

- N.B. :** (1) Question No. 1 is **compulsory**.
 (2) Attempt any **four** questions from the remaining **six** questions.
 (3) Assume **suitable** data **if necessary** for justification.
 (4) **Figures** to the **right** indicate **full** marks.
 (5) Answers to questions should be **grouped** and written **together**.
 (6) Use **legible** handwriting.
1. (a) Explain the power saving modes of 8051 microcontroller. 10
 (b) Design the following components for 8086 microprocessor with following 10
 specifications :
 (i) 64 kb operating software memory using 27128 chip
 (ii) 64 kb RAM as data memory using 6264 chip
 (iii) 2, 8 bit I/o ports.
 2. Design 8751 based system with following specifications : 20
 (a) CPU clock 12 MHz
 (b) 32 kb program memory using 2764 chip
 (c) 32 kb data memory using 62256 chip
 (d) 2, 8 bit I/o ports using 8255
 (e) One 8 bit DAC for analog o/p
 (f) One 8 bit ADC to read analog i/p.
 3. (a) Write a assembly language program to generate a square wave of 1 KHz at 10
 P1.0 (bit 0 at port 1).
 (b) Explain the following instructions : 10
 (i) MOVX, A, @ dptr
 (ii) CJNE A, # OFFH, NEXT
 (iii) ANL 32 H, # 32H
 (iv) MUL AB
 (v) JBC P1.0, NEXT
 4. Explain 8086–8087 interfacing with neat diagram. Explain the synchronization 20
 between 8086 & 8087.
 5. (a) Convert –187.625 in short real format. 10
 (b) Explain the following directive with example – 10
 (i) DW
 (ii) PROC
 (iii) EQU
 (iv) PUBLIC
 (v) DD.
 6. Write short notes on any **three** : 20
 (a) RS–232C bus standard
 (b) Interrupt structure of 8051
 (c) Interrupt structure of 8086
 (d) Serial port of 8051
 (e) Data types in 8087.
 7. (a) What are hand-shaking signals ? Explain the need for hand-shaking signals. 10
 Explain the various modes of the 8255 PPI with hand-shaking signals.
 (b) Explain the string instructions of 8086 microprocessor with short example. 10