22ELP422

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2024
(Fourth Semester)

Branch – **APPLIED ELECTRONICS**

DIGITAL SIGNAL PROCESSING

Time: Three Hours Maximum: 50 Marks

SECTION-A (5 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (5 x 1 = 5)

1 Find the signal classification type _____
(i) Digital (ii) fourier
(iii) laplace (iv) transform

2 Choose the answer for the term combining to signals to form the third one_____
(i) correlation (ii) convolution
(iii) transformation (iv) analyzation

3 Identify the properties of filter _____
(i) FIR filter (ii) IIR filter
(iii) ideal filter (iv) vocoder

4 Indicate the realization is recursive, since it generates present value from past values of the signals _____
(i) ideal filter (ii) FIR filter
(iii) digital filter (iv) IIR filter

5 _____ which includes the acquisition, manipulation, storage, transfer and output of speech signals.
(i) Speech analysis (ii) Speech coding
(iii) Speech processing (iv) Speech companding

SECTION - B (15 Marks)
Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks (5 x 3 = 15)

6 a State the classification of signals.
OR
b Discuss the introduction to the DSP processor.

7 a Justify the properties of discrete Fourier transform, suitable for computation.
OR
b Analyze about the circular and the linear convolution.

8 a Explain about Simple IIR digital filter.
OR
b Illustrate the comparison of FIR and IIR filters.

Cont ...

9 a Evaluate the direct form I realization.

OR

b Illustrate the lattice ladder structure.

10 a Recommend the speech coding technique with proper explanation.

OR

b Explain the working of channel Vocoder.

SECTION -C (30 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 x 6 = 30)

11 a Interpret the elementary discrete time signals.

OR

b Formulate the classification of discrete time systems.

12 a Criticize the auto and cross correlation.

OR

b Compare the DFT and FFT algorithms.

13 a Appraise the design of IIR filters from analog filters using bilinear transformation.

OR

b Assess the design of FIR filters by windowing using rectangular.

14 a Differentiate cascade form parallel form structure.

OR

b Enumerate the points on Polyphasic realization.

15 a Compare the speech processing and speech analysis.

OR

b Justify why DSP based measurement systems is important?

Z-Z-Z END