**HY/MA/1119A 19/11/2019**

**HALF YEARLY EXAMINATION 2019-2020**

**GRADE XI MATH\_ MARKING SCHEME**

|  |  |  |
| --- | --- | --- |
| **SECTION – A**  **(*Q1 - Q10 are multiple choice questions. Select the correct option* )** | | **Marks** |
| **1.** | B | 1 |
| **2.** | B | 1 |
| **3.** | D | 1 |
| **4.** | C | 1 |
| **5.** | C | 1 |
| **6.** | C | 1 |
| **7.** | A | 1 |
| **8.** | C | 1 |
| **9.** | D | 1 |
| **10.** | A | 1 |
| ***( Q 11 - Q15 )Fill in the blanks*** | |  |
| **11.** | Dom = R – { 4} & Range = R – {-1} | ½ + ½ |
| **12.** | 15 | 1 |
| **13.** | 28C14  a56 b14 | 1 |
| **14.** |  | 1 |
| **15.** | K = | 1 |
| ***(Q 16 to Q20) Answer the following questions*** | |  |
| **16.** | ⇒ | ½  ½ |
| **17.** | 9 x 9! | 1 |
| **18.** | 16Cr 16Cr  For constant term 32 – 4r =0 ⇒ r = 8  9th term is a constant term | ½  ½ |
| **19.** | r = -3  7th term is ar6 = -3(-3)6 = -2187 | ½  ½ |
| **20.** | Since the circle with centre (1,2) touches x-axis  Equation is | ½  ½ |
| **SECTION – B**  **(*Question numbers 21 to26 carry 2 marks each*)** | |  |
| **21.** | …………(2n)3]  Tn = (2n+1)3 – (2n)3 = 12n2 + 6n + 1  Sn = =    = | ½  ½  ½  ½ |
| **OR** | |  |
|  | Tn = n ( n-3)   Tn = n2 - 3n   Sn =  =  =  =n(n+1)(n-4) | ½  ½  ½  ½ |
| **22.** | ⇒  ⇒ | 1  1 |
| **23.** | ⇒ ⇒ z= HP | 1  ½  ½ |
| **24.** | 10Cr (x)10+r  Putting 10 + r = 15 ⇒ r = 5  - 10C5 = -252 | 1  ½  ½ |
| **OR** | |  |
|  | 15Cr (3)15-r x15-3r (-2)r  Putting 15-3r = 0 ⇒ r = 5  the 6th term is independent of x | 1  ½  ½ |
| **25.** | Total no. of arrangements = 4P2 x 6P3 = 1440 | 1 + 1 |
| **26.** | ⇒    ⇒Length of Latus rectum = | ½ + ½  ½  ½ |
| **SECTION – C**  **(*Question numbers 27 to 32 carry 4 marks each*)** | |  |
| **27.** | P (1) : LHS = 1/ 6 = RHS  P(k) :  P ( k+1) :  P ( k+1) is true , whenever P(k) is true  By PMI P ( n) is true for n | 1  ½  2  ½ |
| **28.** | Centre (0,-1) | 1  1  1  1 |
| **OR** | |  |
|  | a=3 & b=6 | ½  ½  1  ½ + ½  1 |
| **29.** | Equation of line through the intersection of and  Is given by | 1  ½  1  1  ½ |
| **30.** | A \_ \_ \_ \_ = 4! = 24  G \_ \_ \_ \_ =  I \_ \_ \_ \_ =  Total no. of words = 48  49th word is NAAGI  ⇒ 50th word is NAAIG | ½  ½  ½  ½  1  1 |
|  | **OR** |  |
|  | Total no. of ways = 6C5 x 6C2 + 6C4 x 6C3 + 6C3 x 6C4 + 6C2  x 6C5  = 2 (6C5 x 6C2 + 6C4 x 6C3 )  = 2 ( 6 x 15 + 15 x 20 ) = 2 x 390 =780 | 2  2 |
| **31.** | Each line for ½ mark each = 2 ½  And feasible region = 1 ½ |  |
| **32.** | n( E ) = 26 n(s) =48  n( ES)= 8  Venn Diagram  (i) Number of students studying Hindi= 18  (ii) students are studying English and Hindi both =3 | 2for diag.  1  1 |
| **SECTION – D**  **(*Question numbers 33 to 36 carry 6 marks each*)** | |  |
| **33.** | a) Dividing both sides by 2  ⇒    ⇒ | 1  1  1 |
|  | b) ⇒  ⇒  ⇒ | 1  1  1 |
| **34.** | Fifth term from beginning in the given expansion is nC4 )n-4.()4  Fifth term from end in the given expansion is nC4 .()n-4  )4  nC4 )n-4.() =  nC4 .()n-4  )4 =  ⇒ x )n-8 = √6  ⇒ =  ⇒ n = 10 | 1  1  1  1  1  1 |
| **35.** | Let ‘m’ be the slope of the eqn.  Slope of is  ⇒  Equations are | ½  2 ½  1  2 |
| **OR** | |  |
|  | **let the line through P (2,3) inclined at an angle of 45 with x-axis meet**  **2x-3y+9=0……..(eqn 1) in some point Q**  **Equation of line making angle 45 with x-axis is x – y + 1=0…………(eqn 2)**  **Solving (1) & (2)**  **Coordinates of Q = (6,7)**  **Distance PQ = =** 4 units | 2  2  2 |
| **36.** | . Let the numbers be a , ar , ar2 , ar3  Now, sum=60.  => a + ar + ar2 +ar3 =60.    ........... (i).  Also, a + ar3 = 18x2 = 36.      ........... (ii)  => a ( 1 + r3 ) = 36 …………..(iii)  From (i) ……..(iv)  on dividing (iii) by (iv)  2(1 +r )(1 +r2 –r) = 3r(1 + r)   * 2r2 -5r +2 = 0   So r=2 or r=1/2  When r=2 , a=4 , and when r=1/2 , a=32.  the numbers are 4,8,16,32 or 32,16,8,4 | ½  1  1  1  ½  ½ + ½  1 |