***1.***

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Question** | **1st band** | **2nd band** | **3rd band** | **4th band** | **Nominal value** | **Tolerance resistance** | **Minimum resistance** | **Maximum resistance** |
| 1 | Gray | Red | Brown | Gold | 820Ω | 820Ω\*5%=41Ω | 820Ω-41Ω=779Ω | 820Ω+41kΩ=861Ω |
| 2 | Red | Red | Yellow | Silver | 220kΩ | 220kΩ\*10%=22kΩ | 220kΩ-22kΩ=198kΩ | 220kΩ+22kΩ=242kΩ |
| 3 | White | Brown | Orange | Violet | 91kΩ | 91kΩ\*0.10%=91Ω | 91kΩ-91Ω=90.9kΩ | 91kΩ+91Ω=91.1kΩ |
| 4 | Green | Yellow | Blue | Gold | 54MΩ | 54MΩ\*5%=2.7MΩ | 54MΩ-2.7MΩ=51.3MΩ | 54MΩ+2.7MΩ=56.7MΩ |
| 5 | Brown | Violet | Red | No color | 1.7kΩ | 1.7kΩ\*20%=0.3kΩ | 1.7kΩ-0.3kΩ=1.4kΩ | 1.7kΩ+0.3kΩ=2kΩ |

1. Gray, Red, Brown= 82\*10Ω=820Ω Gold= ±5%
2. Red, Red, Yellow=22\*10kΩ=220kΩ Silver=±10%
3. White, Brown, Orange=91\*1kΩ=91kΩ Violet=±0.10%
4. Green, Yellow, Blue=54\*1MΩ=54MΩ Gold=±5%
5. Brown, Violet, red=17\*100Ω=1700Ω=1.7kΩ no color =±20%

***2.***

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Question*** |  | ***1st band*** | ***2nd band*** | ***3rd band*** | ***4th band*** | ***Tolerance resistance*** | ***Minimum resistance*** | ***Maximum resistance*** |
| 6 | 68Ω±10% | Blue | Grey | Black | Silver | 68Ω\*10%  =6.8Ω | 68Ω-6.8Ω  =61.2Ω | 68Ω+6.8Ω  =74.8Ω |
| 7 | 0.23Ω±5% | Red | Orange | Silver | Gold | 0.23Ω\*5%  =11.5mΩ | 0.23Ω-11.5mΩ  =218.5mΩ | 0.23Ω+11.5mΩ  =241.5mΩ |
| 8 | 1.6kΩ±0.5% | Brown | Blue | Red | Green | 1.6kΩ\*0.5%  =8Ω | 1.6kΩ-8Ω  =1.592kΩ=1.6kΩ | 1.6kΩ+8Ω  =1.608kΩ=1.6kΩ |
| 9 | 250kΩ±20% | Red | Green | Yellow | No color | 250kΩ\*20%  =50kΩ | 250kΩ-50kΩ  =200kΩ | 250kΩ+50kΩ  =300kΩ |
| 10 | 5.6MΩ±0.25% | Green | Blue | Green | Blue | 5.6MΩ\*0.25%=14kΩ | 5.6MΩ-14kΩ  =5586kΩ=5.6MΩ | 5.6MΩ+14kΩ  =5614kΩ=5.6MΩ |

***3. A contractor is concerned about the length of copper hookup wire still on the reel. He measured the resistance and found it to be 10.65 Ω. A tape measure indicated that the thickness of the stranded wire was about in. What is the approximate length in feet? (10 points)***