

ANJUMAN-I-ISLAM'S
KALSEKAR TECHNICAL CAMPUS, NEW PANVEL
School of Engineering & Technology

Subject: AM III
Marks: 20
Class: SE

Unit Test 2

Date: 26/10/16
Duration: 1Hr
Branch: CO

N. B. 1. Attempt any **four** questions of the following.

2. All questions carry equal marks.

1. Find Fourier series of $f(x) = x^2$, $0 \leq x \leq 2\pi$. Hence deduce that $\frac{\pi^2}{12} = \frac{1}{1^2} - \frac{1}{2^2} + \frac{1}{3^2} - \dots$

2. Find half range cosine series of $f(x) = \begin{cases} kx & 0 < x < \frac{l}{2} \\ 0 & \frac{l}{2} < x < l \end{cases}$

3. Show that the set of functions $\sin x, \sin 3x, \sin 5x, \dots$ is orthogonal over $(0, \frac{\pi}{2})$. Hence construct an orthonormal set of functions.

4. Find directional derivative of $\phi = x^2 y \cos z$ at $(1, 2, \frac{\pi}{2})$ in the direction of $\bar{a} = 2i + 3j + 2k$.

5. Show that $\bar{F} = (2xyz^2)i + (x^2z^2 + z \cos yz)j + (2x^2yz + y \cos yz)k$ is conservative. Hence find its scalar potential.

6. Evaluate using Green's theorem $\int_C (x^2 - y)dx + (2y^2 + x)dy$ around the boundary of the region bounded by $y = x^2$ & $y = 4$.

**** All the Best ****

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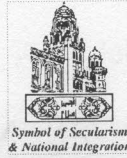
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**ANJUMAN-I-ISLAM'S
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Subject: OOPM

Date: /10/2016

Marks: 20

Duration: 1 Hr

Class: SE

Branch: Computer Eng.

Instructions: All Questions are compulsory.

Q.1 Answer any 5 questions out of 6 (Each carry 2 marks)

(10M)

a) What will be the output of the following code

```
try
{
    int x = 0;
    int y = 5 / x;
}
catch (Exception e)
{
    System.out.println("Exception");
}
catch (ArithmeticException ae)
{
    System.out.println(" Arithmetic Exception");
}

finally
{
    System.out.println("finished");}
```

b) What will be the output of the following code

```
class Thr extends Thread
{
    public static void main(String arg[])
    {
        Thr t=new Thr();
        t.run();
    }
    public void run()
    {
        int i;
        for(i=0;i<3;i++)
        {
            System.out.print(i+" ");}}
```

C. Draw and Explain Life cycle of Applet.

D. Differentiate between abstract class and interface.

E. Draw and Explain Life cycle of thread.

F. Explain Wrapper classes and its applications.

Q.2 Answer any one Question.

(5m)

i) With suitable example, Explain creation of user defined packages.

ii) Explain Different types of Inheritance with example.

Q.3 Solve any one Question.

(5M)

i) WAP to print \$*\$\$*\$ using multithreading concept.

ii) WAP to take values of x,y,z from the user, calculate and display $(x+y+z)/(x*y*z)$.

Create user defined exception to display proper message when the value of $(x*y*z)$ is ZERO.





**ANJUMAN-I-ISLAM'S
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**Subject: DS
Date: .../.../2016
Class : SE CO
Semester: III**

Unit-Test: 2

**Marks: 20
Duration: 1 hr
Branch : CO**

Note:1) All questions all compulsory.

- Q 1. Attempt any five out of six. (each 2 marks)
- (i) Define Strictly Binary Tree and Complete Binary Tree with diagram.
 - (ii) Explain DEQUE with pictorial representation .
 - (iii) Evaluate the postfix expression $AB+C*D/$ if $A=2, B=3, C=4, D=5$.
 - (iv) State the limitation of a normal QUEUE that can be overcome by CIRCULAR QUEUE.
 - (v) Explain STACK as ADT.
 - (vi) In binary tree the degree of leaf node is always (0,-1,1,2) and depth of binary tree is(maximum,minimum) level of any leaf.
- Q 2. (a) Write a program in C to implement Insertion sort. 5
- Or
- (b) Write a function in C to insert elements in CIRCULAR QUEUE. 5
- Q 3. (a) Explain the concept of Binary Search Tree. Write the steps of inorder traversal for it. 5
- Or
- (b) Write a function in C to delete elements in CIRCULAR QUEUE. 5



ANJUMAN-I-ISLAM'S
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Subject: Digital Logic Design and Analysis
Duration: 1 Hr

TEST -II

Marks: 20
Class: SE COMP

Q1) Attempt any 5 questions. Each question carries 2 marks.

- Express the equation in standard POS form $f(A,B,C)=\Sigma m (0,2,5,7)$.
- Convert SR FF to D FF. (Design only)
- Write truth table for SR, T, D, JK FF.
- Draw full adder using 2 half adders and additional gates.
- Draw parallel adder/ subtractor for 2s complement.
- What is race around condition in JK FF explain with diagram, state the solution.

Q2) Attempt any one. (5)

- Design 2-bit binary comparator.
- Explain bidirectional shift register.

Q 3) Attempt any one. (5)

- Design 3-bit binary to gray code converter.
- Implement following function using MUX and few gates.

$$f(A,B,C,D)=\Sigma m (0,3,5,7,9,13,15)$$



ANJUMAN-I-ISLAM'S
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Subject: DIS

Marks: 20

Class: SE (Sem III)

Date: 24/10/2016

Duration: 1 Hr/s

Branch: COMPUTER

Instructions: 1) All the Questions are compulsory.

2) Assume suitable data wherever necessary.

Q. 1) Attempt any 5 : (10)

- a) Define i) Surjective ii) Injective iii) Bijective functions.
- b) Find the exponential generating functions of the following sequences :
(i) $\{1,2,3,4,0,0,0,\dots\}$ (ii) $\{1,1,1,1,\dots\}$ (iii) $\{1,2a,3a^2,4a^3,\dots\}$
- c) Write Huffman algorithm to find an optimal tree.
- d) Define Hamiltonian path and Hamiltonian circuit.
- e) Let $f : \mathbb{R} \rightarrow \mathbb{R}$, $f(x) = x^2 - 1$, $g(x) = x^2 + 2$, then find (i) gof (ii) fog
- f) Define with example : Planar Graph.

Q. 2) A) Show that in a bounded distributive lattice, if a complement exists, it is unique. (5)

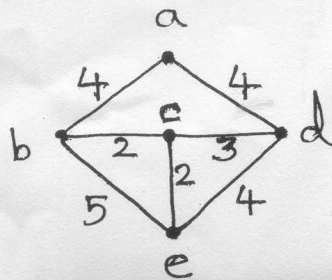
OR

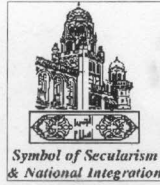
B) A tree has $2n$ vertices of degree 1, $3n$ vertices of degree 2 and n vertices of degree 3. Determine the number of vertices and edges. (5)

Q. 3) A) $A = \{a, b, c, d, e\}$ and let the relation be (5)
 $R = \{(a, a), (b, b), (c, c), (d, d), (e, e), (c, b), (c, a), (e, a), (d, b), (d, a), (d, e), (b, a)\}$
Draw its digraph and its Hasse diagram.

OR

B) Explain Minimum Spanning tree with its application. (5)
Find the Minimum Spanning tree for the adjoining graph using Prim's algorithm.





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Subject: ECCF
Marks: 20
Class: SE

Date: 26-10-2016
Duration: 1 Hr.
Branch: COMPUTER

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Note:- Q-1 is compulsory.

Q-1) Attempt any 5.

- a) Draw block diagram of Foster Seeley FM demodulator & phasor diagrams 2
- b) Explain drawbacks of Delta modulation. 2
- c) Explain need for modulation. 2
- d) Draw block diagram of SSB generation using phase shift method. 2
- e) Compare AM , FM (any 4 points). 2
- f) Explain multiplexing technique. 2

Q-2) Solve any one .

- a) If one input to AM modulator is Voltage = 20v & frequency = 500 kHz , other input is frequency = 10kHz which causes change in o/p wave of ± 7.5 v. Find f_{USB} , f_{LSB} , %m , equation of AM wave , frequency spectrum. 5
- b) Draw & explain working principle of PLL. 5

Q-3) Solve any one .

- a) Compare PAM, PWM, PPM (any 5 points). 5
- b) Draw & explain of TDM-FDM system. 5