**A+ Computer Science  
Number Systems Test  
M/C TEST**

**Directions ::** On your answer sheet, mark the letter of the best answer to each question.

1. **The number 0011 10102 converted to base 10 is what number?**

|  |  |
| --- | --- |
| a. | 58 |
| b. | 48 |
| c. | 85 |
| d. | 84 |
| e. | 75 |

2. **The number 5410 converted to base 2 is what number?**

|  |  |
| --- | --- |
| a. | 110111 |
| b. | 110110 |
| c. | 101010 |
| d. | 111110 |
| e. | 110101 |

3. **What is the result of ABC16 + 56716 ?**

|  |  |
| --- | --- |
| a. | 112316 |
| b. | 12316 |
| c. | 123416 |
| d. | 122416 |
| e. | 102316 |

4. **The number 4318 converted to base 4 is what number?**

|  |  |
| --- | --- |
| a. | 1012 |
| b. | 11210 |
| c. | 10121 |
| d. | 12101 |
| e. | 11021 |

5. **The number 20035 converted to base 13 is what number?**

|  |  |
| --- | --- |
| a. | 161 |
| b. | 611 |
| c. | 616 |
| d. | 166 |
| e. | 661 |

6. **The number 32456 converted to base 9 is what number?**

|  |  |
| --- | --- |
| a. | 1022 |
| b. | 2201 |
| c. | 1202 |
| d. | 2102 |
| e. | 2210 |

7. **The number 1001 1111 0101 01012 converted to base 16 is what number?**

|  |  |
| --- | --- |
| a. | 9EF4 |
| b. | 8F54 |
| c. | 9F55 |
| d. | 7C44 |
| e. | 7F21 |

8. **What is 1100 base 2 in base 10?**

|  |  |
| --- | --- |
| a. | 8 |
| b. | 9 |
| c. | 10 |
| d. | 11 |
| e. | 12 |

9. **What is 321 base 4 in base 10?**

|  |  |
| --- | --- |
| a. | 58 |
| b. | 59 |
| c. | 60 |
| d. | 61 |
| e. | 57 |

10. **What is 324 base 5 in base 8?**

|  |  |
| --- | --- |
| a. | 111 |
| b. | 129 |
| c. | 131 |
| d. | 120 |
| e. | 124 |

11. **What is the result of 12316 + 5548 ?**

|  |  |
| --- | --- |
| a. | 29F16 |
| b. | 27F16 |
| c. | 44611 |
| d. | 34A14 |
| e. | 46712 |

12. **What is 76 base 8 in base 10?**

|  |  |
| --- | --- |
| a. | 62 |
| b. | 52 |
| c. | 57 |
| d. | 65 |
| e. | 70 |

13. **What is 102 base 3 in base 10?**

|  |  |
| --- | --- |
| a. | 15 |
| b. | 20 |
| c. | 10 |
| d. | 11 |
| e. | 17 |

14. **What is 0101 1001 base 2 in base 10?**

|  |  |
| --- | --- |
| a. | 75 |
| b. | 80 |
| c. | 81 |
| d. | 63 |
| e. | 89 |

15. **What is 1100 1010 1001 base 2 in base 16?**

|  |  |
| --- | --- |
| a. | BA9 |
| b. | CB8 |
| c. | CA8 |
| d. | CA9 |
| e. | BEC |

16. **What is 19 base 11 in base 6?**

|  |  |
| --- | --- |
| a. | 32 |
| b. | 22 |
| c. | 34 |
| d. | 28 |
| e. | 26 |

17. **What is the output?**

System.out.println( 14 | 23 );

|  |  |
| --- | --- |
| a. | 29 |
| b. | 31 |
| c. | 33 |
| d. | 27 |
| e. | 36 |

18. **What is the output?**

System.out.println( 7 & 21 );

|  |  |
| --- | --- |
| a. | 11 |
| b. | 14 |
| c. | 28 |
| d. | 5 |
| e. | 15 |

19. **What is output by the code below?**

System.out.println( 5 ^ 12 );

|  |  |
| --- | --- |
| a. | 7 |
| b. | 8 |
| c. | 9 |
| d. | 11 |
| e. | 10 |

20. **What is output by the code below?**

System.out.println( 45 >> 1 );

|  |  |
| --- | --- |
| a. | 90 |
| b. | 45 |
| c. | 22 |
| d. | 11 |
| e. | 5 |

21. **What is output by the code below?**

System.out.println( 10 << 1 );

|  |  |
| --- | --- |
| a. | 5 |
| b. | 11 |
| c. | 16 |
| d. | 22 |
| e. | 20 |

22. **What is output by the code below?**

System.out.println( 6 | 3 & 2 );

|  |  |
| --- | --- |
| a. | 2 |
| b. | 11 |
| c. | 7 |
| d. | 8 |
| e. | 6 |

23. **What is output by the code below?**

System.out.println( 6 ^ 7 & 12 & 5 );

|  |  |
| --- | --- |
| a. | 1 |
| b. | 2 |
| c. | 3 |
| d. | 4 |
| e. | 5 |

24. **What is output by the code below?**

System.out.println( 3 & 12 >> 2 | 11 );

|  |  |
| --- | --- |
| a. | 14 |
| b. | 11 |
| c. | 17 |
| d. | 25 |
| e. | 29 |

25. **What is ouptut by the code below?**

System.out.println( 6 | 3 & 7 );

|  |  |
| --- | --- |
| a. | 5 |
| b. | 6 |
| c. | 7 |
| d. | 8 |
| e. | 9 |

26. **What is output by the code below?**

System.out.println( 14 ^ 19 );

|  |  |
| --- | --- |
| a. | 23 |
| b. | 24 |
| c. | 29 |
| d. | 25 |
| e. | 33 |

27. **What is output by the code below?**

System.out.println( 3 & 5 << 2 >> 3 | 14 );

|  |  |
| --- | --- |
| a. | 14 |
| b. | 11 |
| c. | 17 |
| d. | 25 |
| e. | 29 |

28. **What is the output?**

System.out.println( 7 & 33 | 14 );

|  |  |
| --- | --- |
| a. | 10 |
| b. | 14 |
| c. | 17 |
| d. | 15 |
| e. | 19 |

29. **What is output by the code below?**

System.out.println( 25 << 1 | 19 );

|  |  |
| --- | --- |
| a. | 45 |
| b. | 55 |
| c. | 49 |
| d. | 53 |
| e. | 51 |

30. **What is output by the code below?**

int num = 5;

System.out.println( num | 3 << 2 );

|  |  |
| --- | --- |
| a. | 28 |
| b. | 12 |
| c. | 42 |
| d. | 14 |
| e. | 13 |

31. **What is output by the code below?**

int b = 0x55,

num = b | b << 4 | b << 8;

System.out.println(Integer.toString(num, 2));

|  |  |
| --- | --- |
| a. | 11111111111 |
| b. | 10101010101 |
| c. | 101010101010101 |
| d. | 111111111111111 |
| e. | 0x555555 |

32. **What is output by the code below?**

int x = 5, y = 2;

System.out.println((x ^ y) > 0?0:1);

|  |  |
| --- | --- |
| a. | 0 |
| b. | 1 |
| c. | true |
| d. | false |
| e. | null |

33. **What is output by the code below?**

int x = 3, y = 3;

System.out.println((x ^ y) > 0?0:1);

|  |  |
| --- | --- |
| a. | 0 |
| b. | 1 |
| c. | true |
| d. | false |
| e. | null |

34. **What is output by the code below?**

int x = 0b1011010,

a = x << 4 & (0xF << 4),

b = x >> 4;

System.out.println(Integer.toString(a | b, 2));

|  |  |
| --- | --- |
| a. | 01011010 |
| b. | 10110100101 |
| c. | 0xA5 |
| d. | 165 |
| e. | 10100101 |

35. **What is output by the code below?**

int x = 0b1111 << 4;

System.out.println(Integer.toString(x, 2));

|  |  |
| --- | --- |
| a. | 1111 |
| b. | 240 |
| c. | 0xF0 |
| d. | 11110000 |
| e. | 11111111 |

36. **What is output by the code below?**

int x = 0b11 + 0xFC;

System.out.println(x);

|  |  |
| --- | --- |
| a. | 127 |
| b. | 255 |
| c. | 0x7F |
| d. | 11110011 |
| e. | 11111111 |

37. **What is output by the code below?**

int x = 0b1010111,

n = 7;

System.out.println(((~0 << n) & x) == 0);

|  |  |
| --- | --- |
| a. | 0 |
| b. | 1 |
| c. | true |
| d. | false |
| e. | null |

38. **What is output by the code below?**

int x = 0b11010111,

n = 5;

System.out.println(((~0 << n) & x) == 0);

|  |  |
| --- | --- |
| a. | 0 |
| b. | 1 |
| c. | true |
| d. | false |
| e. | null |

39. **What is output by the code below?**

System.out.println(~0);

|  |  |
| --- | --- |
| a. | -1 |
| b. | 0 |
| c. | 1 |
| d. | -2147483648 |
| e. | 2147483647 |

40. **What is output by the code below?**

System.out.println(~(1 << 31));

|  |  |
| --- | --- |
| a. | -1 |
| b. | 0 |
| c. | 1 |
| d. | -2147483648 |
| e. | 2147483647 |