CODE NO: 00000

T.I. MATRICULATION HIGHER SECONDARY SCHOOL, AMBATTUR

SUMMATIVE ASSESSMENT -II, 2018

Scoring key

MARKS: 100

ROLL NO : …… TIME :2 ½ hrs

I. Choose the correct answer . high lighted one are the answer. Each qn carries 1 mark. (10x1=10)

1. If n(AUBUC)=100, n(A)=4x, n(B)=6x, n(C)=5x, n (A∩B)= 20, n(B∩C)= 15, n(A∩C)=25, and n(A∩B∩C)= 10, then the value of x is
   a) 30 b) 15 c) 25 **d) 10**
2. A∩ (BUC) is
   a) (A∩B)UC b) (AUB) ∩ (AUC) **c)(A∩ B)U(A∩ C)** d)(A∩ B∩ C)
3. $\sqrt{63}$ is
   a) $\mathbf{3\sqrt{7}}$ b) $6\sqrt{3}$ c) $7\sqrt{9}$ d) $3\sqrt{21}$
4. The length and breadth of a rectangular plot are 5×10^5 and 4×10^4 meters respectively. Its area in m^2 is
   a) 9×10^1 b) 9×10^9 **c) $\mathbf{2 \times 10^{10}}$** d) 20×10^{20}
5. 3.92×10^{-3} is
   a) 0. 000392 **b) 0. 00392** c)0. 392 d)0. 0392
6. Which of the following has x – 1 as a factor?
   a) 4x – 3 **b) 3 x – 3** c) 3x – 4 d) 2x – 1
7. The remainder when (x^2 – 2x + 7) is divided by (x + 4) is
   a) 30 b) 28 **c) 31** d) 29
8. A chord is at a distance of 15cm from the centre of the circle of radius 25cm. The length of the chord is
   a) 25cm b) 20cm **c) 40cm** d) 18cm.
9. In acyclic quadrilateral ABCD, <A= 4x, <C= 2x, the value of x is
   a) 25^0 b) 20^0 **c) $\mathbf{30^0}$** d) 15^0
10. ($\sqrt{5}$ – 2) ($\sqrt{5}$ + 2) is
    a) 3 **b) 1** c) 21 d) ($\sqrt{5}$ – 2)^2

II Match the following .Eachqn carries 1 mark. 5x1=5

A	B
11. 0.283	a) $2.8\ 3 \times 10^1$ **(12)**
12. 28.3	b) $2.8\ 3 \times 10^3$(**15)**
13. 283	c) $2.8\ 3 \times 10^{-2}$(**14)**
14. 0.0283	d) $2.8\ 3 \times 10^2$**(13)**
15. 2830	e) $2.8\ 3 \times 10^{-1}$(**11)**

III. Answer any ten of the following . (10x3=30)

16. If A= {2,3,5,7,11} B= {2,4,5,6,7,8} C= {2,3,6, 9,11}
then verify Associative property of intersection of sets.

LHS A∩ (B∩ C) =$\{2\}$ RHS (A ∩ B) ∩ C =$\{2\}$(1 ½ mark each step)

17. Represent the elements of sets in Venn diagram
A= $\{2, 4, 6, 8, 0\}$ **B=** $\{x: x \text{ is a prime number and } x < 11\}$ =$\{2, 3, 5, 7, \}$ **--- 1mark**

C= $\{x: x \in N \text{ and } 5 \leq x < 9\}$ =$\{5, 6, 7, 8\}$**---1mark venn diagram –1mark**

18. Verify n(AUBUC) = n(A) + n(B) +n(C) - n (A ∩ B)- n(B∩ C)- n(A∩ C) + n(A∩ B∩ C)
A= $\{a, c, e, f\}$ B= $\{b, c, d, e, f\}$ C= $\{a, b, c, d, f, g\}$
Ans: 4+5+6-3-4-3+2=7

19. Convert i) $2\sqrt[3]{5}$ in to pure surd ii) $\sqrt[3]{108}$ into mixed surd
Ans :i) $\sqrt[3]{40}$ **ii)** $3\sqrt[3]{4}$**(each subdivision 1 ½ marks)**
20. Simplify $2\sqrt{72} \times 5\sqrt{32} \times 3\sqrt{50}$
Ans: 12 $\sqrt{2}$ **×** $20\sqrt{2} \times 15\sqrt{2} = 7200\sqrt{2}$ **steps-2marks, final ans-1mark**

21. Simplify by rationalizing the denominator. $\frac{8-5\sqrt{2}}{3-2\sqrt{2}}$
Ans: Rationalizing with steps —2marks ,ans—4 +$\sqrt{2}$ **-----1marks**

22. Is (3x – 2) a factor of $3x^3 + x^2 - 20x + 12$? verify.
Ans: steps ---2marks, remainder =0, it's a factor ----1mark
23. Expand (3x+ 2) (3x – 1) 3x – 4).
Ans: steps—2marks, final answer =$27x^3 - 27x^2 - 18x + 8$ ---1mark
24. If (x+y+z) =9, (xy+yz+zx)= 26, then find the value of $x^2+y^2+z^2$

Ans: $x^2+y^2+z^2$ =81 -52=26, steps+ ans= 3marks

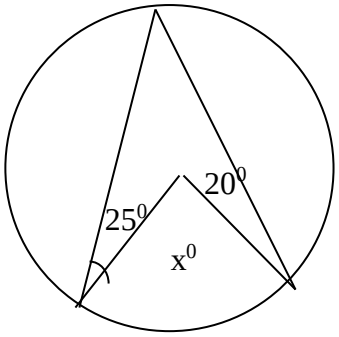
25. Find the length of a chord which is at a distance of $2\sqrt{11}$ cm from the centre of a circle of radius 12cm.

Ans: length of the chord = two times $\sqrt{144-44}$ = $\sqrt{100}$= **2 x 10= 20cm**
Steps = 2 marks ,ans=1mark

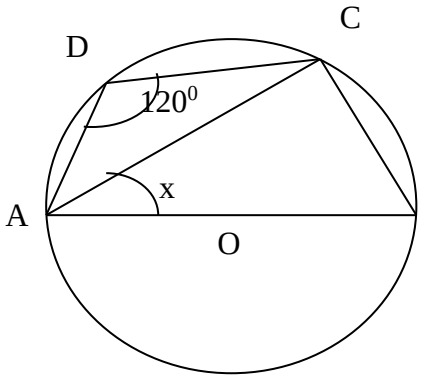
26. Find the unknown angles .Justify your answer.

Steps finding other angles =2marks

i)X^0= 90^0----1mark



iii)



step<ACB=90^0---1mark,<B=60^0---1mark

x^0 = 30^0-----1mark

IV. Answer any seven of the following. (7 x 5=35)

27. Verify A – (B∩ C) = (A –B) U (A – C) using Venn diagram .

Five diagram – 1mark each

28. . In a class of 50 students , each one come to school by bus or by bicycle or on foot. 25 by bus, 20 by bicycle, 30 on foot and 10 students by all the three. Now how many students come to school exactly by two modes of transport?

Ans: venndiagram –1mark, steps –3 steps,
students come to school exactly by two modes of transport= 55-50=5 students – 1mark

29. i**) Write in decimal form 2. 00367 ×10^{-4} = 0.000200367-----2marks**

i) Find (40000)^3 ÷ (0.00002)^4 steps ---2marks

Ans 64x 10^{12}/16x10^{-20} ---2marks

= 4x10^{32}----1 mark

30. If x= $\sqrt{10}$ +3, find the value of $x^2 + \frac{1}{x^2}$

Steps x^2= 19 +6 $\sqrt{10}$ ----2 marks , $\frac{1}{x^2}$ = 19 - 6 $\sqrt{10}$ ----2marks

$x^2 + \frac{1}{x^2}$ = 38 ----1mark

31. If $\frac{\sqrt{5}+1}{\sqrt{5}-1} + \frac{\sqrt{5}-1}{\sqrt{5}+1} = a + b\sqrt{5}$, find the value of a and b

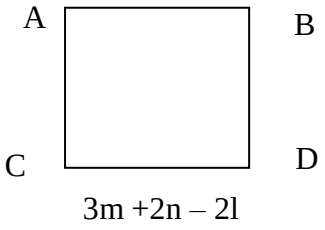
Ans: 6+ $2\sqrt{5}$+6- $2\sqrt{5}$/4-----3marks . 12/4=3---1mark

a =3 b= 0---1mark

32. If (x – 1) divides the polynomial $kx^3 – 2x^2 + 25x – 26$ without remainder , then find the value of k.

Steps ---3mark value of k = 3---2marks

33. Find the area of ABCD is a square whose length of the side is 3m + 2n – 4l



Area = (3m + 2n – 4l)^2 ----2marks, expansion ---3marks

34. Prove that the angle subtended by an arc of the circle at the centre is double the angle subtended by it at any point on the remaining part of the circle.

Theorem + given+ diagram+to prove ---2marks , proof –3marks

V. Answer any one of the following. (1 x 10=10)

Rough diagram—1mark, fair diagram 7marks , steps -2marks

35. Construct the incentre of Δ ABC with AB = 6cm , <B = 65^0 and AC = 7cm. Also draw the incircle and measure the radius.
36. Construct an equilateral triangle of side 6.5cm . Locate its centroid.

VI. Choose the correct answer (37 to 42)& Fill in (43 and 44) (6 x1 +2x2=10)

37. If $5^{5x+5} = 1$, then x equals to

a) **0** b) 1 c) - 1 d) $-\frac{4}{5}$

38. The ratio of two numbers is 3:4 and the sum of those numbers is 420. Then the sum of their squares is

a) **9×10^4** b) 9×10^5 c) 9×10^6 d) 9×10^7

39. The operation * is defined as follows:

a *b = $\sqrt{a + \sqrt{b}}$. Which of the following is an integer?

a) 11*5 b) 11*16 **c) 7*4** d)9*9

40. The value of x , if $2^{x+4} - 2^{x+2} = 3$

a) 2 **b) -2** c) $\frac{1}{2}$ d) $-\frac{1}{2}$

41. If $a^x = b$, $b^y = c$ and $c^z = a$, then xyz is

a) **1** b) 2 c) 3 d)4

42. A , B ,C, D,E and F are sitting in a row . E and F are in the centre and E is on the right of F. A and B are at the ends. D is sitting to the left of B.
Who is to the left of C?
a) E b) D c) F **d) A**

43. Ravi sold an article for ₹891, there by gaining $\frac{1}{10}$ of its cost price. The cost price of the article is **₹ 810**

44. The sides of a triangle are 5 ,12, and 13 units respectively . A rectangle is constructed which is equal in area of the triangle and has a length of 10 units. What is the perimeter of the rectangle?

26 units
