

**N.B. :** i) Question No. 1 is compulsory.

ii) Attempt any **four** Questions from the remaining **six** Questions.

- |    |    |  |    |
|----|----|--|----|
| 1. | a) | Explain how a higher throughput is obtained using VLIW architecture? Give an example of a DSP that has VLIW architecture.  | 5  |
|    | b) | What is the function of interrupt mask register (IMR) and interrupt flag register (IFR) of C5X?  | 5  |
|    | c) | Explain the pipeline operation of TMS320C6X.   | 5  |
|    | d) | Explain the term high memory access bandwidth in relation with P-DSPs. How the same can be obtained in P-DSPs?   | 5  |
| 2. | a) | Compare the features of TMS320C5X and TMS320C54XX.   | 10 |
|    | b) | Draw the functional diagram of ARAU unit in C5X and explain the function of various registers/units used in the same.  | 10 |
| 3. | a) | What are the various functional units of C54X CPU. Explain in detail the function of compare, select and store unit (CSSU) and exponent encoder.   | 10 |
|    | b) | What are the on-chip peripherals of C5X DSP?   | 10 |
| 4. | a) | What are the various P-DSP families and their applications? Discuss the various factors to be considered while choosing a DSP Processor.   | 10 |
|    | b) | Explain the addressing modes of C54X with the help of examples.  | 10 |
| 5. | a) | What is the role of interrupt pins in a DSP device?<br>Are these the only means of interrupting a program? How do you prevent a signal on interrupt pin from interrupting a time critical program being executed by the DSP? | 10 |
|    | b) | Draw the diagram showing functional architecture of analog devices ADSP 21XX family and state its features.  | 10 |
| 6. | a) | Explain the implementation of FIR and IIR filters using C54X processor.  | 10 |
|    | b) | Draw the internal architecture of TMS 320C6X processor. Explain the functional units and their operation.  | 10 |
| 7. | a) | Explain the working of AIC with neat diagram.  | 10 |
|    | b) | What is the use of circular buffers? Write assembly language syntax in C5X for circular addressing mode? Which is the register associated with circular addressing?  | 10 |