**Question 1: Default Segment Registers:**

**SP: SS**

**BP: SS**

**BX: DS, ES**

**DI: DS, ES**

**SI: DS, ES**

**Question 2: Assembly instruction producing machine code 8B07H:**

**MOV AX, [BX]**

**Question 3: Assembly instruction producing machine code 8B9E004CH:**

**MOV BX, [BP+4C00H]**

**Question 4: Machine code for MOV SI, [BX+2]:**

**8B7702H**

**Question 5: Error in the instruction MOV CS, AL:**

**Directly changing the value of the CS register can cause an error because it changes the flow of execution.**

**Question 6: Difference between MOV DI, NUMBER and LEA DI, NUMBER:**

**MOV DI, NUMBER assigns the 16-bit value inside the variable NUMBER to DI.**

**LEA DI, NUMBER assigns the offset (address) of the variable NUMBER to DI.**

**Question 7: Instruction to move the content of the memory location pointed to by BX within the segment pointed to by ES into AH:**

**MOV AH, ES:[BX]**

**Question 8: ADD instruction to add BX to AX:**

**ADD AX, BX**

**Question 9: ADD instruction to add the value 12H to AL:**

**ADD AL, 12H**

**Question 10: ADD instruction to add DI to BP:**

**ADD BP, DI**

**Question 11: ADD instruction to add the value 22H to CX:**

**ADD CX, 22H**

**Question 12: ADD instruction to add the content of the address pointed to by SI to AL:**

**ADD AL, BYTE PTR [SI]**

**Question 13: ADD instruction to add CX to the content of the address labeled DENEME:**

**ADD WORD PTR [DENEME], CX**

**Question 14: Error in the instruction ADD CX, AH:**

**Cannot add an 8-bit register (AH) to a 16-bit register (CX). Register sizes are incompatible.**

**Question 15: Instructions to add AL, AH, BL, and CL and store the result in DX:**

**XOR DX, DX**

**ADD AL, CL**

**ADC DH, 0**

**MOV DL, AL**

**ADD BL, AH**

**ADC DH, 0**

**ADD DL, BL**

**ADC DH, 0**

**Question 16: Error in the instruction INC [BX]:**

**The INC [BX] instruction is incorrect because there is no information about the size of the data being incremented.**

**Question 17: Difference between SUB and CMP:**

**SUB subtracts the second operand from the first operand and stores the result in the first operand.**

**CMP performs the same subtraction as SUB but does not store the result; it only sets the flags.**

**Question 18: Difference between IMUL and MUL:**

**MUL is for unsigned multiplication.**

**IMUL is for signed multiplication. Both take a single operand with the accumulator as the implicit second operand.**

**Question 19: Where is the remainder stored as a result of the DIV instruction:**

**The remainder is stored in DX. For 16-bit division, the quotient is in AX and the remainder in DX. For 8-bit division, the quotient is in AL and the remainder in AH.**

**Question 20: Flag changes after ADD AX, DX when AX=1001H and DX=20FFH:**

**C = 0, A = 1, S = 0, Z = 0, and O = 0**

**Question 21: Assembly instructions to find the cube of the number stored in DL:**

**MOV AL, DL**

**MUL DL**

**XOR DH, DH**

**MUL DX**