2021

COMPUTER SCIENCE — GENERAL

Paper : SEC-B-X-2

(Information Security)

Full Marks : 80

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Group - A

1. Answer ***any five*** questions : 2×5

(a) What are three independent dimensions in a Cryptographic system?

(b) What is Brute force attack?

(c) Write the main differences between block and stream cipher.

(d) Briefly define a ring.

(e) Find the value of 321 mod 11 using Fermat's theorem.

(f) What is the difference between diffusion and confusion?

(g) What is Secure Electronic Transaction (SET)?

(h) What is the OSl security architecture?

Group - B

Answer ***any four*** questions. 5×4

2. Draw a simplified model of Symmetric Encryption technique and explain it in brief.

3. Give example each for substitution and transposition ciphers.

4. Explain Fermat's theorem with suitable example.

5. What is the purpose of Digital Signature? How does it provide additional security?

6. What is the purpose of P-box in DES?

7. Write about the different principles of Security.

Group - C

Answer ***any five*** questions.

8. (a) Write a short note on different types of Wireless Network threats.

(b) What is PGP with respect to Electronic mail security? 5+5

9. (a) What is Anti-Replay Service? Why it is needed?

(b) Write the different benefits of IPSec. 4+6

10. (a) What is IP sniffing and IP spoofing?

(b) Explain Diffie-Hellman key exchange algorithm with example. 4+6

11. (a) Explain substitution technique with suitable example.

(b) What are the principles of Public-Key Cryptosystems? 5+5

12. (a) What is Message digest? Why is it used?

(b) What are the roles of the public and private key? 5+5

13. Write short notes on (***any two***) : 5×2

(a) Use of Public-Key Certificates

(b) Network Access Control (NAC)

(c) Transposition Techniques

(d) RSA Algorithm.

2021

COMPUTER SCIENCE — GENERAL

Paper : SEC-B-X-1

(Multimedia and its Application)

Full Marks : 80

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Answer ***question no.*** **1** and ***any four*** from the rest.

1. Answer ***any ten*** questions : 2×10

(a) What is meant by the terms static (or discrete) media and dynamic (or continuous) media?

(b) Define multimedia speech.

(c) How is video made from still images?

(d) State two examples of video file format used in multimedia.

(e) Define tweening.

(f) Name two multimedia components.

(g) Name any two QoS parameters.

(h) Define dithering.

(i) What do you mean by resolution of images?

(j) Differentiate between ser if and sans type faces.

(k) What is noise in relation to multimedia data?

(l) What is JPEG?

(m) What is hyper media?

(n) What are primary stages of multimedia?

(o) How many types of multimedia authoring tools are there? Name them.

2. (a) Briefly state how multimedia servers are different from traditional file or network servers.

(b) How is speech recognition done in multimedia system? Why is it important?

(c) Discuss about the key components of a video conferencing system. 5+4+6

3. (a) Why is networking needed in multimedia?

(b) Describe the Huffman technique for text compression.

(c) Explain one audio compression technique. 4+6+5

Please Turn Over

4. (a) Differentiate between Shannon Fano and Huffman text compression techniques.

(b) Briefly discuss the various audio file formats used in multimedia systems.

(c) What is digital audio? How is it sampled? 4+6+5

5. (a) How might multimedia be used to improve the life of its users?

(b) Discuss some techniques by which you can improve the QoS of a multimedia system.

(c) Name two lossless and two lossy text compression techniques. Briefly discuss about them. 4+6+5

6. (a) Explain briefly the various essential components needed for video conferencing.

(b) 'A font's size does not exactly describe the height or width of its characters.' Why?

(c) What do you mean by audio-video synchronization in multimedia? 5+5+5

7. (a) Explain the different layers in multimedia synchronization system.

(b) Discuss the difference between JPEG and PNG image file formats.

(c) What do you mean by video frame rate? Estimate the memory requirement for a video of 20 fps played for 5 seconds having frame resolution of 200×300. 5+5+5

8. (a) Why is video compression essential in multimedia systems?

(b) Is there a difference between text used on your presentation and the one you used on your website webpage? Why?

(c) What do you mean by a grayscale image? Explain its storage in computer memory. 5+5+5

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