





**Q2.** It is required to design a data path to execute the following two types of instructions: *MOV Rdst, Rsrc* and *ADD Rdst, Rsrc*, where *Rsrc* and *Rdst* can be either R0, R1, R2, or R3. Show the data-path design and indicate all the signals needed to control it. Note that you only need to show the interconnection of the registers with the adder i.e., there is no need to show the PC, IR, MAR and MDR registers.