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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT TEST-1 EXAMINATION - September 2018

B.Tech, Vth Semester, ECE

COURSE CODE: 10B11CI401

MAX. MARKS: 15

COURSE NAME: MICROPROCESSORS AND CONTROLLERS

COURSE CREDITS: 4

MAX. TIME: One Hr

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Missing data, if any, can be appropriately assumed.

1(a). Convert the following single-precision floating-point numbers into decimal numbers. Indicate clearly the steps involved. (2)

(b) With a neat sketch explain the architecture of the 8085 microprocessor.

(3)

2(a) Find the contents of the register A after executing the following instructions.

(2)

(i) XRA A ADI 05H **PUSH PSW** LXI H, 4500 PUSH H POP PSW POP H

STC MVI A, 21H MVI B, 0FH ADC A ORA B RRC RAL

- (b) The output of a proportional controller is given by the equation, C = Kp * E. Where Kp is the proportional gain and E is the error input. Write an assembly language program for 8085 microprocessor to read the error input from Port-A and output the controller output at Port-B of an 8255 PPI interfaced with the 8085. Assume that Port-A is configured as input port and Port-B is configured as output port. Port-A address is 21H and Port-B address is 22H. The proportional gain Kp = 2. Write proper comments for your program.
- 3 A robot uses an accelerometer, a gyroscope and a PIR sensor, which are connected at Port-A, Port-B and Port-C of an 8255 PPI interfaced with an 8085 microprocessor. The interrupt signal generated by an 8254 interval timer is used to read all the data at 25ms time interval. Write a main program to configure the 8254 and then wait on a loop. Write also the ISR to read the data from Port-A, Port-B and Port-C and store them at memory locations 2000, 2001 & 2002 respectively. Assume appropriate addresses for all the ports and control registers. **(5)**

