

# list the repeted questions in part c in the uploaded documents and mention it with full text with variations

Certainly! Based on the uploaded documents, here is a detailed list of **repeated questions in Part C** along with their **full text** and noted **variations**.

## Repeated Questions in Part C with Full Text and Variations

### 1. Matched Filter & Probability of Error

**Document: Batch-2-CT2\_Answer-Key\_Set-D\_updated.pdf**

15.a.

Derive the expression for the error probability of matched filter.

**Document: Assignment-02-ADC.pdf (Module 03)**

1.

What is a Matched Filter? Explain how a matched filter can maximize SNR for a given transmitted symbol. Derive the Probability of error for Matched Filter.

#### Variation:

- Test paper asks directly for the probability of error derivation.
- Assignment adds conceptual explanation of matched filters and SNR maximization before derivation.

### 2. Error Probability of Binary PAM

**Document: Batch-2-CT2\_Answer-Key\_Set-D\_updated.pdf**

15.b.i.

Derive the expression for error probability of binary PAM.

**Document: Assignment-02-ADC.pdf (Module 03)**

4.

Derive the expression for the error probability of Binary PAM.

#### Variation:

- Wording is almost identical; both ask for error probability derivation of binary PAM.

### 3. Error Probability for Binary PSK

**Document: Batch-2-CT2\_Answer-Key\_Set-D\_updated.pdf**

**15.b.ii.**

Derive the expression for error probability of binary PSK.

**Document: Assignment-02-ADC.pdf (Module 03)**

**3.**

Derive the expression for the error probability of Binary PSK.

**Variation:**

- Essentially the same question; wording is consistent.

### 4. Generation and Detection of Binary FSK

**Document: Batch-2-CT2\_Answer-Key\_Set-D\_updated.pdf**

**14.b. (OR option in Part B, but relevant here)**

Describe the generation and detection of binary FSK signal with necessary diagram and equation.

**Document: Assignment-02-ADC.pdf (Module 04)**

**2.**

Derive the Probability error of FSK and also explain the generation and detection of binary FSK.

**Variation:**

- Test paper focuses more on signal generation and detection description.
- Assignment adds derivation of probability of error as well.

### 5. M-ary PSK and M-QAM

**Document: Batch-2-CT2\_Answer-Key\_Set-D\_updated.pdf (Part B)**

**14.a.i.**

With neat diagrams explain the concept of M-ary PSK transmitter and receiver.

**14.a.ii.**

Explain the difference between M-PSK and M-QAM in terms of constellation diagrams.

**Document: Assignment-02-ADC.pdf (Module 04)**

6.

With a neat block diagram explain the generation, signal space diagram and detection process in QAM.

**Variation:**

- Test paper breaks M-ary PSK and M-QAM into two sub-questions.
- Assignment merges explanation focusing on QAM generation and detection.

## 6. Shannon-Fano and Huffman Coding

**Document:** ANS-KEY-Assignment-ADC-UNIT-5.pdf and Assign\_Questions-ADC-UNIT-5.pdf

**Questions on:**

- Shannon-Fano code for given probability set.
- Huffman coding for a given probability set.
- Calculation of average length, efficiency, and redundancy.

**Variation:**

- These are typical information theory questions repeated in multiple assignments.
- Not present in the test paper but appear repeatedly in assignment units.

## Summary Table of Repeated Part C Questions

Topic	Document(s) & Question No.	Key Variation Details
Matched Filter (concept & error)	Test Paper 15.a, Assignment-02-ADC Q1 (Module 3)	Concept + derivation (assignment) vs. direct derivation (test paper)
Error Probability of Binary PAM	Test Paper 15.b.i, Assignment-02-ADC Q4 (Module 3)	Almost identical
Error Probability of Binary PSK	Test Paper 15.b.ii, Assignment-02-ADC Q3 (Module 3)	Almost identical
Generation and Detection of FSK	Test Paper 14.b (Part B), Assignment-02-ADC Q2 (Module4)	Description only vs. description + error probability derivation
M-ary PSK & M-QAM	Test Paper 14.a.i & ii (Part B), Assignment-02-ADC Q6 (Module 4)	Separate explanation (test paper) vs combined (assignment)
Shannon-Fano & Huffman Coding	In Assignments Unit 5 (multiple question files)	Coding theory questions repeated across assignments

# Conclusion

- Most **Part C** questions focus on **error probability derivations for digital modulation schemes** such as matched filter, binary PAM, and binary PSK, and these are repeated across test papers and assignments with only minor wording variations.
- Generation and detection of FSK also appear repeatedly with some variation in depth.
- Coding theory questions on Shannon-Fano and Huffman coding are repeated frequently in assignments but do not appear in the main test paper Part C.

If you want, I can also help you by highlighting the exact page numbers or question numbers in your files. Just let me know!