

**Dr. Ambedkar College of Commerce and Economics, Wadala,  
Mumbai – 400 031  
F.Y.B.Sc. (IT) First Semester Examination October 2015  
Sub: FIT**

**Date: 19/11/2015**

**Marks: 75**

**Time: 8.00 to 10.30 am**

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Q. 1 Attempt any Two Of The Following :

- a) i) Subtracting using Two's Complement (63 – 78) ? (3)  
ii) convert Binary to Decimal (1110011001010.11100)<sub>2</sub> ? (2)
- b) i) convert Octal To Hexadecimal (50412370.6530)<sub>8</sub> ? (3)  
ii) Find Access -3 Code of (265)<sub>10</sub> & (135)<sub>10</sub> ? (2)
- c) Explain one's Complement & Two's Complement and also calculate Two's complement of (375)<sub>10</sub> and One's complement of (151)<sub>10</sub> ? (5)
- d) Explain Binary, Octal, Decimal, Hexadecimal Number System & convert it to Octal (001111110000111)<sub>2</sub> ? (5)

Q. 2 Attempt any Two Of The Following :

- a) Define & prove : compliment of sum & compliment of multiplication Theorems (Demorgans law)? (5)
- b) Explain Minterm & Maxterm ? also Implement The Circuit using given function  $f(A,B,C,D)=\sum m(1,3,5,11,7)$  ? (5)
- c) solve  $f(A,B,C,D)=\pi M(15,12,13,14,10,2,5,7)$  using K-Map? (5)
- d) Explain EX-OR And EX-NOR Logical Operation? form EX-NOR Gate using NAND Gate? (5)

Q. 3 Attempt any Two Of The Following :

- a) Explain Half Adder & Full Subtractor In Detail ? (5)
- b) Explain 4:1 Multiplexer & 1:4 Demultiplexer With Its Working? (5)
- c) Explain Encoder & Decoder in Details? Implement  $F(A,B,C,D)=\sum m(0,2,3,5,7)$  using 8:1 Multiplexer? (5)
- d) Explain Multiplexer & Demultiplexer Tree & form 1:4 Demultiplexer Tree using 1:2 Demultiplexer & 8:1 Multiplexer Tree using 4:1 Multiplexer? (5)

Q. 4 Attempt any Two Of The Following :

- a) Explain the Concept of one bit Memory Cell ? What is need of it in Digital Electronics? (5)
- b) Explain S-R Flip-Flop? (5)
- c) Explain When Race Around Condition is Arriving? also Explain the Solution of RAC? (5)
- d) Explain Register in Details? (5)

Q. 5 Attempt any Two Of The Following :

- a) Explain The Basic Organization Of Computer ? (5)
- b) Write a Short note on : RAM,ROM,EPROM,PROM,EEPROM ? (5)
- c) Explain the concept of cache Memory in brief? (5)
- d) Write a short note on Hard Disk & Optical Disk ? (5)

Q. 6 Attempt any Two Of The Following :

- a) Define Operating System & Evolution of O.S. In Detail ? (5)
- b) Explain Generation Of Operating System? (5)
- c) What are the Various Types Of Operating System? Explain in Detail ? (5)
- d) Explain : i) Multiprocessor System ii) GUI (5)

Q. 7 Attempt any Three Of The Following :

- a) i) Convert To Octal  $(A72EBF85.6ABC)_{16}$  ii)  $1110111011 \div 1001$  iii) convert into Grey Code  $(64)_{10}$  ? (5)
- b) Explain Full Adder & Half Subtractor In Detail ? (5)
- c) Explain Don't Care Condition & solve  $f(A,B,C,D) = \sum m(1,2,3,5,9,13,15) + d(6,11)$  Using Don't Care Condition ? (5)
- d) Explain D-Type & T-Type Flip-flop in Detail ? (5)
- e) Write A Short Note Computer Memory ? (5)
- f) Write a short Note on Evolution of O.S. & Distributed System in Detail ? (5)