

Problem 1. (10 points total, 0.5 point each)

Indicate which of the compounds (a – j) match the properties listed below. (Note: some properties correspond to more than one compound).

Compounds:

- a) glycine
- b) methionine
- c) aspartic acid
- d) phosphoric acid
- e) histidine
- f) cysteine
- g) tryptophan
- h) arginine
- i) proline
- j) valine

Properties:

bgij the side chain is nonpolar and hydrophobic (4 answers)

cdefh is a triprotic acid (5 answers)

e the side chain is positively charged at pH < 6.0 but becomes neutral above pH=6.0 (1 answer)

bf contains sulfur (2 answers)

g its strong UV light absorbance at 280 nm is used to measure protein concentrations (1 answer)

gh the side chain can only be a donor of hydrogen bonds (2 answers)

f its neutral side chain gets deprotonated above pH=8.2 (1 answer)

a achiral amino acid (1 answer)

d does not exist in a zwitterionic form (1 answer)

f oxidation of the side chain could lead to the formation of covalent (disulfide) bonds that stabilize protein fold. (1 answer)

i has an aliphatic side chain that is bonded to both the nitrogen and the α -carbon atoms (1 answer)