Program: BE Electronics and Telecommunication Engineering

Curriculum Scheme: Revised 2016

Examination: Third Year Semester V

Course Code: **ECC504** and Course Name: **DTSP**

Time: 1 hour Max. Marks: 50

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Note to the students:- All the Questions are compulsory and carry equal marks .

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| Q1.  | 4 point DFT of sequence x(n)=(1, 2, 3, 4) is |
| Option A: | (8, 2, 0, 2) |
| Option B: | (10, -2+2j, -2, -2-2j) |
| Option C: | (10, 2+2j, 2, 2-2j) |
| Option D:  | (10, -2, 0, -2) |
|  |  |
| Q2. | The number of bits required to compute DFT of a 1024 point sequence with an SNR of 30dB is |
| Option A: | 30 bits |
| Option B: | 12 bits |
| Option C: | 15 bits |
| Option D: | 20 bits |
|  |  |
| Q3. | What is circular convolution of the sequences x(n)={2,1,2,1} and h(n)={1,2,3,4} using the FFT and IFFT concepts? |
| Option A: | {14,16,14,16} |
| Option B: | {16,16,14,14} |
| Option C: | {16,14,16,14} |
| Option D: | {14,14,16,16} |
|  |  |
| Q4. | What is the number of complex multiplication for N = 32 in FFT |
| Option A: | 160 |
| Option B: | 80 |
| Option C: | 992 |
| Option D: | 124 |
|  |  |
| Q5. | If DFT of x(n) is X(k), then to calculate DFT of x(n-1) which property is used |
| Option A: | Periodicity |
| Option B: | Frequency shift |
| Option C: | Symmetry |
| Option D:  | Time shift |
|  |  |
| Q6. | The filter which has monotonous pass band and stop band is |
| Option A: | Chebyshev type I |
| Option B: | Chebhshev type II |
| Option C: | Butterworth |
| Option D:  | Elliptical  |
|  |  |
| Q7.  | Which method is used to design IIR filter |
| Option A: | FIR |
| Option B: | Window |
| Option C: | Kaiser |
| Option D:  | IIM |
|  |  |
| Q8.  | In IIR digital filter the present output depends on |
| Option A: | Present Input, Previous input and output  |
| Option B: | Present input and previous outputs only |
| Option C: | Present input only |
| Option D:  | Present and previous Inputs only |
|  |  |
| Q9. | The relation between analog and digital frequency is nonlinear in case of |
| Option A: | Impulse invariant transformation |
| Option B: | Bilinear transformation |
| Option C: | Frequency sampling |
| Option D:  | Window method |
|  |  |
| Q10.  | Analog filter transfer function transformed to digital filter using IIM method, what are the poles of filter |
| Option A: | Pole at Z= 0.368 |
| Option B: | Pole at Z=0 |
| Option C: | Pole at Z=1 |
| Option D:  | Pole at Z=0.54 |
|  |  |
| Q11.  | If ωc is cutoff frequency of low pass filter then response lies only in range of |
| Option A: | -ωc ≤ω≤π |
| Option B: | -ωc ≤ω≤ ωc |
| Option C: | -π≤ω≤-ωc |
| Option D:  | -ωc ≤ω≤-π |
|  |  |
| Q12.  | The width of main lobe should be \_\_\_\_\_\_\_\_\_\_\_ and it should contain as much of total energy as possible |
| Option A: | Large |
| Option B: | Medium |
| Option C: | Small |
| Option D: | Very large |
|  |  |
| Q13. | How does the frequency of oscillations in the pass band of a low pass filter varies with the value of M? |
| Option A: | Decrease with increase in M |
| Option B: | Increase with increase in M |
| Option C: | Remains constant with increase in M |
| Option D:  | Decrease with Decrease in M |
|  |  |
| Q14.  | Why is it desirable to optimize frequency response in the transition band of the filter? |
| Option A: | Increase side lobe |
| Option B: | Reduce side lobe |
| Option C: | Increase main lobe |
| Option D:  | Increase ripple |
|  |  |
| Q15. | The values of cutoff frequencies in general depend on which of the following? |
| Option A: | Type of the window |
| Option B: | Length of the window |
| Option C: | Type & Length of the window |
| Option D:  | Type of filter |
|  |  |
| Q16.  | The \_\_\_\_\_\_\_ is used to represent a large range of numbers |
| Option A: | Floating point representation |
| Option B: | Fixed point representation |
| Option C: | Sign magnitude |
| Option D:  | Positive number |
|  |  |
| Q17. | Two types of limit cycles are zero input limit cycles and \_\_\_\_\_\_ limit cycle |
| Option A: | Positive |
| Option B: | Negative |
| Option C: | One input |
| Option D: | Overflow |
|  |  |
| Q18. |  Periodic oscillations are caused  |
| Option A: | In non-recursive system due to non linearities |
| Option B: | Due to non linear distortion at the output of the filter |
| Option C: | Due to nonlinearities in the finite precision arithmetic operations |
| Option D:  | Due to fixed point realizations  |
|  |  |
| Q19.  | In DSP processors which among the following maintains the track of addresses of input data as well as the coefficients stored in data and program memories? |
| Option A: | Program sequences |
| Option B: | Barrel shifter |
| Option C: | Data address generators (DAGs) |
| Option D:  | MAC |
|  |  |
| Q20. | The number of instructions that can be executed in parallel is called\_\_\_\_\_\_\_ pipelining |
| Option A: | Depth |
| Option B: | circular |
| Option C: | Page |
| Option D: | On chip |
|  |  |
| Q21. | The \_\_\_\_\_\_\_\_\_ serial ports can be used for serial communication between multiple processors |
| Option A: | CDM |
| Option B: | TDM |
| Option C: | PDM |
| Option D:  | FDM |
|  |  |
| Q22.  | In digital processors architecture VLIW stands for |
| Option A: | Very low instruction word |
| Option B: | Very large integration word |
| Option C: | Very large instruction work |
| Option D:  | Very large instruction word |
|  |  |
| Q23. | Which of the following is not an operation in Music sound processing |
| Option A: | Flanging effect |
| Option B: | Fading effect |
| Option C: | Chorus effect |
| Option D:  | Phasing effect |
|  |  |
| Q24.  | 16 standard DTMF signals are proposed using sine waves of  |
| Option A: | 16 different frequencies |
| Option B: | 32 different frequencies |
| Option C: | 8 different frequencies |
| Option D:  | 4 different frequencies |
|  |  |
| Q25. | In RADAR the decision making is severely hampered by  |
| Option A: | Atmospheric noise |
| Option B: | Thermal noise |
| Option C: | Shot noise |
| Option D:  | System noise |