KENDRIYA VIDYALAYA SANGATHAN BENGALURU REGION SET: 1

CLASS: IX SUMMATIVE ASSESSMENT II (MARCH) 2013-14 MAX.MARKS: 100

MATHEMATICS

TIME: $3\frac{1}{2}$ HOURS

MARKING SCHEME

	SECTION:A	***MARKS***
	1) (C) Infinitely many solutions 2) (D) 120^0	***EACH 1 MARK***
	3) (D) $\frac{32}{3}\pi r3$ 4) (A) 1	
	SECTION:B	
5)	***Any two correct solutions***	**Each 1 mark**
6)	***Let the cost of note book= x , the cost of a pen = y***	*1*
	Liner equation : x = 2y (or) x – 2y = 0	*1*
7)	***Correct figure***	*1/2*
	Since AC bisects LA and L C in rectangle ABCD, L 1 = L2 = L3 = L4 then AD =CD	*1*
	Thus ABCD is a square , so BD bisects LB as well as LD	*1/2*
8)	**OM ⊥ BC ,BM = CM……..(1)**	*1*
	OM⊥AD , AM = DM……..(2) Perpendicular from centre bisects the chore	
	Subtracting (1) and (2) AM –BM = DM –CM , AB = CD	*1*
9)	***Correct figure***	***1/2***
	In II gm ABCD , L A = LC …..(1) opposite angles of a II gm ,	
	LA + LC = 180^0 opposite angles of a cyclic quadrilateral	
	LA + LA = 180^0 from……(1)	
	2LA =180^0 ,LA = 90^0	***1***
	Therefore ABCD is a rectangle (in a II gm one of whose angles is 90^0 , is a rectangle)	***1/2***
10)	***Radius of the cylindrical kaleidoscope =3.5cm***	
	Height of kaleidoscope (h) = 25cm	***1***
	Area of chart paper required =curved surface area of a cylindrical kaleidoscope	
	= 2πrh = 2 x 22/7 x 3.5 x 25 = 550cm2	***1***
	SECTION:C	
11)	***Any two correct solutions***	***1 each***
	Infinitely many , Through a point infinite lines can be drawn	***½ each***
12)	***ABCD is II gm ,D C IIAB Transversal BD intersects them at B and D***	***1/2***
	Therefore LABD = LBDC alternate interior angles	
	In Δ APB and ΔCQD,	
	LABP = LQCD (since LABD = LBDC)	
	LAPB = LCQD (Each 90^0)	
	AB = CD (OPP. Sides of a II gm)	
	Therefore ΔAPB≅ΔCQD(By AAS)	***2***
	AP = C Q (BY CPCT)	***1/2***
13)	***Let BD Intersect EF at G***	***1/2***
	In Δ DAB, E is a mid –m point and E G IIAB	
	Then G is the mid –point of DB (By converse of mid-point theorem)	***2***
	In ΔBCD , G is the mid-point of BD and GFIIDC	
	So, F is the mid-point of BC (By converse of mid-point theorem)	***1/2***

14)	BCED is a II gm , BD =CE and BDII CE	
	Ar(DBC) = ar(EBC) …….(1) (Having same base BC and between the same IIs)	1
	In ΔABC ,BE is the median so ar(EBC) = ½ ar(ABC)	1
	Ar(ABC) = ar(EBC) + ar(ABE) , ar(ABC) = 2ar(EBC) , ar(ABC) = 2ar(DBC) FROM (1)	1
15)	Given , to prove, correct figure	1
	Correct proof	2
16)	Construction of a required figure with correct measurements	3
17)	Perimeter of a floor 2(l +b) =260, l+ b = 130	1/2
	Surface area of four walls= 2h(l+ b) = 2 x 6 x 130 =1560m2	1
	Cost of painting = Rs (1560x 9) =Rs 14040	1/2
	Values depicted are co- operation ,concern etc	1
18)	Median is average of 5^{th} and 6^{th} terms	1
	$\frac{x+(x+2)}{2}$ = 63 , x = 62	2
19)	Arranging the data in ascending order	1
	Making table of class interval (11-20 , 21-30 etc), tally marks and frequency	2
20)	i) More than 40 seeds =3 , probability = 3/5	1
	ii) 40 seeds in a bag = 0 , probability = 0	1
	iii) More than 35seeds =5, probability = 5/5 = 1	1
	<u>SECTION: D</u>	
21)	Table of three ordered pairs	1
	Plotting the points on graph and drawing the graph	2
	The line cut the x –axis at (6 , 0) and y-axis at (0 , 4)	1
22)	2x + 9 =0 , x = -9/2 0r (-4.5) , drawing number line on a graph and locating (-4.5) on it	2
	Equation in two variables is 2x + 0 .y + 9 =0	1/2
	Plotting points on a graph using three ordered pairs	$1\frac{1}{2}$
23)	Given , to prove ,construction correct figure	2
	proof	2
24)	Correct figure	1/2
	In ΔABC , F is the mid-point of side AB and E is the mid-point of side AC	
	So E F II BD (by mid-point theorem) , similarly ED II FB	
	Hence BDEF is a II gm , similarly we can prove that AFDE and FDCE are II gm s	1
	Since FD is a diagonal of II gm BDEF , ar(FBD) =ar(DEF)………….(1)	
	Similarly ar(FAE) = ar(DEF)………………………………………………….(2)	
	ar(DCE) = ar(DEF)……………………………………………………………..(3)	1
	From 1 , 2 and 3	
	ar(FBD) = ar(FAE)= ar(DCE) =ar(DEF)	
	Therefore ar(ABC) = 4 ar(DEF)	
	⇨ ar(DEF) = ¼ ar(ABC)	$1\frac{1}{2}$
25)	LCED + LCEB = 180^0 (Linear pair)	
	LCED + 130^0 = 180^0 , LCED = 180^0 – 130^0 = 50^0	1
	InΔ ECD, LEDC + LCED + LECD = 180^0 (ASP of a Δle)	
	LEDC + 50^0 + L20^0 =180^0 , LEDC = 180^0-70^0 = 110^0	2
	LBDC = LEDC = 110^0 (Angles in the same segment)	
	LBAC = LBDC =110^0	1

	-3-	
26)	For Correct construction	3
	Steps of construction	1
27)	Diameter =10.5m , Height = 3m	
	Volume of a heap = $\frac{\pi r2\ h}{3}$ = $\frac{22 \times 10.5 \times 10.5 \times 3}{3 \times 7 \times 4}$ = $86.625m^3$	2
	Slant height $l^2 = h^2 + r^2$ = $(3)^2 + (\frac{10.5}{2})^2$ l= 6.05m	1
	Area of required canvas = πrl = $\frac{22}{7} \times \frac{10.5}{2} \times 6.05$ = $99.825m^2$	1
28)	Radius of a bowl = 7/2 =3.5 cm	
	Height of a bowl = 4 cm	
	Volume of soup for 1 patient = πr^2 h = $22/7 \times 3.5 \times 3.5 \times 4$ =$154cm^3$	1
	Volume of a soup for 250 patients = 250 x 154 cm^3 =$38500cm^3$ = 38500/1000 (1l = $1000cm^3$) =38.5l	2
	Value is a person is kind hearted , caring ect.	1
29)	Let the height of the water level in a vessel be h cm	
	Volume of the rain water = (600x 400x 1) cm^3	
	Volume of water in the vessel=$\pi(20)^2$ x h cm^3	1
	According to the problem, (600x 400x 1) cm^3 = $\pi(20)^2$ x h cm^3	2
	Height of the water level =$(600 \times 400 \times 1) / (3.14 \times (20)2)$ = 191 cm	1
30)	Preparing table of class marks and frequency tables of section A and B	1
	Drawing of frequency polygons in one graph	1 ½ each
31)	Let the number of boys =x , then the number of girls = 180-x	1/2
	Total weight of the students = weight of boys = weight of girls	
	180 x 50 = $(60 \times x)$ + (180 – x) $\times$ 45	$1\frac{1}{2}$
	9000 = 60x = 8100 -45 x	
	60 x – 45x = 900 , x = 60	$1\frac{1}{2}$
	No .of boys = 60 no. of girls = 180-60 =120	1/2
	<u>SECTION: E</u>	
	Theme-I (Planning a garden) (4+4+2) a) Length along horizontal axis = 42 feet Length of each pot = 18inches = $\frac{3}{2}$ feet Number of pots which can be placed along horizontal = 2x42x$\frac{2}{3}$=56 Length along vertical axis =28 feet Number of pots which can be along vertical =2x28x $\frac{2}{3}$ =36(app.) Total pots = 56+36 = 92 Cost of pots = 92x250 = Rs. 23000 Cost of plants = 92x30 = Rs. 2760 b) (14, 0), (56, 0) , (56, 21), (70, 21), (70, 49), (56, 49), (56, 70), (14, 70), (14, 49), (0, 49), (0, 21) and (14, 21) c) Minimum four hours of sunlight	