BE-SEM VII (R-2012) (CBSGS) I.T. Image phvc DCE 2015

QP Code : 6205

Duration 3 hours | Max marks: 80

Note the following instructions.

(a) Question No.1 is compulsory
(b) Total 4 questions need to be solved
(c) Attempt any three questions from remaining five questions.
(d) Assume suitable data wherever necessary, justify the same

1.a Consider the image segment shown below [4]

3	1	2	1 (q)
2	2	0	2
1	2	1	1
(p) 1	0	1	2

Compute the length of the shortest 4, 8 and m path between p and q for V= {1, 2}.

1.b Explain separability property of 2D-DFT. [4]

1.c How many unique Huffman codes are possible for a 3 symbol source? Construct these codes. [4]

1.d Explain the process of high boost filtering mathematically. [4]

1.e Explain morphological thinning operation with example. [4]

2.a Explain following morphological operations with suitable examples [10]
i. Dilation ii. Erosion iii. Opening iv. Closing

2.b Perform LZW coding and decoding for the following sequence. [10]
abababababa

3.a Gray level histogram of an image is given below [10]

Gray level (r)	0	1	2	3	4	5	6	7
No. of pixels (n)	220	140	50	60	70	170	130	160

Compute gray level histogram of the output image obtained by enhancing the input by histogram equalization technique.

3.b With neat block diagram, explain fundamental steps in digital Image processing. [10]

4.a Describe in short the following point processing image enhancement techniques. [10]

i. Log Transformation ii. Power-Law transformation

iii. Contrast Stretching iv. Gray Level slicing

4.b Explain the following Boundary Descriptors [10]

i. Shape Numbers ii. Fourier Descriptors

5.a Give the steps involved in Homomorphic Filtering [5]

5.b What are the basic steps for filtering in frequency domain enhancement. [5]

5.c Describe basic principles of detecting following in the images [10]

i. Point's ii. Lines iii. Edges

Give 3 x 3 masks for each of them to explain their operation

6.a Draw and explain the block diagram of JPEG encoder and decoder. [10]

6.b Obtain 2D DFT of following 3 x 3 image [6]

$$f(x,y)=\begin{bmatrix} 1 & -1 & 1 \\ -1 & 1 & 1 \\ 1 & 1 & 1 \end{bmatrix}$$

6.c Explain Bit plain coding technique. [4]

BE- SEM VII (R-2012) (CBSGS) Dec-2015

I.T.

E-commerce & E-Business

QP Code : 6211

(3 Hours) [Total Marks : 80

N.B. : (1) Question No. 1 compulsory.
(2) Solve any three questions out of remaining Five.
(3) Assume suitable data.

1. You want to be a part of Digital India move announced by Indian Government. You want to set up a business which will provide a required training to the government staff as well as to the citizens of India along with the responsibility of providing the required infrastructure to set up the training centers nationwide. Your company will have 49% share and the rest 51% will remain with the Indian Government. Develop a business plan based on the following guidelines. 20

i) Identify the business model with respect to the following points: Value proposition, Revenue model, Market opportunity, Competitive environment, Competitive advantage, Market strategy, Organizational development, Management team

ii) Develop the strategic plan:
   a. Strategic Analysis includes: External environment, Internal resources
   b. Strategic Objectives - includes Vision, Mission, and objectives.
   c. Strategic definition
   d. Marketing plan
   e. SCM and CRM plan

iii) Implementation should include few screens (hand drawn) of websites demonstrating
   a. Business model, Revenue model(s) used
   b. CRM, SCM activities
   c. Marketing activities
   d. Strategic objectives like mission, vision and objectives
   e. Security concern, Payment mode (in case of B-C and C-C business model)
   f. Monitoring and Control, maintenance
   g. One example of use-case scenario.
   h. Site structure diagram (blueprint) showing layout and relationship between pages

iv) Organizational structure and Hardware and Software requirement

2. a) Enlist and explain types of portals with an example of each types? 10
   b) Write a short note E-CRM also explain its benefits. 10

[TURN OVER

3.	a)	Explain the concept of Porter's value chain.	10
	b)	Explain buy side and sell side E-commerce with the help of example.	10
4.	a)	Compare E-commerce and E-business?	5
	b)	Difference between client side programming and server side programming?	5
	c)	What are the characteristics of payment system?	5
	d)	Explain SOSTAC framework .	5
5.	a)	Describe E-business revenue models and its types.	10
	b)	How does E-cash transfer take place in E-business.	10
6.	a)	Explain SWOT analysis with example.	10
	b)	Describe different elements E-business procurement system.	10

BE - SEM VII (R-2007) Comp. Dec. 2015
Robotics & AI

Q.P. Code : 2303

(3 Hours) **[Total Marks : 100**

N.B.: (1) Question No. 1 is compulsory
(2) Write any four questions out of remaining.
(3) Assume suitable data if required.

1	(a)	Explain in brief configuration space.	5
	(b)	Explain forward chaining.	5
	(c)	What do you mean an admissible heuristics function? Discuss with suitable example.	5
	(d)	Explain steps in problem formulation.	5
2	(a)	Explain IDA* algorithm with example.	10
	(b)	Explain supervised and unsupervised learning with example	10
3	(a)	Explain various methods of knowledge representation with example.	10
	(b)	Discuss various position sensors used in robots.	10
4	(a)	Discuss the application of decision tree for restaurant example.	10
	(b)	Explain Hill-Climbing Algorithm with its limitations.	10
5	(a)	List and explain steps in designing the reactive behavioural system.	10
	(b)	Describe different types of environments applicable to AI agents.	10
6	(a)	Explain structure of intelligent Agent.	10
	(b)	What is Uncertainty? How probability theory can be applied for toothache problem?	10
7		Write short note on	20
	(a)	TEV	
	(b)	Predicate Logic.	
	(c)	Belief network.	
	(d)	Properties of environment.	

BE SEM VII (R-2007) - Comp Dec 2014

Mobile computing

Q.P. Code : 2376

(3 Hours) [Total Marks : 100

N.B. : (1) Question No. **1** is **compulsory**.
(2) Solve any **four** questions from remaining six questions.
(3) Assume suitable **data** if **necessary** & state it **clearly**.

1. (a) What is frequencey reuse concept ? **5**
   (b) List and explain main benefits of Spread Spectrum System. **5**
   (c) Explain GSM teleservices & bearer services. **5**
   (d) What is meant by WATM ? **5**

2. (a) Draw and neat diagram of GSM protocol architecture & explain in detail. **10**
   (b) Describe threats & security issues in Mobile Computing. **10**

3. (a) Discuss the IP reverse tunneling. **10**
   (b) Name the major differences between Adhoc Networks & other networks. **10**

4. (a) What is Mobile TCP ? Explain it in detail. 10
   (b) Explain in the operation of CDMA with timing diagram. 10

5. (a) Draw a neat diagram of WAP architecture & explain in brief. 10
   (b) Describe the GPRS system architechture in detail. 10

6. (a) What is Hand-off ? List & explain various types of Hand-offs in cellular system . 10
   (b) Compare between GSM & CDMA. 10

7. Write short notes on (any two) **20**
   (a) Mobile satellite systems
   (b) Wireless sensor networks
   (c) UMTS

22/12/2015

B.E Sem VII R-2007

Syst security COMP

Q.P. Code : 2496

(3 Hours) [Total Marks : 100

N.B. : (1) Question No. 1 is **compulsory**.
(2) Solve any **four** questions from remaining **six** questions.
(3) **Assume** suitable **data** whenever **necessary**.

1. (a) What are different Security Goals ? **5**
   (b) Distinguish between substitution cipher and transposition cipher. **5**
   (c) What are the different types of malicious codes ? **5**
   (d) What are the different types of IP-Spoofing ? **5**

2. (a) Explain the structure of DES. **10**
   (b) What is SHA-1 ? Explain different steps of working of SHA-1. **10**

3. (a) IPsec offers security at network layer. What is the need of SSL ? Explain the services of SSL Protocol. **10**
   (b) Compare Packet sniffing and Packet Spoofing. Explain the session hijacking attack. **10**

4. (a) Explain physiological and Behavioral biometric techniques with example. **10**
   (b) Upon reception of a digital certificate, how one can decide whether to trust that or not. **10**

5. (a) Explain Access control list (ACL) and its capabilities. **10**
   (b) Explain how threat precursors are used for reconnaissance of network. **10**

6. (a) What are the various types of port scan ? **10**
   (b) What is firewalls ? Explain different types of firewalls ? **10**

7. Write a short note on (**any two**) **20**
   (a) Different Security Mechanisms
   (b) Covert Channel
   (c) CAPCHA.

QP-Con. 12337-15.