

II. Teoría aplicada (45 %) Solucione tres de los siguientes cuatro planteamientos

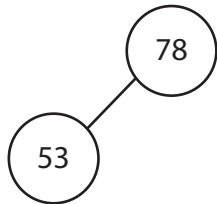
1. Cree paso a paso un árbol AVL (Adelson-Velskii y Landis), utilizando las claves:

78, 53, 38, 36, 76, 35, 25, 89, 88, 45, 9, 6, 60, 77, 31

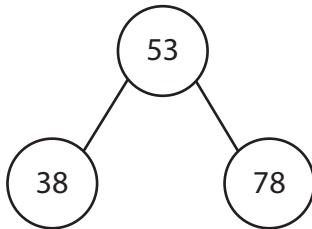
1) 78



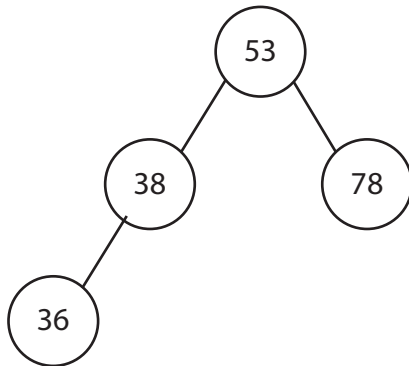
2) 53



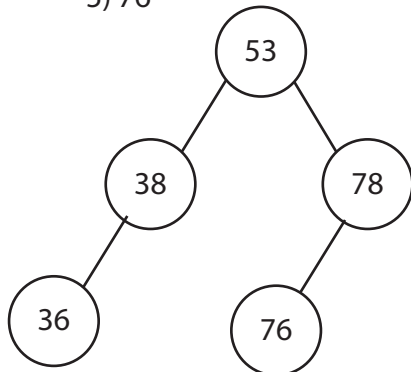
3) 38



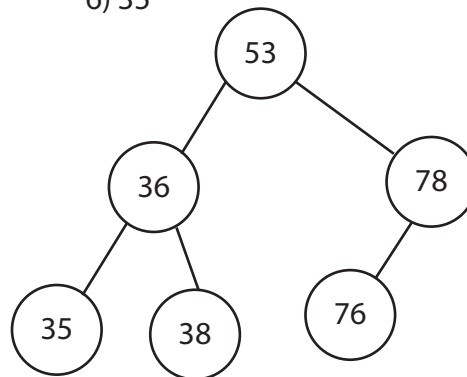
4) 36



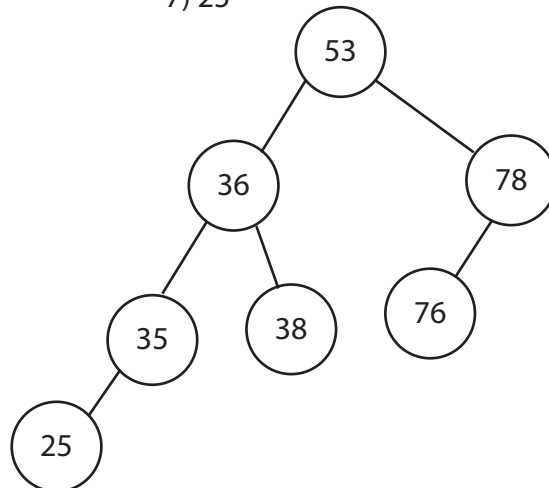
5) 76



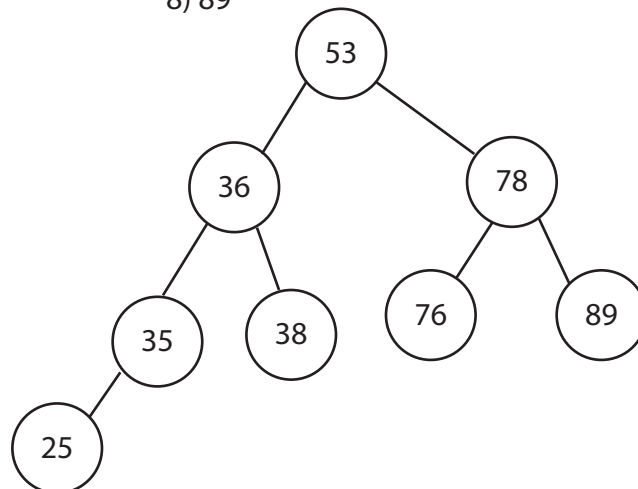
6) 35



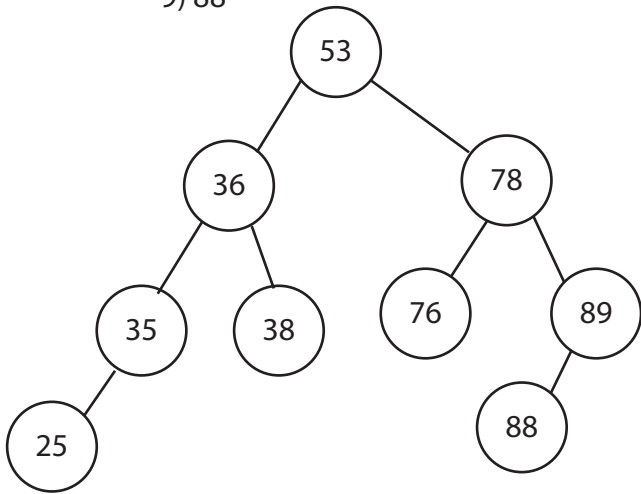
7) 25



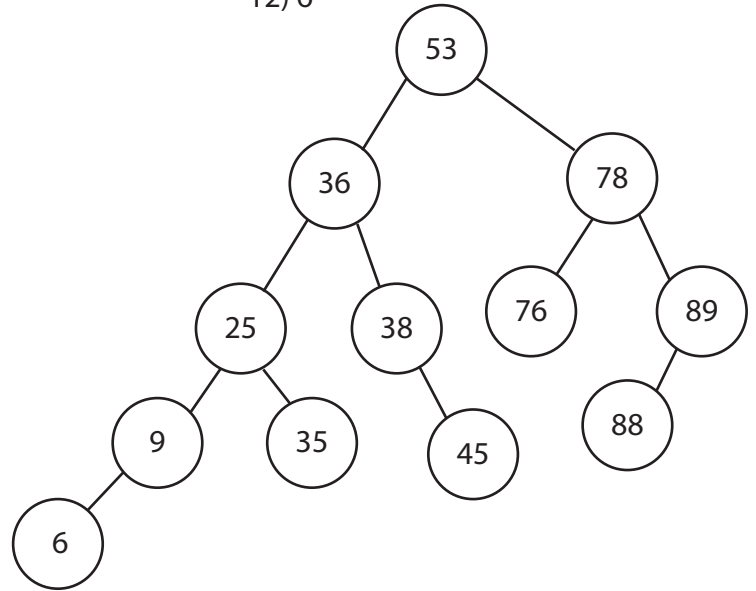
8) 89



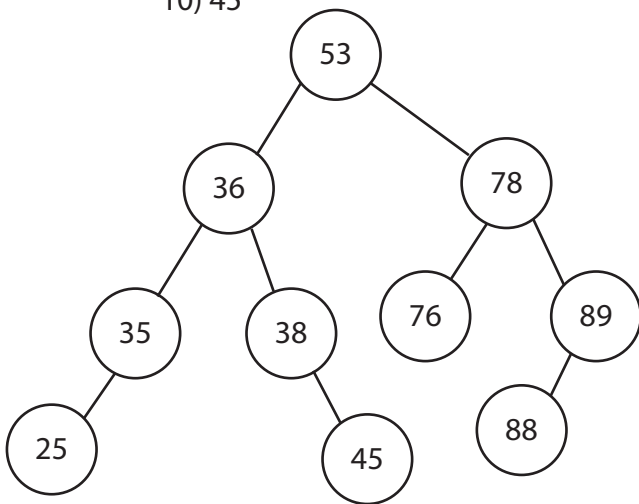
9) 88



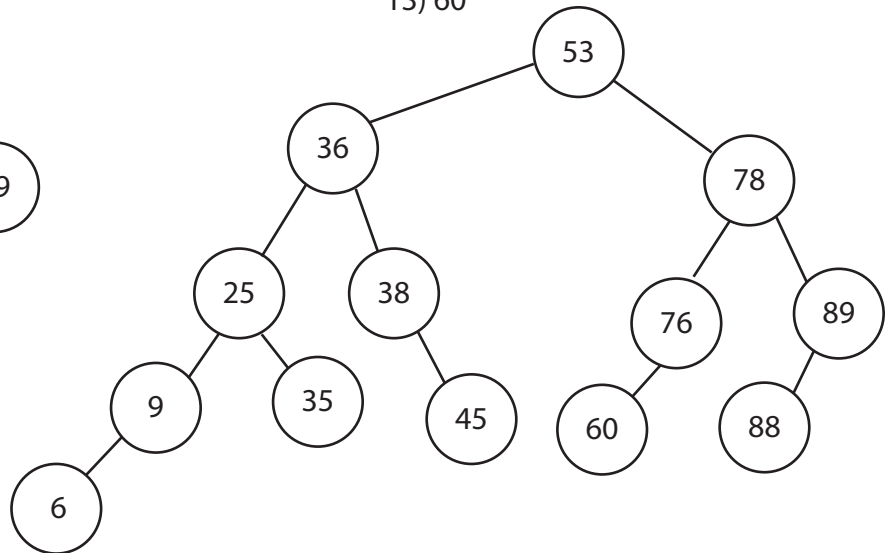
12) 6



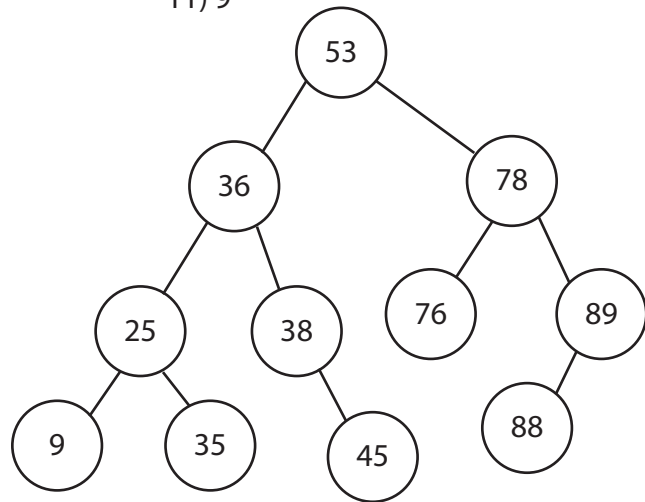
10) 45



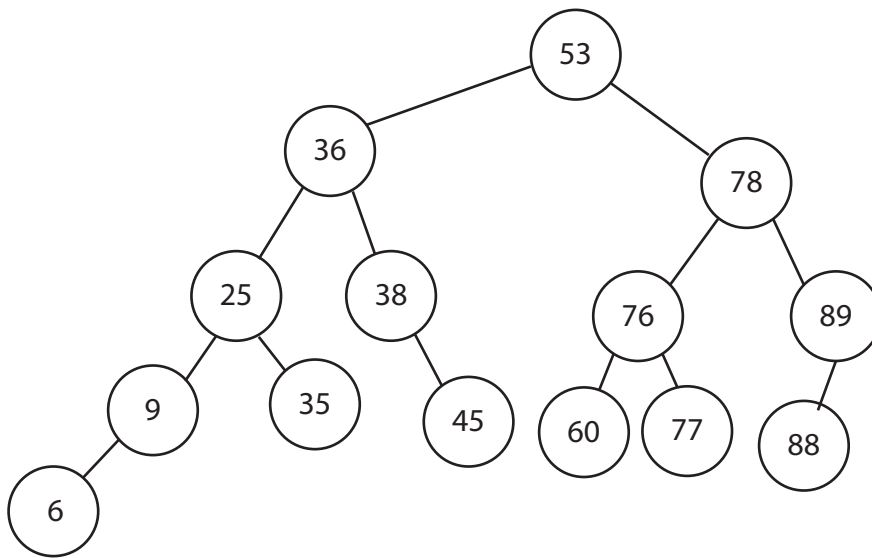
13) 60



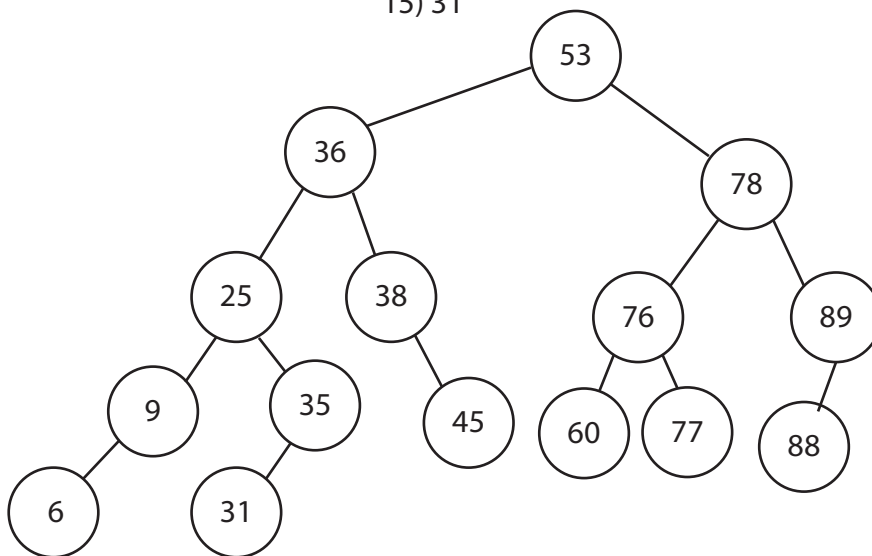
11) 9



14) 77



15) 31

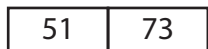


Cree paso a paso un árbol multcamino de búsqueda balanceado de orden tres:
51, 73, 63, 84, 59, 4, 80, 98, 53, 21, 66, 69, 32, 97, 19

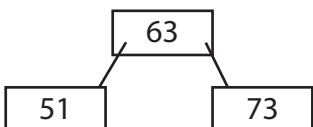
1) 51



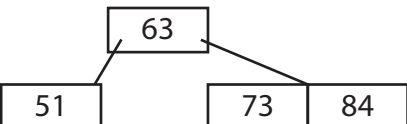
2) 73



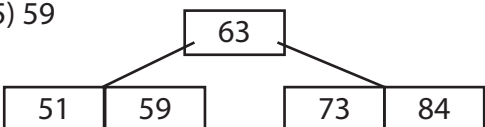
3) 63



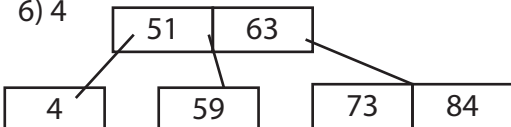
4) 84



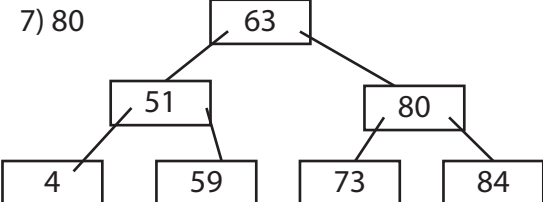
5) 59



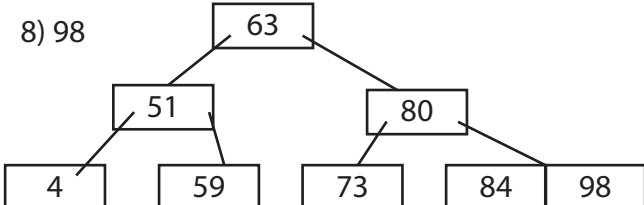
6) 4



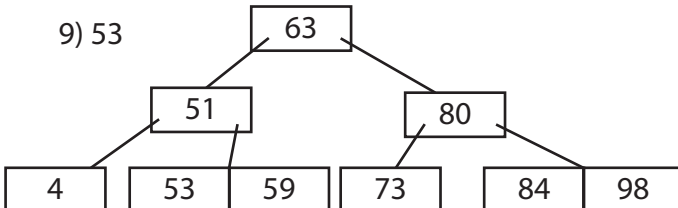
7) 80



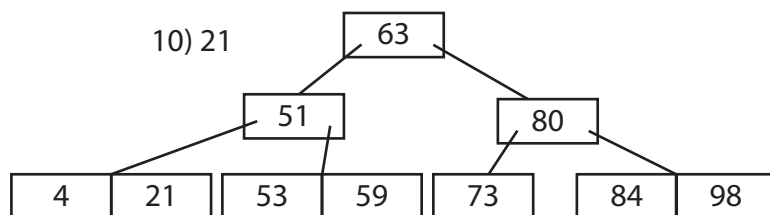
8) 98



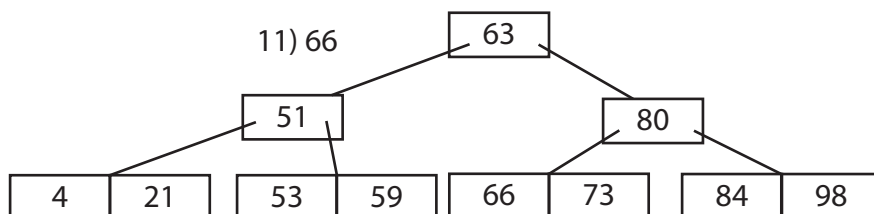
9) 53



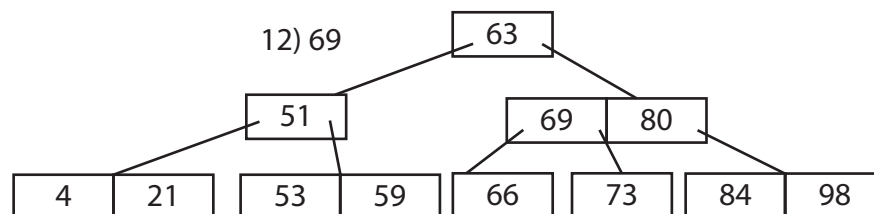
10) 21



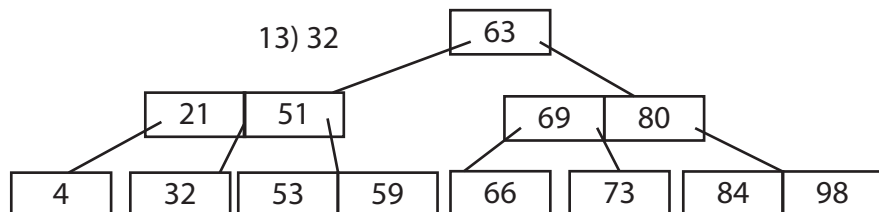
11) 66



12) 69



13) 32



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graph TD
    14[14]
    63_80[63 | 80]
    21_51[21 | 51]
    69[69]
    97[97]
    4[4]
    32[32]
    53[53]
    59[59]
    66[66]
    73[73]
    84[84]
    98[98]

    63_80 --- 21_51
    63_80 --- 69
    63_80 --- 97
    21_51 --- 4
    21_51 --- 51
    51 --- 32
    51 --- 59
    69 --- 66
    69 --- 73
    97 --- 84
    97 --- 98
  
```

```

graph TD
    Root["63 | 80 | "]
    C1["21 | 51 | "]
    C2["69 | "]
    C3["97 | "]
    L1["4 | 19 | "]
    L2["32 | "]
    L3["53 | "]
    L4["59 | "]
    L5[" "]
    L6["66 | "]
    L7["73 | "]
    L8["84 | "]
    L9["98 | "]

    Root --- C1
    Root --- C2
    Root --- C3
    C1 --- L1
    C1 --- L2
    C1 --- L3
    C1 --- L4
    C1 --- L5
    C2 --- L6
    C2 --- L7
    C3 --- L8
    C3 --- L9
  
```

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graph TD; L1[Libro 1] --> L2[Libro 2]; L1 --> L3[Libro 3]; L2 --> L4[Libro 4]; L3 --> L6[Libro 6]; L4 --> L6; L5[Libro 5] --> L7[Libro 7]; L6 --> L7; L6 --> L9[Libro 9]; L7 --> L9; L8[Libro 8] --> L9; L9 --> L10[Libro 10];
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[illegible]