## CS240 Lab 7 Assignment C Pointers

For each row, evaluate the expression in the first column, and make a prediction for the type and the numeric value of the expression. Assume that you are using a machine with 32 -bit addresses and integers and little endian storage, and that:

- char* $p=($ char*) $0 \times 1100$
- char* $q=$ (char*) $0 x 1110$ for pointer types, write the numeric address
for integer types, write the numeric value

|  | type | numeric address/value |
| :---: | :---: | :---: |
| O. P | char * | $0 \times 1100$ |
| 1. \&p [1] |  |  |
| 2. \&p [-1] |  |  |
| 3. \&p [0] |  |  |
| 4. \&p [1] - \&p[0] |  |  |
| 5. \&p [8] |  |  |
| 6. $(p+1)-p$ |  |  |
| 7. \&p[16] - $p$ |  |  |
| 8. $q$ - p |  |  |
| 9. sizeof (p) |  |  |
| 10. sizeof (*p) |  |  |
| //assume this statement is executed be int* ip $=$ (int*) $p$; | ore eval | the following stat |
| 11. \&ip[0] |  |  |
| 12. \&ip[1] |  |  |
| 13. \&ip[1] - \&ip[0] |  |  |
| 14. (char*) \&ip[1] - p |  |  |
| 15. sizeof (ip) |  |  |
| 16. sizeof(*ip) |  |  |
| 17. \&ip[sizeof (int)] |  |  |
| 18. ip + sizeof (int) |  |  |
| 19. ip + 1 |  |  |
| 20. p + sizeof (int) |  |  |
| $\begin{array}{r} \text { int* iq }=\text { (int*) q; //assume this sta } \\ \text { evaluating the } \end{array}$ | ement <br> ext sta | ted before |
| 21. iq - ip |  |  |
| 22. \&iq[-1] - ip |  |  |
| $\begin{array}{r} \mathrm{p}[0]=\mathrm{p}[1]=\mathrm{p}[2]=\mathrm{p}[3]=0 ; / / \text { assum } \\ \text { executed before evaluating t } \end{array}$ | this e next | $\begin{aligned} & \mathrm{t} \text { is } \\ & \text { nt } \end{aligned}$ |
| 23. *ip |  |  |
| $\begin{aligned} *(c h a r *) & \text { ip }=1 ; \quad \begin{array}{l} \text { /assume this st } \\ \\ \text { evaluating the } \end{array} \end{aligned}$ | tement <br> ext sta | uted before |
| 24. *ip |  |  |
| $\begin{array}{r} *((\text { char*) ip }+1)=1 ; / / a s s u m e ~ t h i s ~ s t ~ \\ \text { evaluating the } \end{array}$ | tement <br> next st | uted before |
| 25. p [1] |  |  |
| 26. *ip |  |  |
| $\begin{gathered} \text { *((char*) ip) = 2; //assume this statement is executed before } \\ \text { evaluating the next statements } \end{gathered}$ |  |  |
| 27. * ( char*) ip) |  |  |
| 28. *ip |  |  |

