that $p^2 - q^2 = 4\sqrt{p \cdot q}$

Q-29. In an equilateral triangle ABC, if $AD \perp BC$ Prove that $3(AB)^2 = 4(AD)^2$



Or

In triangle ABC, P and Q are the points on the sides AB and AC respectively such that PQ is parallel to BC. Prove that median AD drawn from A to BC bisects PQ also.

Q-30. Prove that in a right angle triangle the square of hypotenuse is equal to sum of squares of other two sides.

Q-31. Draw a more than ogive for the data given below. Which gives the marks of 100 students.

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Number of students	4	6	10	10	25	22	18	5

Q-32. If $\sqrt{3}\cot^2\theta - 4\cot\theta + \sqrt{3} = 0$, then find the value of $\cot^2\theta + \tan^2\theta$, where θ be an acute angle.

Q-33. D, E, F are respectively the mid-points of the sides AB, BC, CA of $\triangle ABC$. Find ratio of areas $\triangle DEF$ and $\triangle CAB$.

OR

Prove that the ratio of areas of two similar triangles is equal to the ratio of the squares of their corresponding sides.

Q-34. Find the median of the data:

Weight (in kg)	Number of Students
Less than 40	3
Less than 42	5
Less than 44	9
Less than 46	14
Less than 48	28
Less than 50	32
Less than 52	35

85. Set