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Answer all questions. Each of the 4 questions carries equal marks.

1 For the literature given in the class"Multimedia Fingerprinting"

1.1 What are multiuser collusion attacks?

1.2 Explain Robust Data Embedding in multimedia

1.3 Explain the basic process of spread-spectrum embedding four steps.

1.4 Possible goals for designing the fingerprints are the following.

- Catch one
- Catch many
- Catch all

1.5 Explain Linear and Nonlinear Collusion on Independent Fingerprints work

1.6 Explain how the following attacks on fingerprints work

- Minimum/maximum/median attack
- Minmax attack
- Modified negative attack
- Randomized negative attack

1.7 Explain Colluder Identification via Independent Fingerprints

1.8 What is Coded Fingerprinting

1.9 Explain a balanced incomplete block designs anti-collusion code (BIBD ACC) fingerprinting scheme

1.10 Explain Colluder Identification

2 For the literature given in the class " Multimedia Home Platform :MHP)

2.1 Explain Phases of Standardisation for MHP

• Infrastructure / Transport

    -Broadcast Transmission (. Broadcast Transmission (satellite, cable, terrestrial, ...)

    -Service Information SI

    -Return channels for interactive services

• Infostructure / Middleware

    -Multimedia Home Platform (Application Programming Interface)

2.2 The Explain Scope of MHP in terms of;

Generic SW Interface (API)

- Independent developers Independent developers
- Different service Different service
- Various application areas
- Independent implementations
- Different hardware
- Different software
- All kind of terminals

2.3 Describe MHP System Definition in terms of;
- Equipment (hardware, software)
- home terminal / receiver
- local cluster
- Services / applications (content)
- enhanced broadcasting   with local interactivity
- interactive services using a return channel
- internet access
- Security
- operation
- content,
- user data, transactions etc. .
- Local Cluster
- Copy Management & Protection
- operational model
- Conformance & Interoperability Testing
- Migration

2.4 Describe typical MHP applications;
- Electronic program guides Electronic program guides
- "Super Teletext"
- Applications synchronised to TV content
- Games
- E- commerce
- Interactive advertising
- Internet access

 2.5 Explain Key Generic Requirements of MHP;
- interoperability
- evolution, scalability, backwards compatibility
- modularity, stability
- migration path
- based on open standards
- upgradability / downloadability
- controlled development path
- simplified and cost controlled operation
 - generic API separated from CA

2.5 Explain Key MHP Specification Elements
• MHP   architecture
• profile definition
• Content formats
• Mandatory transport protocols
• Application model and   signalling
• Hooks for HTML content formats
• DVB-J platform
 • Security framework

3. For the literature given in the class "Digital watermarking of multimedia"
3.1 What are impacts of the Digital Millenium Copyright Act (DMCA) ?
3.2 Explain Media Requirements for
-Image Watermarking
-Document Watermarking
-Graphics Watermarking
-Video Watermarking
-Audio Watermarking
3.3 Explain how Watermark Embedding is done.
3.4 Explain how Watermark Detection works
3.5 What are Fundamental Properties and Limitations of Watermarking

4 For the literature given in the class "Digital rights management(DRM)"

4.1 What are MPEG-4 Intellectual Property Management and Protection(IPMP) Hooks
4.2 MPEG-4 IPMP Extensions
4.3 Explain the following descriptors;
-Descriptors for instantiation and notification messages.
 -Descriptors for event notification messages.
 -Descriptors for IPMP processing messages.
-Descriptors for authentication messages.
-Descriptors for user interaction messages.
 -Descriptors for consumption messages.
 4.4 Explain the following MPEG-21 IPMP parts;
. The digital item identification (DII, Part 3)
-IPMP information(Part 4) .
-The REL (Part 5)
-Digital item adaptation (DIA, Part 7)
-The digital item processing (DIP, Part 10)