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REGIONAL OFFICE VARANASI

SUMMATIVE ASSESMENT –II   2014-15

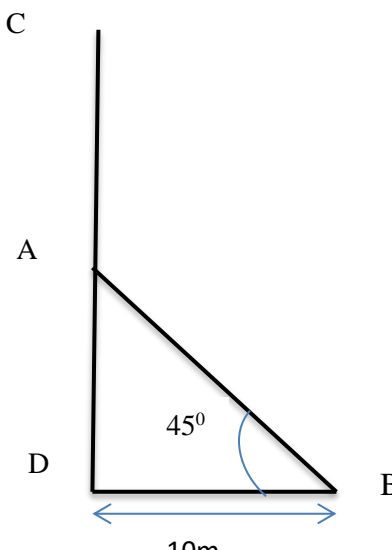## CLASS: X
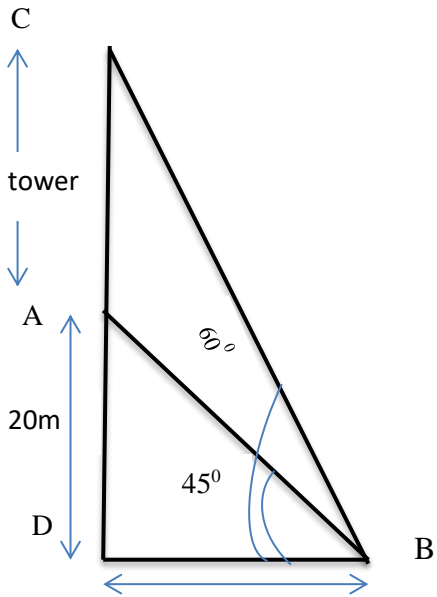
SUBJECT: MATHEMATICS

MARKING SCHEME

Question no	Steps of solution	marks
1	$\angle ATB = 55^0$	1
2	Length of shadow=20m	1
3	P(not E)=0.75	1
4	Central angle =90^0	1
5	$a_n = a+(n-1)d$ a=3, a_n=78, d=8-3=5 n=16	1 1
6	Correct draw of line Correct division	1 1
7	Midpoint (x,y) = ((x_1+x_2)/2, (y_1+y_2)/2) Putting values and getting point =(0,2)	1 1
8	$$d = \sqrt{(x1-x2)^2 + (y1-y2)^2}$$ Putting values and getting point d=5	1 1
9	Condition 2πR=2 πr_1+2 πr_2 R=19+11 =30 cm	1 1
10	a=$\sqrt[3]{64}$=4cm l=8cm, b=4cm, h=4cm s=2(lb+bh+lh) =80sq cm	1 1
11	Integers are x, (x+1) $(x)^2+(x+1)^2$=365 $x^2+x-182$=0 solving and getting, integers =13,14	 1 1 1
12	For quadratic formula $x = \frac{-b\pm\sqrt{b^2-4ac}}{2a}$ Getting a=2,b=-7, c=3 Roots are ½ and 3	1 1 1

13	For equilateral $\triangle ABO$, central angle=60^0 so ref$\angle AOB=300^0$	1
	Area of sector=$\frac{\theta}{360} \times \pi r^2$	1
	r=4.2cm	
	area of shaded region=46.6sq cm	1
14		Correct fig. 1mark

	AC=AB, AD/BD=tan 45^0=1	1/2
	BD=10m	½
	AB/DB=sec45^0 =$\sqrt{2}$ ⇒AB=$10\sqrt{2}$	1
	Height of tree=AC+AB⇒ $10(\sqrt{2} + 1) \Rightarrow 24.14m$	
15	Draw of parallelogram and diagonals	½
	Diagonals of a parallelogram bisect each other.	½
	(1+x)/2=(4+3)/2	
	$\Rightarrow x = 6$	1
	(2+6)/2=(y+5)/2	
	$\Rightarrow y = 3$	1
16	Draw of correct circle	1
	Correct draw of tangent	2
17	For correct fig. , given, to prove	1
	For correct proof	2
18	Salaries are 5000, 5200, 5400, --------- 7000.	
	Series is A.P.	1
	a_n=a+(n-1)d	1
	a=5000, a_n=7000, d=200	
	n=11	1
19	Volume of cone=volume of sphere	½
	(1/3)πr^2h=(4/3)πR^3	1
	r=6cm, h=24cm, R=?	½
	r=6cm	1

20	P(E) =n(E)/n(S) (i)P(white)=8/17 (i)P(green)=4/17 (i)P(not red)=12/17	1 ½ ½ 1
21	Simplifying the equation and getting $x^2-3x+2=0$ Factorizing and getting (x-1)(x-2)=0 Getting x=1,2	2 1 ½ + 1/2
22	Let original speed=x km/h So, (180/x)+(180/x+4)=30/60 Getting $x^2-4x-1440=0$ Speed=36 km/h Moral-care of sick and old, punctuality, humanity , safe and control journey or any other value related to the question.	 1 1 1 1
23	for correct fig. and to prove proof	1 3
24	(i) the first term=3 (for n=1) (ii) second term=1 (iii) common difference= -2 (iv) n^{th} term of an A.P. =5-2n	1 1 1 1
25	Construction of triangle Construction of similar triangle	1 3
26	$$V = \frac{1}{3}\pi h(r_1^2 + r_2^2 + r_1 r_2)$$ H=12,r_1=3,r_2=5 Putting the values and getting V=616cm^3	1 1 2
27	 BD/AD=cot45^0 ⇒ BD=20m	Correct fig. 1mark 1 1

	CD/BD=tan60^0 ⇒CD=20$\sqrt{3}$ CA=CD-AD=20$\sqrt{3}$-20=20($\sqrt{3}$-1)m	1
28	P(E) =n(E)/n(S), n(S)=52 (i)P(king of red colour)=1/26 (ii)P(face card)=3/13 (iii)P(king of hearts)=1/52 (iv)P(a spade)=1/4	 1 1 1 1
29	Dividing in to two triangle and formula for area Area of each triangle Area of quadrilateral 28 sq. cm (OR, full marks to be awarded if area is calculated by any other method.)	1 1+1 1
30	 Inner surface area=CSA of cylinder + CSA of hemisphere =$2\pi rh + 2\pi r^2$ R=14/2=7cm,h=13-7=6cm Inner surface area=572cm^2	Correct fig 1 mark 1 1 1
31	Area of square=a^2=14^2=196cm^2 Radius of the circle=14/2=7cm Area of the 4 parts of the circle =4×(πr^2/4)= πr^2=22×7^2/7 =154cm^2 Area of shaded region=area of square-area of 4 parts =196-154=42cm^2	1 1.5 1.5

Figure (item 30): labels — 14cm (top width), 13-7=6cm, 13cm, 7cm