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8E1912

Roll No. _____

Total No. of Pages: 2

8E1912

B. Tech. VIII-Sem. (Main/Back) Exam. April-2026
Electronics & Communication Engineering
8EC5-12 Digital Image & Video Processing

Time: 3 Hours

Maximum Marks: 70

Instructions to Candidates:

Attempt all ten questions from Part A, five questions out of seven questions from Part B and three questions out of five questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

*Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)*

1. NIL2. NIL**PART – A****[10×2=20]****(Answer should be given up to 25 words only)****All questions are compulsory**

- Q.1 What do you mean by pixel neighbourhood?
- Q.2 Explain HSI color image processing.
- Q.3 Explain color segmentation.
- Q.4 Explain wavelet packets in images.
- Q.5 Define image compression.
- Q.6 In your words define inter-frame redundancy.
- Q.7 Define hard cut & soft cut in video segmentation.
- Q.8 What do you mean by forward & backward motion prediction?
- Q.9 Explain entropy in image compression.
- Q.10 Define slices in video.

PART – B

[5×4=20]

(Analytical/Problem solving questions)

Attempt any five questions

- Q.1 Briefly explain JPEG compression.
- Q.2 What do you mean by image compression standards?
- Q.3 Explain histogram processing in detail.
- Q.4 Briefly explain properties of Fourier transform in detail.
- Q.5 Explain importance of brightness adaptation and discrimination in image processing.
- Q.6 Compare MPEG & H.26X.
- Q.7 Describe the segmentation process in digital image processing. Explain the fundamental of edge based segmentation.

PART – C

[3×10=30]

(Descriptive/Analytical/Problem Solving/Design Questions)

Attempt any three questions

- Q.1 Discuss image segmentation based on global thresholding.
 - Q.2 Using suitable process explain the video object detection in image segmentation.
 - Q.3 Write short note on (Any two) - [5+5=10]
 - (A) Video sequence hierarchy
 - (B) Video object tracking
 - (C) Video coding standards
 - Q.4 Compare color models RGB, YUV & HSI.
 - Q.5 Using suitable example, explain image compression techniques in JPEG & JPEG-2000.
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Roll No. _____

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B. Tech. VIII-Sem. (Main/Back) Exam. April-2026

Open Elective-II

8AG6-60.1 Energy Management

Time: 3 Hours

Maximum Marks: 70

Instructions to Candidates:

Attempt all ten questions from Part A, five questions out of seven questions from Part B and three questions out of five questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

*Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)*

1. NIL2. NIL**PART – A****[10×2=20]****(Answer should be given up to 25 words only)****All questions are compulsory**

- Q.1 Define Energy Auditing.
Q.2 What is the significance of the "Energy Matrix" in industries?
Q.3 Define "Payback Period" in energy projects.
Q.4 What are "Green Buildings"?
Q.5 What is the "Energy Conservation Act 2001"?
Q.6 Name two energy forecasting models.
Q.7 Define Energy Efficiency.
Q.8 What is the main goal of Energy Demand Management?
Q.9 What do you understand by Energy Integration?
Q.10 What is meant by Energy Forecasting?

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PART – B

[5×4=20]

(Analytical/Problem solving questions)

Attempt any five questions

- Q.1 What are the different types of energy auditing tools? Explain their specific uses in detail.
- Q.2 Explain the conceptual and practical differences between energy auditing and energy forecasting.
- Q.3 What is meant by Energy Accounting? Provide a step-by-step procedure for implementing it.
- Q.4 Discuss various practical ways to implement energy conservation in rural areas.
- Q.5 Explain the concept of "Energy Security" and its components.
- Q.6 Describe the various steps involved in a Preliminary Energy Audit.
- Q.7 Describe the various energy-saving measures available for the transport sector.

PART – C

[3×10=30]

(Descriptive/Analytical/Problem Solving/Design Questions)

Attempt any three questions

- Q.1 Describe in detail the current pattern of energy consumption in Indian agriculture and the major constraints in production.
- Q.2 Discuss various energy-saving measures that can be implemented in modern commercial and residential buildings.
- Q.3 Explain the detailed methodology of a Comprehensive Energy Audit for a manufacturing plant.
- Q.4 Detail the "Energy Matrix" approach for a textile industry to identify energy-saving opportunities.
- Q.5 Explain the importance and procedure of "Energy Monitoring and Targeting (M&T)" in a process industry.