

22/12/11 . S.B. (I.T) Sem IV. OTR.

Con.6112-11.

Information, Theory, and coding MP-4522

(OLD COURSE)

(3 Hours)

[Total Marks : 100

- N.B.:** (1) Question No. 1 is **compulsory**.
 (2) Attempt any **four** questions from remaining **six** questions.
 (3). Assume **suitable** data if **required**.

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|--------|---------------------------------------------------------------------------------------------------------------------------------------|----|
| 1. (a) | Differentiate Block Cyphers from Stream Cyphers. | 5 |
| (b) | Explain the term information and explain its significance. | 5 |
| (c) | What is One way Hash function ? | 5 |
| (d) | Explain Cyclic Codes with example. | 5 |
| 2. (a) | Explain sliding window compression in detail. | 10 |
| (b) | Explain Convolution Codes with example. | 10 |
| 3. (a) | How Prime Number are generated ? Also explain Random number generation. | 10 |
| (b) | Explain properties of Modular Arithmetic. | 5 |
| (c) | What is statistical modeling ? | 5 |
| 4. (a) | Explain the term Entropy in Information theory and also prove that entropy is maximum when all source outputs have equal probability. | 10 |
| (b) | Explain RLE Compression techniques. | 10 |
| 5. (a) | Explain Adaptive Huffman compression with example. | 10 |
| (b) | What is the role of Chinese Remainder Theorem and Fermat Little Theorem in Information Theory. | 10 |
| 6. (a) | Explain security features in DES Algorithm. | 10 |
| (b) | What are different error correcting codes ? | 10 |
| 7. | Write short notes on (any four) | 20 |
| (a) | Multiple Encryption | |
| (b) | Asymmetric Key Cryptography | |
| (c) | Classes of Complexity | |
| (d) | Linear Block Codes | |
| (e) | Dictionary Based Compression. | |

27/12/11

SE CM PN IV (OTR)
IEM

VT-Sept-11- 148

Con. 6310-11.

(OLD COURSE)

MP-4492

(3 Hours)

[Total Marks : 100

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

(2) Attempt any **four** questions out of remaining **six** questions.

(3) Answer to the question should be **grouped** and written **together**.

1. (a) Explain various functions of management. 10
(b) Describe steps involved in scientific process of decision making. 10
2. (a) What is delegation of authority ? Explain the process of delegation of authority. 10
(b) Explain Maslow's need hierarchy. Compare it with Herzberg's maintenance motivation theory. 10
3. (a) What is MBO ? Explain the steps involved in MBO process. 10
(b) What are the causes of line and staff conflict ? How can it be resolved ? 10
4. (a) What are the functions of Central Bank ? Answer with reference to functions of RBI. 10
(b) Describe various sources of public revenue. 10
5. (a) Define marketing and explain briefly marketing functions. 10
(b) Explain the importance of human resource in business management. 10
6. (a) Explain the steps involved in production planning and control. 10
(b) What are the advantages of a good cost accounting system ? 10
7. Write short notes on (any **four**) :- 20
 - (a) Elasticity of Demand
 - (b) Features of Perfect Competition
 - (c) Functions of Money
 - (d) Direct and Indirect Taxes
 - (e) New Economic Policy
 - (f) Henri Fayol's Contribution to Management Thought.

Con. 6104-11.

(OLD COURSE)

MP-4489

(3 Hours)

[Total Marks : 100

- N.B. :** (1) Question No. 1 is **compulsory**.
 (2) Out of remaining **six** questions, attempt any **four** questions.
 (3) Draw **neat** labelled diagram wherever **necessary**.
 (4) Answers to **each** new question to be started on a **fresh page**.

- Q1 a) Explain with suitable examples the difference between computer architecture and computer organization. 5
- b) What is Bus? Explain PCI bus architecture in details. 15
- Q2 a) Explain Low order and high order Memory Interleaving Techniques? 10
- b) A two level memory (M1 , M2) has the access times $t_{A1}=10^{-9}$ s and $t_{A2}=10^{-4}$ s. What must be the hit ratio H in order for the access efficiency to be atleast 65 % of it's maximum possible value? 10
- Q3 a) A block set associative cache consists of a total of 256 cache block with 10 two blocks/set .The main memory containing 4 K blocks with 16 words/ block. Draw a figure explaining the mapping and show the partitions of an address into TAG,SET, and WORD bit)? 10
- b) Explain with diagram DMA data transfer techniques. 10
- Q4 a) Explain the general organization of CPU? State the function of following CPU registers. 10
1. MAR (Memory Address Register)
 2. MDR (Memory Data Register)
 3. IR (Instruction Register)
 4. PC (Program Counter)
 5. SP (Stack Pointer)
- b)) Define "(Input/Output) I/O Module?" State the difference between programmable and non-programmable device with suitable examples? 10
- Q5 a) Explain with neat diagram the difference between micro programmed and hardwired control unit organization? 10
- b) What is virtual memory? Describe how a virtual address generated by the CPU is translated into a physical main memory address. 10
- Q6 a) Explain Booth Multiplication Algorithm and implement for the following numbers: 10
- 7 * 3
- b) Explain the Flynn's Classification for parallel processing system ?. 10
- Q7 Write a short note on : (Any two) 20
- a) Floating point ALU
 - b) RISC and CISC
 - c) RAID levels.

Con. 7006-11.

(OLD COURSE)

MP-4504

(3 Hours)

[Total Marks : 100]

N.B. : (1) Question 1 is **compulsory**.(2) Attempt any **four** from the remaining **six** questions.(3) Assume **suitable** data wherever **required**.(4) Figures to the **right** indicate **full** marks.

1. (a) What are the applications of Potentiometers ? 20
 (b) Classify magnetic materials.
 (c) Explain the types of Three Phase Induction Motors.
 (d) Derive the Torque equation of D.C. Motor.
2. (a) What are the factors which affect the speed of DC Motor ? Explain the speed control of DC Shunt Motor. 10
 (b) A 200 V, D.C. series motor takes 40 A when running at 700 R.P.M. Calculate the speed at which the motor will run and current taken from the supply if the field is shunted by a resistance equal to the field resistance and the load torque is increased by 50%. The armature resistance is 0.15Ω and the field resistance is 0.1Ω . 10
3. (a) Explain the various starting methods of a Three Phase Induction Motor. 10
 (b) A 4 pole, 400 V, 3 phase, 50 Hz, Induction Motor runs at 1440 R.P.M. at 0.8 p.f lag. and delivers an output of 10.8 kW. The stator loss is 1060 W and mechanical losses are 390 W. Calculate (i) slip (ii) rotor copper loss (iii) rotor frequency (iv) line current. 10
4. (a) Explain the working principle of a single phase Induction type Energymeter. Also prove that the total number of revolutions made by the disc during a particular time is proportional to the energy consumed. 10
 (b) Explain the construction and principle of any one type of stepper motor. 10
5. (a) Explain the working of Anderson Bridge. Draw the phasor diagram at balance condition of the bridge. 10
 (b) Differentiate between Kelvin Double Bridge and Wheatstone's Bridge. Derive balance conditions of Kelvin Double Bridge. 10
6. (a) Explain the principle of operation of PMMC type Instruments. 10
 (b) Explain the operation of any one type of Frequency Meter. 10
7. (a) Explain the characteristics of D.C Shunt and Series Motors. 10
 (b) The coil of a PMMC Instrument has 200 turns and dimensions of 30 mm x 20 mm. The Control torque at full scale deflection is 200×10^{-6} N-m. Determine the current through the meter at full scale deflection if the operating flux density is 0.8 Wb/m². 5

7. (a) Explain the characteristics of D.C Shunt and Series Motors. 10
- (b) The coil of a PMMC Instrument has 200 turns and dimensions of 30 mm x 20 mm. The Control torque at full scale deflection is 200×10^{-6} N-m. Determine the current through the meter at full scale deflection if the operating flux density is 0.8 Wb/m^2 . 5
- (c) Explain the operation of a Meggar. 5
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