

Code No: K0128 /R07

R07**Set No.1**

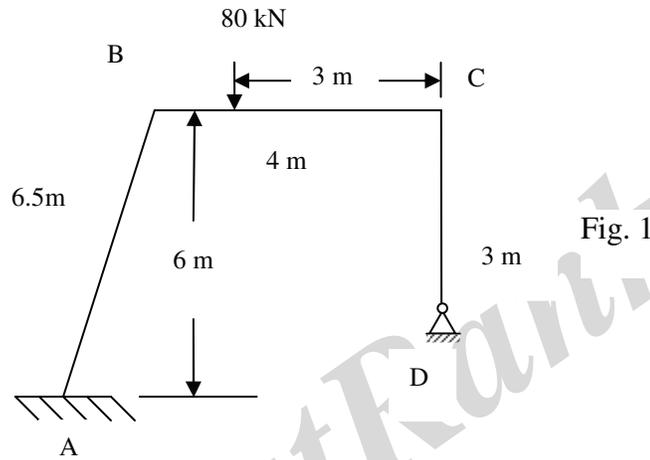
IV B.Tech II Semester Supplementary Examinations, July, 2011
ADVANCED STRUCTURAL ANALYSIS
(Civil Engineering)

Time: 3 hours

Max. Marks: 80

Answer any FIVE Questions
 All Questions carry equal marks

1. Analyse the frame shown in Fig.1. It is fixed at A, hinged at D and has rigid joints at B and C. $I_{AB} = I_{CD} = 0.5I_{BC}$



2. Analyse the continuous beam shown in Fig.2 by strain-energy method.

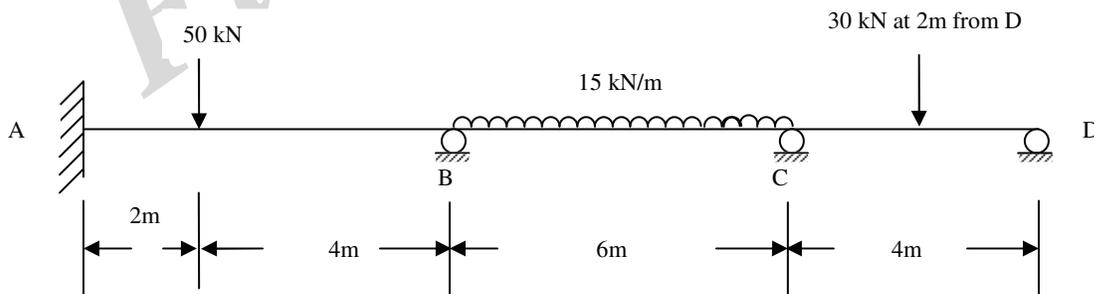


Fig. 2

Code No: K0128 /R07

R07**Set No.1**

3. A beam CABD is simply supported at A and B and has overhangs on both supports. Overhang CA = 2 m, span AB = 10 m and overhang BD = 3 m. Draw influence lines for Reactions at A and B, for moment at A, B and at X where X is the centre of span AB. Also draw the influence lines for shear at X.
4. A three hinged parabolic arch of span 20 m and central rise 5 m is acted upon by a u.d.l. of 16 kN/m over the left hand half of the span. Using influence lines method, determine, at a section 2.5 m from left support:
- B.M.
 - radial shear and
 - normal thrust.
5. Analyse the continuous beam shown in Fig.3 by stiffness matrix method.

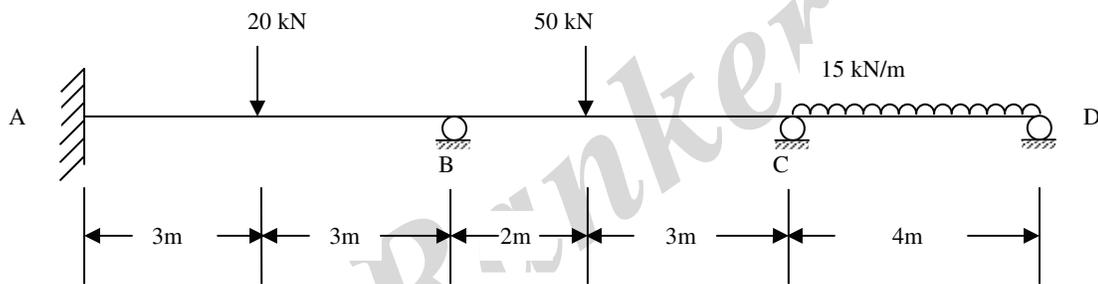


Fig. 3

6. Calculate the support reactions for the beam supported and loaded as shown in Fig.4 using Flexibility Matrix method of structural analysis.

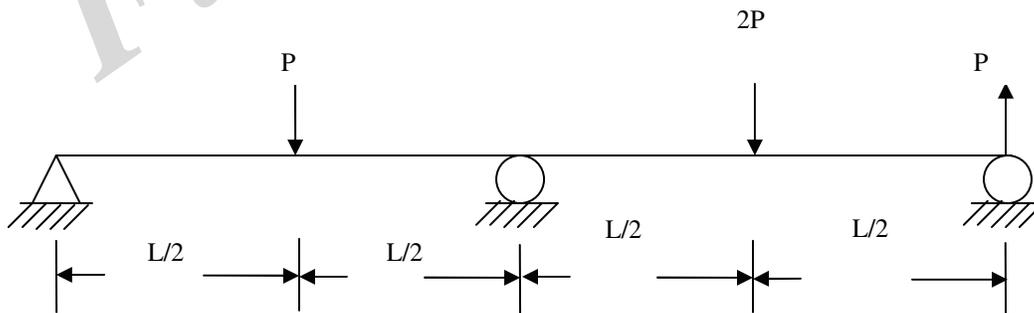


Fig. 4

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7. Analyse the frame shown in Fig.5 using Flexibility Matrix method of structural analysis.

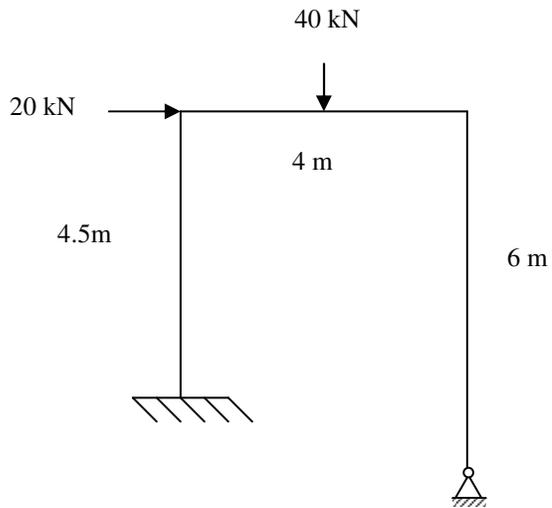


Figure 5

8. a) List down and explain independent mechanisms with the help of neat sketches.
 b) Find out the collapse load for a given frame of uniform section under the applied loads as shown in Figure 6.

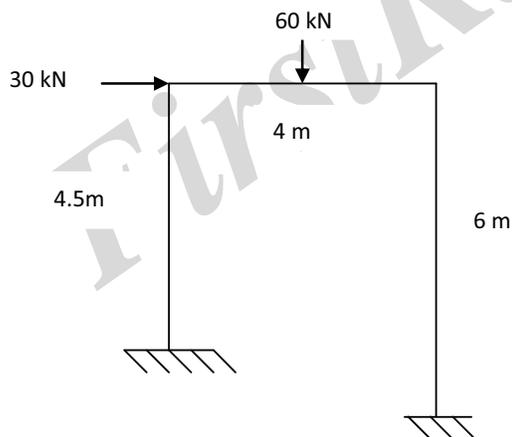


Figure 6

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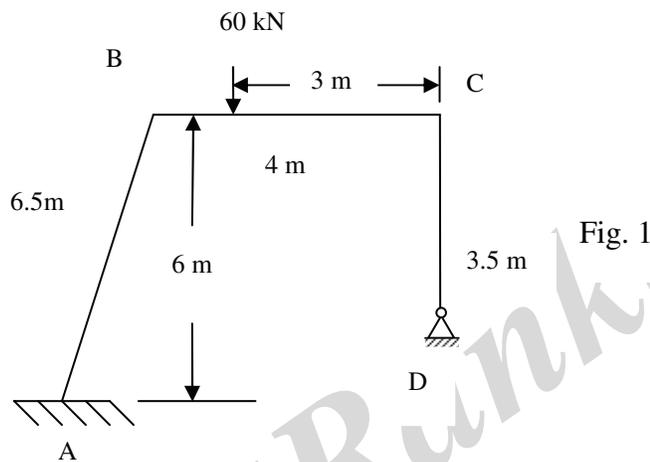
ADVANCED STRUCTURAL ANALYSIS

(Civil Engineering)

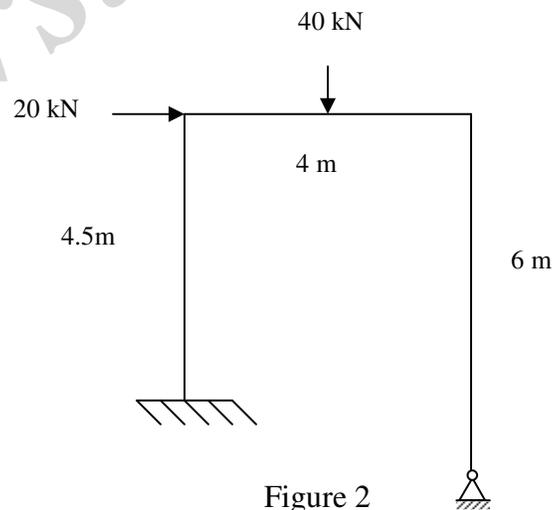
Time: 3 hours**Max. Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. Analyse the frame shown in Fig.1. It is fixed at A, hinged at D and has rigid joints at B and C. $I_{AB} = I_{CD} = 0.5I_{BC}$



2. Analyse the frame shown in Fig.2 using strain energy method of structural analysis.



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R07**Set No.2**

3. Draw the influence lines for the horizontal members and diagonal member of the 5th panel from right and vertical member at middle of the truss. Each panel length = 3 m and height of the truss = 4 m. Refer Fig.3.

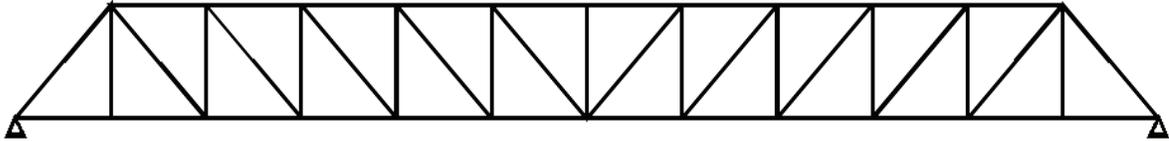


Fig. 3

4. A three-hinged circular arch has a span of 40 m and a rise of 5 m. Two point loads of 160 kN and 80 kN spaced at 5 m apart, roll over the arch from left to right, the 80 kN load leading. Find the horizontal thrust and bending moment at 12 m from the left hand hinge when the 80 kN load is at the section. Use influence lines.
5. Analyse the beam shown in Fig.4 by stiffness matrix method.

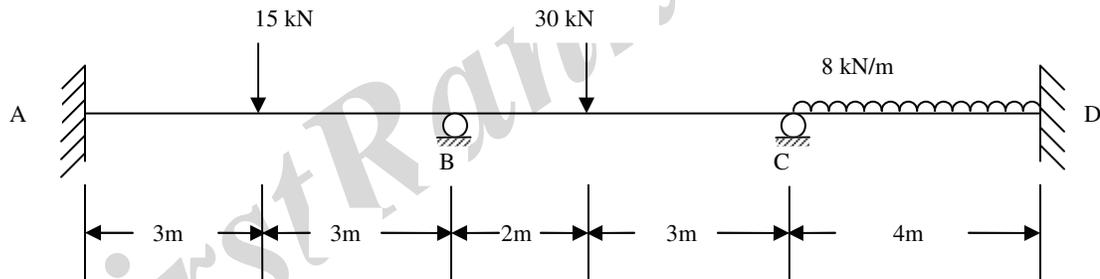


Fig. 4

6. Calculate the support reactions for the beam supported and loaded as shown in Fig.5 using Flexibility Matrix method of structural analysis.

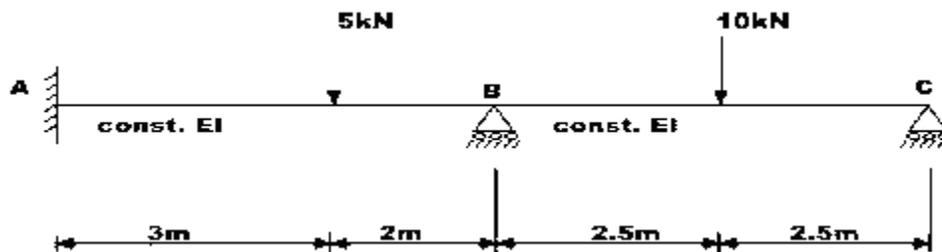
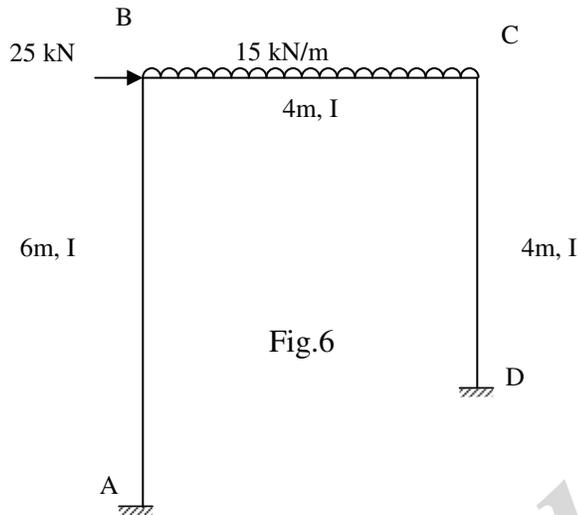


Fig.5

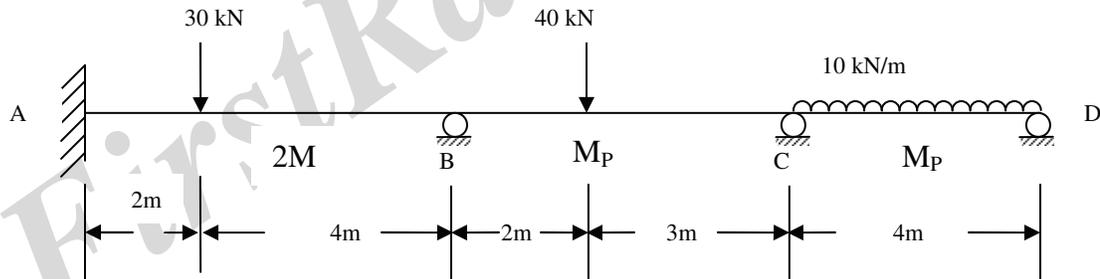
Code No: K0128 /R07

R07**Set No.2**

7. Analyse the frame shown in Fig.6 using Flexibility Matrix method of structural analysis.



8. a) Determine the collapse load for the continuous beam shown in Fig.7.



- b) Determine the shape factor of an I-section of overall depth 300 mm and flanges 200 x 20 mm and web 10 mm thick bent about its strong axis.

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R07**Set No.3**

IV B.Tech II Semester Supplementary Examinations, July, 2011

ADVANCED STRUCTURAL ANALYSIS

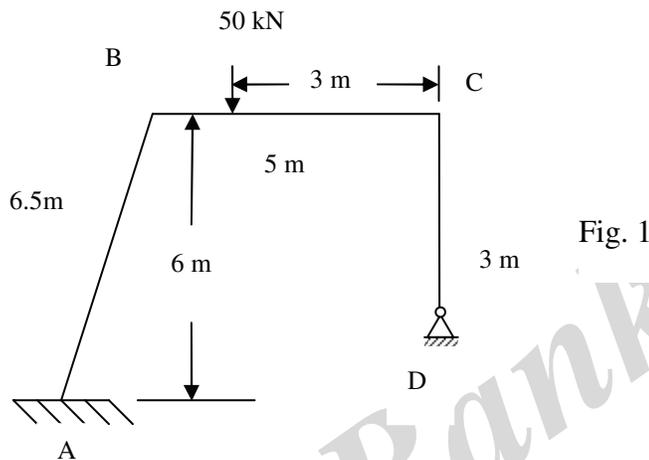
(Civil Engineering)

Time: 3 hours

Max. Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Analyse the frame shown in Fig.1. It is fixed at A, hinged at D and has rigid joints at B and C. $I_{AB} = I_{CD} = 0.5I_{BC}$



2. Analyse the beam shown in Fig.2 by energy method.

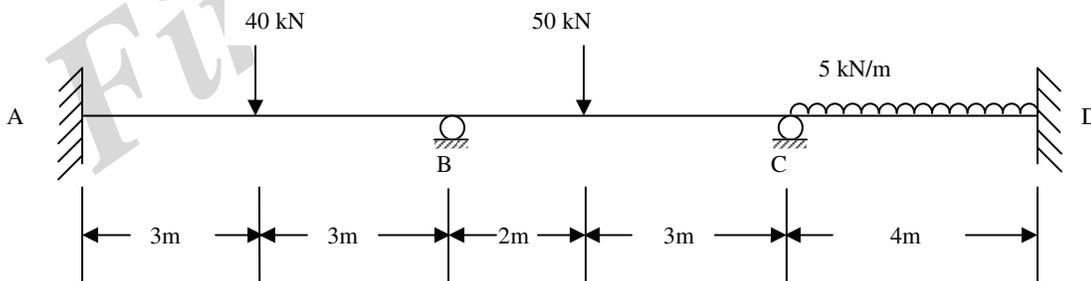


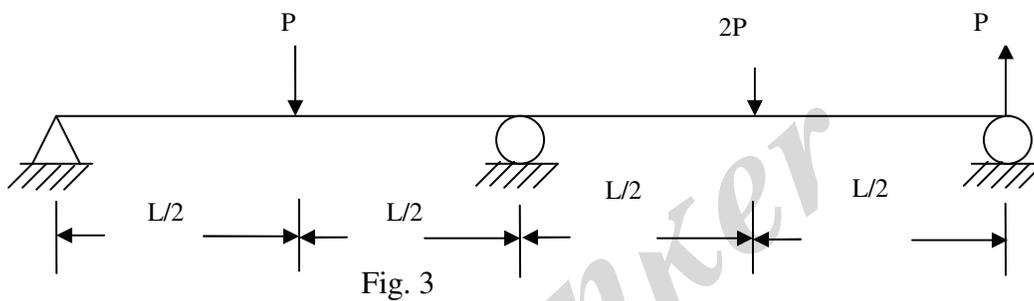
Fig. 2

3. A beam CABD is simply supported at A and B and has overhangs on both supports. Overhang CA = 3 m, span AB = 12 m and overhang BD = 2 m. Draw influence lines for Reactions at A and B, for moment at A, B and at X where X is at 5 m from A. Also draw the influence lines for shear at X.

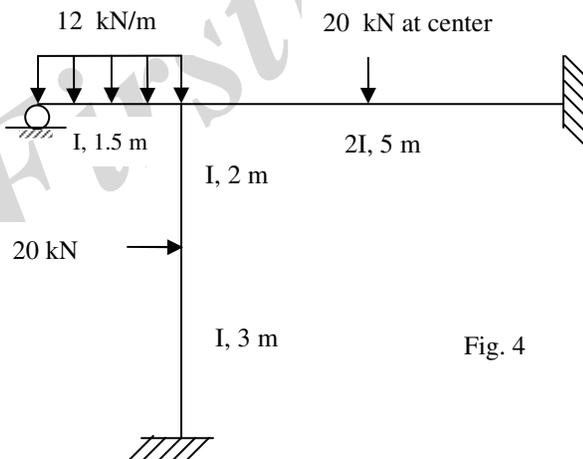
Code No: K0128 /R07

R07**Set No.3**

4. A three hinged parabolic arch of span 30 m and central rise 5 m is acted upon by a u.d.l. of 10 kN/m over the left hand half of the span. Using influence lines method, determine, at a section 7.5 m from left support:
- B.M.
 - radial shear and
 - normal thrust.
5. Calculate the support reactions for the beam supported and loaded as shown in Fig.3 using Flexibility Matrix method of structural analysis.



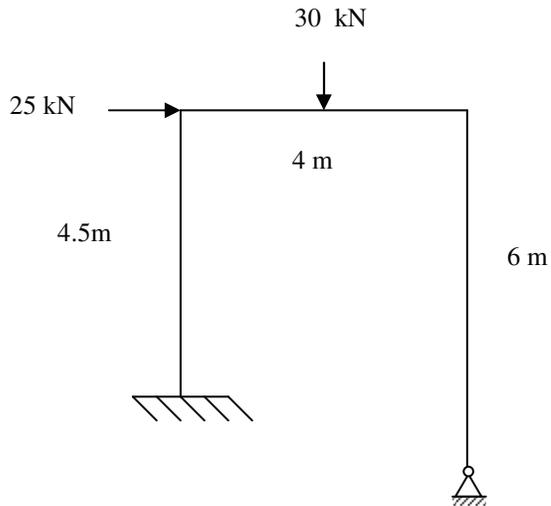
6. Analyse the frame shown in Fig.4 using Stiffness Matrix method.



Code No: K0128 /R07

R07**Set No.3**

7. Analyse the frame shown in Fig.5 using Flexibility Matrix method of structural analysis.

**Fig. 5**

8. a) Derive the non-dimensional moment - curvature relationship for a rectangular beam showing all the stages. Mention the assumptions made.
b) Draw the plastic moment diagram for a propped cantilever beam of span 'l' subjected to a uniformly distributed load 'w' over the entire span.

Code No: K0128 /R07

R07**Set No.4**

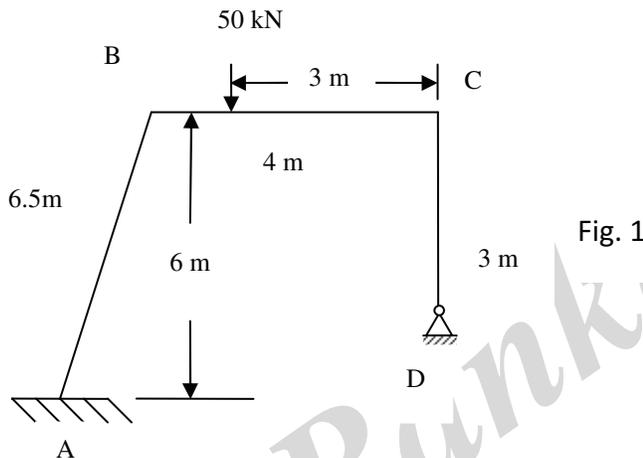
IV B.Tech II Semester Supplementary Examinations, July, 2011
ADVANCED STRUCTURAL ANALYSIS
(Civil Engineering)

Time: 3 hours

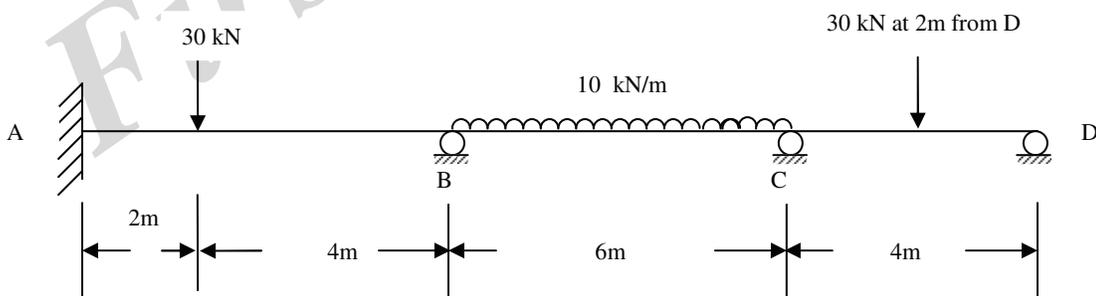
Max. Marks: 80

Answer any FIVE Questions
 All Questions carry equal marks

1. Analyse the frame shown in Fig.1. It is fixed at A, hinged at D and has stiff joints at B and C. $I_{AB} = I_{CD} = 0.5I_{BC}$



2. Analyse the continuous beam shown in Fig.2 by Energy method.



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R07**Set No.4**

3. Draw the influence lines for the horizontal members and diagonal member of the 7th panel from right and vertical member at middle of the 3rd panel from left. Each panel length = 3 m and height of the truss = 4 m. Refer Fig.3.

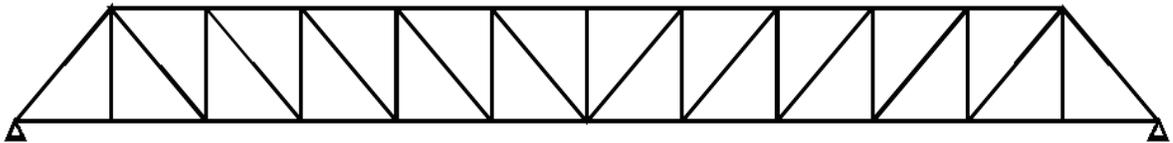


Fig. 3

4. A three-hinged circular arch has a span of 30 m and a rise of 5 m. Two point loads of 160 kN and 80 kN spaced at 4 m apart, roll over the arch from left to right, the 80 kN load leading. Find the horizontal thrust and bending moment at 10 m from the left hand hinge when the 80 kN load is at the section. Use influence lines.
5. Analyse the beam shown in Fig.4 by stiffness method when the supports yield producing a clockwise rotation of $4/EI$ at A and downward displacement of $12/EI$ at B. The flexural rigidity EI is constant.

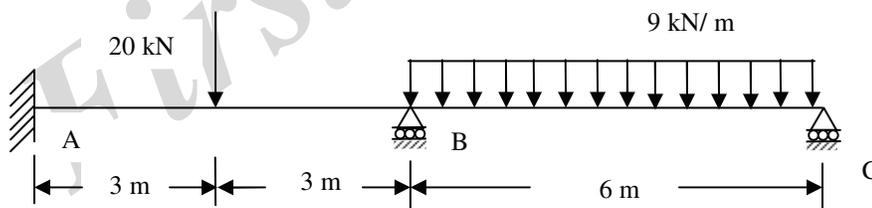


Fig.4

Code No: K0128 /R07

R07

Set No.4

6. Determine the reactions and the member axial forces of the truss shown in Fig.5 by flexibility method due to external load and rise in temperature of member FB by 40°C. The cross sectional areas of the members in square centimeters are shown in parenthesis. Assume $E = 2 \times 10^5 \text{ N/mm}^2$ and $\alpha = 1/75000 \text{ per } ^\circ\text{C}$. 10

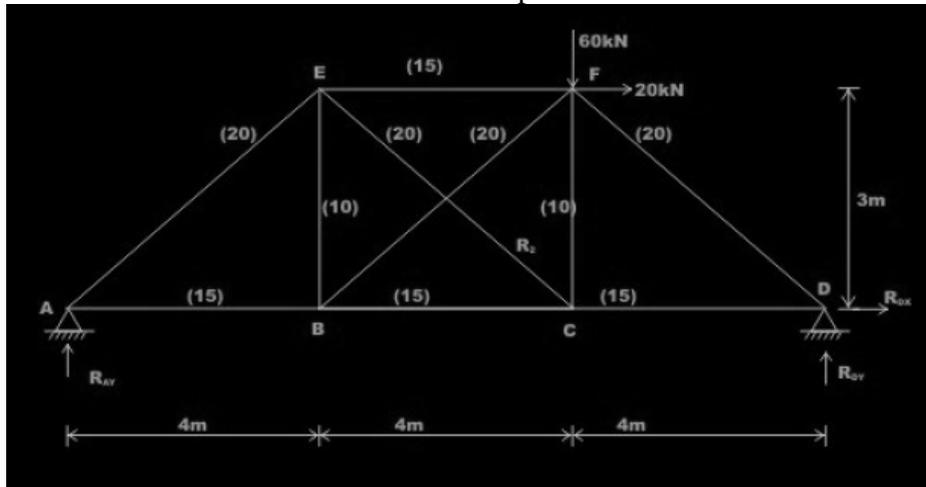


Fig.5

7. Analyse the frame shown in Fig. 6 by stiffness matrix method.

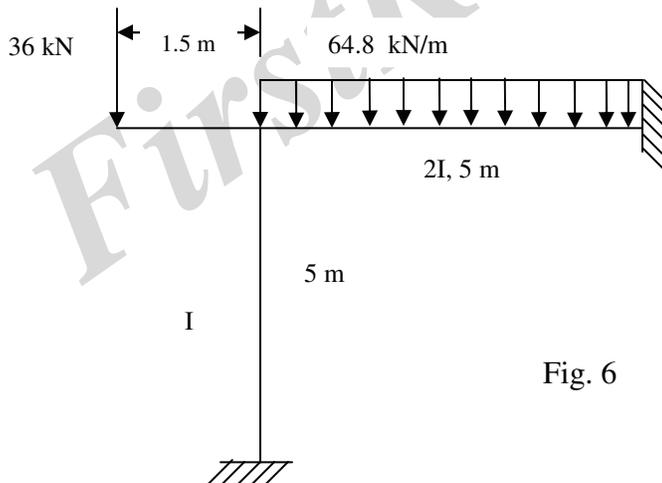
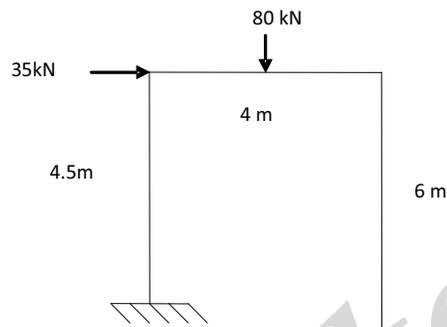


Fig. 6

Code No: K0128 /R07

R07**Set No.4**

8. a) List down and explain independent mechanisms with the help of sketches.
b) Find out the collapse load for a given frame of uniform section under the applied loads as shown in Figure 7.

**Fig.7**

Code No: K0129 /R07

R07**Set No.1**

IV B.Tech II Semester Supplementary Examinations, July, 2011
DESIGN AND DRAWING OF HYDRAULIC STRUCTURES
(Civil Engineering)

Time: 3 hours

Max. Marks: 80

Note: Answer any ONE of the following two questions
Assume any other data if required
Khosla curves are allowed

1. Design and draw a sloping glacis weir for the following site conditions:
 - i) Maximum discharge intensity on weir crest = 11 cumecs /m length
 - ii) H.F.L. before construction of weir = 260.0 m
 - iii) R.L of river bed = 254.5 m
 - iv) Pond level = 259.0m
 - v) Height of crest shutters = 1m
 - vi) Anticipated downstream water level in the river when the weir is discharging with pond level upstream = 256.5m
 - vii) Bed retrogression = 0.5m
 - viii) Lacey's silt factor = 0.9
 - ix) Permissible exit gradient = 1/7
 - x) Permissible afflux = 1m

(OR)

2. Design and draw a Trapezoidal notch fall of 2 meters with the following data. Assume coefficient of discharge for trapezoidal notch as 0.70.
 - a) Hydraulic particulars of the canal above fall
 - i) Full supply discharge = 5 cubic meters/seconds
 - ii) Bed width is 6.00 meters
 - iii) Bed level is + 10.00
 - iv) Full supply depth is 1.50 meters
 - v) F.S.L + 11.50
 - vi) Top of bank 2.00 meters wide at level +12.50
 - vii) Half supply depth : 1.00 meter
 - b) Hydraulic particulars of canal below fall
 - i) Full supply discharge = 5 cubic meters/ second
 - ii) Bed width = 6.00 meters
 - iii) Bed level = + 8.00
 - iv) Full supply depth 1.50 meters
 - v) F.S.L + 9.50
 - vi) Top of bank 2.00 meters wide at level + 10.50
 - vii) The ground level at the site of work is + 10.50
 - viii) Good soil is available for foundation at + 8.50

Code No: K0129 /R07

R07**Set No.2**

IV B.Tech II Semester Supplementary Examinations, July, 2011
DESIGN AND DRAWING OF HYDRAULIC STRUCTURES
(Civil Engineering)

Time: 3 hours

Max. Marks: 80

Note: Answer any ONE of the following two questions
Assume any other data if required
Khosla curves are allowed

1. Design and draw a sluice with a tower head taking off from a tank irrigating 250 hectares at 1025 duty. The tank bund through which the sluice is taking off has a top width of 2 meters with 2:1 side slopes. The top level of bank is +40.00 and ground level at site is +34.50. Good hard soil for foundation is available at +33.50. The sill of the sluice at off take is +34.00. The maximum water level in tank is 38.00. The full tank level is +37.00. Average low water level of the tank is + 35.00. The details of the channel below the sluice are as under.

Bed Level = +34.00

F.S.L = +34.50

Bed width = 1.25 meters

Side slopes = 1 ½ to 1 with top of bank at + 35.50

(OR)

2. Design and draw a type III Syphon aqueduct for the following data:
- Discharge of the canal = 30 cumecs
 - Bed width of the canal = 22 m
 - Depth of water in the canal = 1.5m
 - Bed level of the canal = 160.00 m
 - High flood discharge of the drainage = 420 cumecs
 - High flood level of the discharge = 160.50m
 - Bed level of the drainage = 158.00m
 - General ground level = 160.00m
 - Silt factor = 0.9

Code No: K0129 /R07

R07**Set No.3**

IV B.Tech II Semester Supplementary Examinations, July, 2011
DESIGN AND DRAWING OF HYDRAULIC STRUCTURES
(Civil Engineering)

Time: 3 hours

Max. Marks: 80

Note: Answer any ONE of the following two questions

Assume any other data if required

Khosla curves are allowed

1. Design and draw a regulator-cum-road bridge with the following data.

a) Hydraulic particulars of canal upstream

Full supply discharge: 25 cubic meter/second

Bed width = 15 meters

Bed level = +20.00

F.S. depth = 2.00 meters

F.S.L = + 22.00

Top level of bank = 23.00

The right bank is 5 meters wide and

Left bank is 2m wide.

b) Hydraulic particulars of canal downstream full supply discharge = 20 cubic meters/second.

Bed width = 15 meters

Bed level = +20.00

F.S. depth = 1.75 meters

F.S.L = + 21.75

Top level of bank = +22.75

Top widths of bank are the same as those on the upstream side. The regulator carries a road way single lane designed for I.R.C. loading class "A". Provide clear free board of one meter above F.S.L. for the road bridge. Good foundation soil is available at +19.00. Assume the ground level site as +22.00

(OR)

2. Design and draw a sluice taking off from a tank irrigating 225 hectares at 1000 duty.

The tank bund through which the sluice is taking off has a top width of 2m with 2:1 side slopes. The top level of bank is +40.00 and ground level at site is +34.50. Good hard soil for foundation is available at +33.50.

The sill of the sluice at off-take is +34.00 .The maximum water level in tank is 38.00.

The full tank level is + 37.00. Average low water level of the tank is +35.00. The details of the channel below the sluice are as under.

Bed level = +34.00

F.S.L. = +34.50

Bed width = 1.25m

Side slopes = 1 ½ to 1 with top of bank at +35.50

Code No: K0129 /R07

R07**Set No.4**

IV B.Tech II Semester Supplementary Examinations, July, 2011
DESIGN AND DRAWING OF HYDRAULIC STRUCTURES
 (Civil Engineering)

Time: 3 hours

Max. Marks: 80

Note: Answer any ONE of the following two questions**Assume any other data if required****Khosla curves are allowed**

1. Design and draw the surplus work of a tank forming part of a chain of Tanks. The combined catchment area of the group of tanks is 31.00 sq.km and the area of the catchment intercepted by the upper tank is 25.00 sq.km. It is decided to store water in the tank to a level of + 12.00 m above M.S.L.limiting the submersion of fore share lands upto a level of 12.75 m above M.S.L. The ground level at the proposed site of work is +11.00m, and ground level below the proposed surplus slopes off till it reaches +10.00m in about 6m distance. The tank bund has a top width of 2m at level +14.50 with 2:1 side slopes on either side. The tank bunds are designed for a saturation gradient of 4:1 with one meter clear cover. The foundations are of hard gravel at a level of 9.50 meters near the site of work. (Assume Ryve's coefficient γ as 9 and modified coefficient c as 1.50)

(OR)

2. Design and draw a type III syphon aqueduct for the following data.
- i) Discharge of the canal = 30 cumec
 - ii) Bed width of the canal = 20 m
 - iii) Depth of water in the canal = 1.6m
 - iv) Bed level of the canal = 260.00m
 - v) High flood discharge of the drain = 450 cumec
 - vi) High flood level of the drain = 261.00m
 - vii) Bed level of the drain = 258.00m
 - viii) General ground level = 260.00m
 - ix) Silt factor = 0.9

Code No: K0225 /R07

R07

Set No.1

IV B.Tech II Semester Supplementary Examinations, July, 2011
PROGRAMMABLE LOGIC CONTROLLERS
(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. a) Explain briefly about which type of task might a control system handle?
b) Explain about memory in plc?
2. Explain about the operational procedures in PLC programming.
3. By using ladder diagrams, explain about NAND circuit and NAND logic gate in PLC?
4. a) What is the purpose of analog signal processing and multi bit data processing
b) Explain about holding registers? What are its applications?
5. a) Explain briefly about retentive timers?
b) Explain the basic types of counters in plc?
6. Explain the data-handling instructions to be found with PLCs with examples of.
7. a) Discuss about the Bit Pattern in PLC?
b) Define Bit pattern?
8. a) What are analog modules? Explain them with examples?
b) Explain in brief about PID modules?

Code No: K0225 /R07

R07

Set No.2

IV B.Tech II Semester Supplementary Examinations, July, 2011

PROGRAMMABLE LOGIC CONTROLLERS

(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 80

Answer any FIVE Questions

All Questions carry equal marks

1. With a neat sketch draw the architecture of PLC and explain about each block in the diagram?
2. What are the programming examples in PLC programming using contacts and coils?
3. Briefly explain the keys in the keypad having with symbols depicting the various elements of the ladder diagram.
4. a) Explain in detail about PLC registers? Also mention their applications.
b) Explain in detail about module addressing mode?
5. Discuss about number comparison functions and number conversion functions?
6. Discuss about Data movement in plc system?
7. Explain in detail about controlling of two-axis & three axis Robots with PLC?
8. a) What are Digital modules? Explain them with examples?
b) Explain the position indicator with PID control?

Code No: K0225 /R07

R07

Set No.3

IV B.Tech II Semester Supplementary Examinations, July, 2011
PROGRAMMABLE LOGIC CONTROLLERS
(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Explain about the following
 - a) PLC System
 - b) CPU processor,
 - c) Buses
 - d) Memory
2. Explain about the input instructions in plc programming?
3. By using ladder diagrams, explain about AND circuit and AND logic gate in PLC
4.
 - a) Explain in brief about analog modules and systems?
 - b) Explain about output registers? What are its applications?
5.
 - a) Explain briefly about cascaded timers?
 - b) Explain about UP counters?
6. Discuss about Data comparison in plc system?
7. Explain in detail about Matrix functions and sequence functions?
8.
 - a) Explain the principles of PID?
 - b) Discuss about PID tuning

Code No: K0225 /R07

R07

Set No.4

IV B.Tech II Semester Supplementary Examinations, July, 2011

PROGRAMMABLE LOGIC CONTROLLERS

(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 80

Answer any FIVE Questions

All Questions carry equal marks

1. a) Discuss the uses of buses in plc? Explain the type's buses in plc?
b) Explain about sourcing and sinking?
2. Briefly discuss about Drill press operation?
3. By using ladder diagrams, explain about NOR circuit and NOR logic gate in PLC?
4. Explain in brief about input registers, output registers and holding registers?
5. a) Explain about arithmetic functions in PLC?
b) Discuss about UP counters in PLC?
6. a) Discuss about Data selection in plc system?
b) Explain about the functions with examples and applications.
 - (i) Jump
 - (ii) ONS
 - (iii) SKIP
7. a) Explain about changing a bit shift register?
b). Mention the applications of Matrix functions and sequence functions?
8. a) Explain about the PID functions in PLC operation?
b) Discuss about the analog modules in PLC operation?

Code No: K0226 /R07

R07

Set No.1

IV B.Tech II Semester Supplementary Examinations, July, 2011

OBJECT ORIENTED PROGRAMMING

(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. a) Explain different types of class hierarchies.
b) Give the advantages of OOP. [10+6]

2. a) Explain about the method overriding in Java.
b) Write a java program to implement the method overriding. [8+8]

3. a) Specify different forms of final keyword with suitable examples.
 i) final variable
 ii) final methods
 iii) final classes
b) What is dynamic method dispatch? How does it form the basis for run-time polymorphism? Explain with an example. [8+8]

4. What are the methods supported by the following interfaces. Explain each of them
 i) Action Listener interface
 ii) Mouse Motion Listener interface
 iii) Text Listener interface. [4+8+4]

5. a) What is a thread? Explain the Main thread with example?
b) How multithreading is achieved using thread class? [8+8]

6. a) Explain the Adjustment Event class and its usage with a sample program.
b) Discuss about various sources of events. [8+8]

7. What are applets? Explain life cycle of an applet. [4+12]

8. a) How different machines in a network can be addressed. [8+8]
b) What are the uses of ServerSocket class? Explain each of them with an example.

Code No: K0226 /R07

R07

Set No.2

IV B.Tech II Semester Supplementary Examinations, July, 2011

OBJECT ORIENTED PROGRAMMING

(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 80

**Answer any FIVE Questions
All Questions carry equal marks**

1. What are variables? Discuss about the scope and life time of variables in detail. [16]
2. a) Explain about 'this' keyword with an example.
b) Differentiate between C++ and java? [8+8]
3. a) Define multiple inheritance. Does Java Support multiple inheritance. Justify your answer.
b) Write java program to implement the multilevel Inheritance. [8+8]
4. a) What is interface? Write a program to demonstrate how interfaces can be extended.
b) What is package? How do you create a package? Explain about the access protection in packages? [8+8]
5. What is meant by multithreaded programming? Discuss about Java thread model, thread priorities and interthread communication. [16]
6. Discuss the following Event Listener Interfaces and also discuss various methods declared in it.
i) Window Focus Listener
ii) Text Listener
iii) Key Listener
iv) Mouse Listener [16]
7. a) Write Java code for an Applet skeleton and explain it.
b) What are the methods used for Applet initialization and termination? Explain them clearly. [8+8]
8. a) Write a program to give the local machines IP address.
b) What is URL? Write a program to parse the URL. [8+8]

Code No: K0226 /R07

R07

Set No.3

IV B.Tech II Semester Supplementary Examinations, July, 2011

OBJECT ORIENTED PROGRAMMING

(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 80

**Answer any FIVE Questions
All Questions carry equal marks**

1. a) What is recursion? Explain in detail.
b) Write a program to display fibonacci series. [8+8]
2. a) Explain about type conversion with an example.
b) Explain about wrapper class with an example. [8+8]
3. a) Briefly explain the concept of Inheritance with an example.
b) Briefly explain the methods under Object class? [8+8]
4. a) What is a package? How do we design a package?
b) How do we add a class or interface to a package? [8+8]
5. a) What is meant by uncaught exceptions? Discuss how to deal with them.
Explain it with a sample Java program.
b) Discuss the key terms “throw” and “throws”. Give suitable examples which shows how to use them. [8+8]
6. a) Write a Java program to handle mouse events and window events.
b) Define an adapter class. Give an example. [8+8]
7. a) List the differences between a swing and a AWT components? [5]
b) Describe briefly about various components in swings. [5]
c) Define Java applet. What are the different stages in the life cycle of an applet? [6]
8. What do you mean by URL? How to create an URL? Explain several methods provided by URL? Give appropriate examples. [4+4+8]

Code No: K0226 /R07

R07

Set No.4

IV B.Tech II Semester Supplementary Examinations, July, 2011

OBJECT ORIENTED PROGRAMMING

(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. a) List at least ten major differences between C and Java
b) Compare in terms of their functions, the following pairs of statements:
 - i) while and do-while
 - ii) while and forc) What is an empty statement? Explain its usefulness. [4+4+4+4]

2. a) What is polymorphism? What is the difference between overriding and over-loading a method?
b) Declare and create a 4X5 int matrix. [8+8]

3. a) Discuss various methods of object class.
b) Write a program that illustrates notify, notifyAll() and wait() methods of object class. [8+8]

4. a) Explain in detail about accessing a package.
b) Write short note on CLASSPATH environmental variable. [8+8]

5. a) Give the Class hierarchy in Java related to exception handling. Briefly explain each class.
b) What is the necessity of exception handling? Explain exception handling taking “divide-by-zero” as an example. [6+10]

6. a) Write a short notes o the following graphics functions
 - i) paint()
 - ii) repaint()
 - iii) update()b) Define Canvas. Write a java program which creates a canvas and displays an image on it. [9+7]

Code No: K0226 /R07

R07

Set No.4

7. a) Discuss about JApplet, JFrame and JComponent.
b) What are the methods of Icon interface implemented by ImageIcon class?
Explain them with suitable examples. [8+8]

8. List out various classes in “Java.util” and explain them clearly. [16]

FirstRanker

Code No: K0227/R07

Set No. 1

IV B.Tech II Semester Supplementary Examinations, July 2011
DATA BASE MANAGEMENT SYSTEMS
(Electrical & Electronics Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Explain the Transaction management in a database.
 (b) Discuss the Query Processor of Database system structure. [8+8]
2. (a) What is a relational database query? Explain with an example.
 (b) What are the SQL constructs to modify the structure of tables, views and to destroy the tables and views? [8+8]
3. (a) Explain the following.
 - i. Query Processing
 - ii. Pipelined evaluation
 (b) For the following relational database, give the expressions in SQL. [8+4+4]
 student (stuno, stuname, major, level, age)
 Class(Classname, meets_at, Room, fid)
 Faculty(fid, fname, deptid)
 - i. Find the age of the oldest student who is either a history major or is enrolled in a course taught by I.Teach?
 - ii. Find the names of all classes that either meet in room R128 or have five or more students enrolled?
 - iii. Find the names of all students who are enrolled in two classes that meet at the same time?
 - iv. Find the names of faculty members who teach in every room in which some class is taught?
4. Explain the FD and MVD with examples? [16]
5. (a) Define the concept of schedule for a set of concurrent transaction. Give a suitable example. [8]
 (b) Explain read-only, write-only & read-before-write protocols in serializability. [8]
6. (a) Explain how the index locking works in transaction taking sailor record. [8]
 (b) With an example illustrate B+ tree locking scheme [8]
7. List the physical storage media available on the computers you use routinely. Give the speed with which data can be accessed on each medium. [16]

Code No: K0227/R07

Set No. 1

8. What are the differences between B-tree indices and B^+ tree indices. Explain in detail. [16]

FirstRanker

Code No: K0227/R07

Set No. 2

IV B.Tech II Semester Supplementary Examinations, July 2011
DATA BASE MANAGEMENT SYSTEMS
(Electrical & Electronics Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Explain the Transaction management in a database.
 (b) Discuss the Query Processor of Database system structure. [8+8]
2. (a) What is a relational database query? Explain with an example.
 (b) What are the SQL constructs to modify the structure of tables, views and to destroy the tables and views? [8+8]
3. (a) Explain in detail the 2 ways of executing pipeline?
 (b) Write the SQL expressions for the following relational database? [6+10]
 sailor_schema (sailor_id, Boat_id, sailername, rating, age)
 Recerves (Sailor_id, Boat_id, Day)
 Boat.Schema (boat_id, Boatname, color)
 - i. Find the age of the youngest sailor for each rating level?
 - ii. Find the age of the youngest sailor who is eligible to vote for each rating level with at lead two such sailors?
 - iii. Find the No.of reservations for each red boat?
 - iv. Find the average age of sailor for each rating level that at least 2 sailors.
4. (a) Explain about 4 Nf? Give one example?
 (b) Explain about 5 Nf? Give one example? [8+8]
5. (a) Define the concept of schedule for a set of concurrent transaction. Give a suitable example. [8]
 (b) Explain read-only, write-only & read-before-write protocols in serializability. [8]
6. (a) Define stealing frames & forcing pages in crash recovery. [6]
 (b) What are the anomalies associated with interleaved execution. Explain with example. [10]
7. Discuss about various types of organizations of records in files. [16]
8. What is the difference between primary index and a secondary index? Explain in detail. [16]

Code No: K0227/R07

Set No. 3

IV B.Tech II Semester Supplementary Examinations, July 2011
DATA BASE MANAGEMENT SYSTEMS
(Electrical & Electronics Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Discuss the basic issues in the design of an E-R database schema. [16]
2. (a) What is a relational database query? Explain with an example.
 (b) Explain the following fundamental operations of relational algebra. select project set rename. [8+8]
3. (a) Explain 3 NF? Give example?
 (b) For the following relation scheme, tell whether it is in 3NF or not employee (E-code , E-name, D-name, salary) project on , termination ? date of project). Where each project no has unique termination ? date ? of Project. It is not in 3NF bring it into 3NF through normalization. [8+8]
4. (a) Explain about 4 Nf? Give one example?
 (b) Explain about 5 Nf? Give one example? [8+8]
5. (a) Define the concept of schedule for a set of concurrent transaction. Give a suitable example. [8]
 (b) Explain read-only, write-only & read-before-write protocols in serializability. [8]
6. (a) Discuss about deadlock detection & starvation. [8]
 (b) Explain the use transaction log in database recovery. [8]
7. (a) Explain about Fixed-Length Representation in detail.
 (b) Explain about Byte-String Representation. in detail. [8+8]
8. Suppose that we are using extendable hashing on a file that contains records with the following search-key values: 2,3,5,7,11,17,19,23,29,31 Show the extendable hash structure for this file if the hash function is $h(x) = x \text{ mod } 8$ and buckets can hold three records. [16]

Code No: K0227/R07

Set No. 4

IV B.Tech II Semester Supplementary Examinations, July 2011
DATA BASE MANAGEMENT SYSTEMS
(Electrical & Electronics Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Construct an E-R diagram for the database of a hospital with a set of patients and a set of doctors. With each patient a log of the various test conducted is also associated. Construct the appropriate relations for this diagram. [16]
2. (a) What is a foreign key constraint? Why are such constraints important? What is referential integrity?
 (b) How many distinct tuples are in a relation instance with cardinality 22? [8+8]
3. What is a view? How do views support logical data independence? How are views used for security? How are queries on views evaluated? Why does SQL restrict the class of views that can be updated? [2+6+4+4]
4. Consider the relation $R(A,B,C,D,E,F)$ and FDs
 $A \rightarrow BC, F \rightarrow A, C \rightarrow AD \rightarrow E, E \rightarrow D$ AD is the decomposition of R into $R_1(A,C,D)$ $R_2(B,C,D)$ and $R_3(E,F,D)$ loss less? Explain the requirement of Loss less decomposition?
5. (a) What is a transaction? explain the terms related to transaction: Atomicity, Consistency, Isolation & Durability [8]
 (b) Write briefly on terms
 - i. Blind write
 - ii. Dirty read
 - iii. Recoverable schedule
 - iv. Unrepeatable read. [8]
6. (a) What are the merits & demerits of using fuzzy dumps for media recovery. [6]
 (b) Explain the phases of ARIES Algorithm. [4]
 (c) Explain 3 main properties of ARIES Algorithm [6]
7. List the physical storage media available on the computers you use routinely. Give the speed with which data can be accessed on each medium. [16]
8. What are the differences between B-tree indices and B^+ tree indices. Explain in detail. [16]

Code No: K0327/R07

Set No. 1

IV B.Tech II Semester Supplementary Examinations, July 2011
AUTOMATION IN MANUFACTURING
(Mechanical Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Describe the function and working of the following automated machine tools:
 - i. Transfer Machine
 - ii. Single Station Machine.(b) Draw the general structure of a hydraulic circuit and explain the important components involved in it. [8+8]
2. Draw the neat sketches of the following mechanisms and discuss briefly:
 - (a) Ratchet and Pawl mechanism
 - (b) 'Over and Under' type chain drive mechanism
 - (c) Cam mechanism
 - (d) Walking Beam mechanism. [16]
3. (a) Define 'Lower bound approach' used in the analysis of transfer lines without storage buffer and explain with suitable example.
(b) Briefly discuss the following related to the efficiency of an automated flow lines:
 - i. Efficiency of line with storage buffer
 - ii. Efficiency of line without storage buffer [8+8]
4. (a) Briefly discuss the following assembly processes:
 - i. Mechanical fastening
 - ii. Joining methods(b) What are the various techniques for solving large scale line balancing problems based on the use of the computer? Describe any one technique. [8+8]
5. (a) Discuss the following technologies used in the systems for vehicle guidance:
 - i. Point Strips
 - ii. Self guided vehicles.(b) Explain the continuous motion conveyors with suitable examples. [8+8]
6. (a) Discuss the advantages of using Automated storage systems in a warehouse.
(b) What are the various problems encountered in interfacing handling and storage systems with manufacturing units? Discuss them briefly. [8+8]

Code No: K0327/R07

Set No. 1

7. What is Adaptive Control with Optimization? Draw the block diagram of Adaptive Control with Optimization for grinding operation and explain the various parameters measured. [16]
8. (a) Describe briefly about the following solid based RP systems:
 - i. Laminated Object Manufacturing
 - ii. Fused Deposition Modelling
- (b) What are the different methodologies available in Business Process Reengineering? Discuss them briefly. [8+8]

FirstRanker

Code No: K0327/R07

Set No. 2

IV B.Tech II Semester Supplementary Examinations, July 2011
AUTOMATION IN MANUFACTURING
(Mechanical Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Explain the following two types of machine tool control systems:
 - i. Open loop Control System
 - ii. Closed loop Control Systems.(b) Explain the following types of automation:
 - i. Fixed Automation
 - ii. Flexible Automation. [8+8]
2. (a) Discuss the common reasons for line stoppages in automated flow lines and explain the use of buffer storage zones in such cases.
(b) A rotary worktable is driven by a Geneva mechanism with six slots. The driver rotates at 30 rpm. Determine:
 - i. the cycle time
 - ii. Available process time and
 - iii. indexing time each cycle. [6+10]
3. (a) Enumerate the differences between lower bound approach and upper bound approach.
(b) In the operation of a certain 15-station transfer line, the ideal cycle time is 0.58 min. Breakdowns occur at a rate of once every 10 cycles and the average downtime per breakdown ranges between 2 and 9 min, with an average of 4.2 min. The plant in which the transfer line is located works an 8-hour, 5 days per week. How many parts will the line be capable of producing during an average week? [6+10]
4. A moving belt assembly line is to be designed for an assembly job that has a total work content of 21 min. From consideration of human factors the length of each station will be 6.0 ft. The belt speed is variable and can be set between 1.1 and 2.0 ft/min. The required production rate for the line must be 30,000 units/yr (assume 2000 h of operation per year). From past experience on similar lines, the uptime proportion of this assembly line (line efficiency), E is expected to be 95%. Production management demands that the line be for a balance delay within this range.
 - (a) Determine the number of stations that should be designed on the assembly line.

Code No: K0327/R07

Set No. 2

- (b) With good design practice in mind, determine the belt speed, spacing between parts on the line and the tolerance time to be used. [16]
5. (a) Discuss the following factors in materials handling equipment:
- i. Routing
 - ii. Scheduling.
- (b) Explain the following terms used in the analysis of vehicle based system:
- i. Availability
 - ii. Traffic factor
 - iii. Worker Efficiency
 - iv. Traffic congestion. [8+8]
6. (a) Discuss the advantages of using Automated storage systems in a warehouse.
- (b) What are the various problems encountered in interfacing handling and storage systems with manufacturing units? Discuss them briefly. [8+8]
7. (a) Explain the advantages of using adaptive control systems in milling operation.
- (b) What is adaptive control? Under what conditions adaptive control is recommended? [8+8]
8. (a) Briefly explain the following Rapid Prototyping techniques:
- i. Material Removal RP
 - ii. Material Addition RP
- (b) Discuss the various difficulties encountered in carrying out Concurrent Engineering. [8+8]

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Set No. 3

IV B.Tech II Semester Supplementary Examinations, July 2011
AUTOMATION IN MANUFACTURING
(Mechanical Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Define 'Fixed Automation' and 'Flexible Automation'. Enumerate the differences between them.
 (b) What are the important mechanical feeding devices used in automated systems? Discuss them briefly. [8+8]
2. (a) Draw the neat sketch of Rack and Pinion mechanism for rotary indexing table and explain its working.
 (b) A Geneva mechanism with a six-slotted driven member is used in a dial-type assembly machine. The longest assembly operation takes exactly one second to complete, so the driven member must be in a stopped (dwell) position for this length of time.
 - i. At what rotation speed must the driver be turned to accomplish this one second dwell?
 - ii. How much time will be required to index the dial to the next position?
 - iii. Determine the ideal production rate of the assembly machine if each index of the dial produces a completed work part. [6+10]
3. (a) Define 'Lower bound approach' used in the analysis of transfer lines without storage buffer and explain with suitable example.
 (b) Briefly discuss the following related to the efficiency of an automated flow lines:
 - i. Efficiency of line with storage buffer
 - ii. Efficiency of line without storage buffer [8+8]
4. (a) Briefly discuss the following terms used in line balancing:
 - i. Cycle Time
 - ii. Precedence Constraints
 - iii. Balance Delay
 (b) The total work content time of a certain assembly job is 7.8 min. The estimated downtime of the line is $D = 5\%$ and the required production rate is $R_p = 80$ units/hour.
 - i. Determine the theoretical minimum number of workstations required to optimize the balance delay.
 - ii. For the number of stations determined in part (i), compute the balance delay d .

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Set No. 3

- iii. What feed rate should be specified if a moving belt line is to be used?
[6+10]
5. (a) Discuss the various material characteristics factors which influence the design of the material handling system.
(b) Discuss the following tasks to operate Automated Guided Vehicle Systems efficiently:
i. Traffic Control
ii. Vehicle Dispatching. [8+8]
6. (a) Explain the reasons that justify the installation of an automated storage system for work-in-process.
(b) Describe the following features of an AS/RS:
i. Fully/Empty bin detectors
ii. Load identification station
iii. Sizing stations
iv. Aisle transfer cars [8+8]
7. What is Adaptive Control with Optimization? Draw the block diagram of Adaptive Control with Optimization for turning process and explain the various parameters measured. [16]
8. (a) Discuss the powder based Rapid Prototyping system with the help of neat sketch.
(b) Define 'Concurrent Engineering and discuss the goals of Concurrent Engineering. [8+8]

Code No: K0327/R07

Set No. 4

IV B.Tech II Semester Supplementary Examinations, July 2011
AUTOMATION IN MANUFACTURING
(Mechanical Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Discuss the important categories of machine tool control strategies.
 (b) What are the different types automation? Discuss them briefly. [8+8]
2. (a) Draw the neat sketch of Rack and Pinion mechanism for rotary indexing table and explain its working.
 (b) A Geneva mechanism with a six-slotted driven member is used in a dial-type assembly machine. The longest assembly operation takes exactly one second to complete, so the driven member must be in a stopped (dwell) position for this length of time.
 - i. At what rotation speed must the driver be turned to accomplish this one second dwell?
 - ii. How much time will be required to index the dial to the next position?
 - iii. Determine the ideal production rate of the assembly machine if each index of the dial produces a completed work part. [6+10]
3. (a) What is 'partial automation' and what are the reasons for the existence of partially automated production lines in the shop floors?
 (b) Discuss the following terms used in the automated flow lines:
 - i. Starving of stations
 - ii. Blocking of stations. [8+8]
4. A moving belt assembly line is to be designed for an assembly job that has a total work content of 21 min. From consideration of human factors the length of each station will be 6.0 ft. The belt speed is variable and can be set between 1.1 and 2.0 ft/min. The required production rate for the line must be 30,000 units/yr (assume 2000 h of operation per year). From past experience on similar lines, the uptime proportion of this assembly line (line efficiency), E is expected to be 95%. Production management demands that the line be for a balance delay within this range.
 - (a) Determine the number of stations that should be designed on the assembly line.
 - (b) With good design practice in mind, determine the belt speed, spacing between parts on the line and the tolerance time to be used. [16]
5. (a) What are the various features of monorail guided vehicles? Discuss their typical applications.

Code No: K0327/R07

Set No. 4

- (b) What are asynchronous conveyor systems? Describe them briefly. [8+8]
6. (a) Explain how the work-in-process storage systems represent a systematic method for managing work-in-process job shop factories.
- (b) Describe the configuration and control features of carousel storage systems. [8+8]
7. Draw the block diagram of Adaptive Control with Optimization system for turning process and explain each block in detail. [16]
8. (a) Briefly explain the following Rapid Prototyping techniques:
- i. Material Removal RP
 - ii. Material Addition RP
- (b) Discuss the various difficulties encountered in carrying out Concurrent Engineering. [8+8]

FirstRanker

Code No: K0328/R07

Set No. 1

IV B.Tech II Semester Supplementary Examinations, July 2011
INTERACTIVE COMPUTER GRAPHICS
(Mechanical Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Assuming that a certain full-color (24-bit per pixel) RGB raster system has a 512 by 512 frame buffer, how many distinct color choices (intensity levels) would be available.
(b) Explain how virtual reality systems can be used in design applications. [10+6]
2. (a) Use the mid-point method to derive a decision parameter for generating points along a straight line path with slope in the range $0 < m < 1$.
(b) Use the mid-point method and symmetry considerations propose a solution to scan convert the parabola. $x=y^2$ for the interval $-10 \leq y \leq 10$. [8+8]
3. Show that the order in which the transformations are performed is important by the transformation of triangle A(1,0), B(0,1), C(1,1) by
(a) rotating 45° about the origin and then translating in the direction of vector I by 4 units and
(b) translating and then rotation. [8+8]
4. Explain the algorithm for line clipping using cyrus-Beck algorithm. Illustrate with suitable examples. [16]
5. Given the plane parameters A, B, C and D for all surfaces of an object, explain the procedure to determine whether any specified point is inside or outside the object. [16]
6. Using any clipping algorithm, explain the procedure to perform a complete viewing transformation from world coordinates to device coordinates for any specified parallel projection vector. [16]
7. (a) Discuss about the scan line method for visible surface detection.
(b) Compare and contrast depth-buffer and depth-sort methods. [8+8]
8. List the general-purpose animation languages. Explain the characteristics any are language. [16]

Code No: K0328/R07

Set No. 2

IV B.Tech II Semester Supplementary Examinations, July 2011
INTERACTIVE COMPUTER GRAPHICS
(Mechanical Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Consider the raster system with resolution of 1280 by 1024. What size frame buffer (in bytes) is needed for the systems to store if 24 bits pixel are to be stored.
 (b) How long would it take to load a 640×480 frame buffer with 12 bits per pixel, if 105 bits can be transferred per second. [8+8]
2. (a) Explain the algorithm for circle generation using mid-point circle generation.
 (b) Generate the points on the first octant of first quadrant, starting from (0,10), where the radius of the circle, $r=10$. [8+8]
3. (a) Derive the matrix for scaling in an arbitrary direction, for any specified scaling factors about a fixed point (x_b, y_b) .
 (b) Prove that the multiplication of transformation matrices for two successive translations is commutative. [8+8]
4. (a) What are the basic transformation techniques used in Window-to-Viewport transformation? Derive the viewing transformation matrix.
 (b) What is the significance of 4-bit region code is Cohen-Sutherland algorithm? [8+8]
5. (a) Explain the steps involved in curve generation by Bazier's method.
 (b) Draw the Bernstein polynomials. Illustrate their role in Bazier curve generation. [8+8]
6. Consider a line from the origin of a right-handed coordinate system to the point P(x, y, z). Find the transformation matrix needed to rotate the line in to the positive z-axis. Follow the below mentioned sequence to achieve the desired transformation matrix:
 (a) Rotate about the y-axis into the (y, z) plane,
 (b) Then rotate about the y-axis into the z-axis. [16]
7. (a) Discuss about the scan line method for visible surface detection.
 (b) Compare and contrast depth-buffer and depth-sort methods. [8+8]
8. Explain the procedure to simulate the linear, two-dimensional motion of a filled circle inside a given rectangular area. The circle is to be given an initial velocity and the circle is to rebound from the walls with the angle of reflection equal to the angle of incidence. [16]

Code No: K0328/R07

Set No. 2

FirstRanker

Code No: K0328/R07

Set No. 3

IV B.Tech II Semester Supplementary Examinations, July 2011
INTERACTIVE COMPUTER GRAPHICS
(Mechanical Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Consider a non interlaced raster monitor with a resolution of n by m (m scan lines and n pixels per scan line), a refresh rate of r frames per second, a horizontal retrace time of t_{horiz} and vertical retrace time of t_{vert} . What is the fraction of total refresh time per frame spent in retrace of the electron beam.
- (b) Explain the applications for large-screen displays. What graphical output devices support it? [12+4]
2. (a) Show graphically that an ellipse has four-way symmetry by plotting four points on the ellipse:
 $x = a \cos \theta + h$, $y = b \sin \theta + k$ where $a = 2$, $b = 1$, $h = 0$ and $k = 0$.
- (b) When 8-way symmetry of circle is used to obtain a full circle from pixel coordinates generated from first octant, does overstrike occur? Where? [8+8]
3. Show that the order in which the transformations are performed is important by the transformation of triangle $A(1,0)$, $B(0,1)$, $C(1,1)$ by
 - (a) rotating 45° about the origin and then translating in the direction of vector I by 4 units and
 - (b) translating and then rotation. [8+8]
4. (a) Explain the procedure to determine whether a polygon edge intersects a window edge or not.
- (b) Justify that the Sutherland-Hodgeman algorithm is suitable for clipping concave polygons also. [8+8]
5. (a) Explain the approach followed in subdividing the Bzier curve.
- (b) Analyse the effect on B-spline of having in sequence four collinear control points. [8+8]
6. Let an axis of rotation L be specified by a direction vector V and a location point P . Find the transformation for a rotation of θ° about L . [16]
7. (a) Discuss about the scan line method for visible surface detection.
- (b) Compare and contrast depth-buffer and depth-sort methods. [8+8]
8. (a) Explain how the simple animation effects are achieved by look-up table entries.
- (b) Give a brief note about graphical languages for animation. [8+8]

Code No: K0328/R07

Set No. 3

FirstRanker

Code No: K0328/R07

Set No. 4

IV B.Tech II Semester Supplementary Examinations, July 2011
INTERACTIVE COMPUTER GRAPHICS
(Mechanical Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. List the operating characteristics of
 - (a) Raster refresh systems
 - (b) Vector refresh systems
 - (c) Plasma panel
 - (d) LCDs. [4×4=16]

2. (a) Explain the mathematical procedure in deciding the points on the periphery of the ellipse using mid-point ellipse algorithm.
 (b) Illustrate the properties of ellipse which are considered in efficient generation of ellipse using mid-point method. [8+8]

3. Prove that the multiplication matrices for each of the following sequence of operations is commutative [16]
 - (a) Two successive rotations
 - (b) Two successive translations
 - (c) Two successive scalings.

4. (a) Explain the procedure to determine whether a polygon edge intersects a window edge or not.
 (b) Justify that the Sutherland-Hodgeman algorithm is suitable for clipping concave polygons also. [8+8]

5. (a) What are the steps involved in rendering a polygon surface mesh using Gouraud shading.
 (b) Explain the procedure to check the consistency of polygon mesh representation. [8+8]

6. A pyramid defined by the coordinates A(0, 0, 0), B(1, 0, 0), C(0, 1, 0) and D(0, 0, 1) is rotated 45° about the line L that has the direction $V=J+K$ and passing through point C(0, 1, 0). Find the coordinates of rotated figure. [16]

7. (a) Write an algorithm to display the visible surfaces of a convex polyhedron using the depth-sort (painter's) algorithm.
 (b) Explain how the visible surfaces of a polyhedron are determined using BSP-tree method. [8+8]

Code No: K0328/R07

Set No. 4

8. Explain the procedure to simulate the linear, two-dimensional motion of a filled circle inside a given rectangular area. The circle is to be given an initial velocity and the circle is to rebound from the walls with the angle of reflection equal to the angle of incidence. [16]

FirstRanker

Code No: K0329/R07

R07**Set No.1**

IV B.Tech II Semester Supplementary Examinations, July, 2011

OPERATING SYSTEM CONCEPTS

(Mechanical Engineering)

Time: 3 hours**Max. Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. a) What is system call? With an example explain how system calls are used? [8]
 b) Briefly explain operating system structures. [8]
2. a) Draw and explain process state transition diagram with two suspended states. [10]
 b) Write about multithreading. [6]
3. a) Define monitor. What are its characteristics? [8]
 b) What is a semaphore? What are the various operations defined on it. [8]
4. a) Describe the following memory allocation algorithms. [8]
 i) Worst fit ii) Best Fit
 b) Given memory partitions of 100 KB, 500KB, 200KB, 300KB & 600KB (in order), how would each of the first fit, best fit and worst fit algorithms place process of 212 KB, 417 KB, 112 KB and 426 KB(in order)? Which algorithm makes the most efficient use of memory? [8]
5. a) Write the algorithm for finding out whether a system is in a safe state or not? Explain the algorithm by taking an example. [6]
 b) Draw the life cycle of an I/O request and explain it in detail. [10]
6. a) What problems could occur if a system allowed a file system to be mounted simultaneously at more than one location [8]
 b) Discuss Directory implementation in detail. [8]
7. a) Explain about RAID structure in detail. [10]
 b) Discuss the relative advantages and disadvantages of sector sparing and sector slipping. [6]
8. a) Explain in detail Access Matrix and the implementation of Access Matrix in detail. [8]
 b) Explain about security problem in detail. Explain briefly about program threats. [8]

Code No: K0329/R07

R07**Set No.2**

IV B.Tech II Semester Supplementary Examinations, July, 2011

OPERATING SYSTEM CONCEPTS

(Mechanical Engineering)

Time: 3 hours

Max. Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. a) Justify the naming of operating system as control program. [8]
b) List the various mechanisms in the evolution of operating system and give the merits and demerits of each. [8]
2. a) Define process. Explain in detail about process scheduling in detail. [8]
b) Explain in detail about Thread scheduling in Windows. [8]
3. a) What is critical section problem? What are the requirements to be satisfied for Critical section problem to be solved? [8]
b) Explain and give examples for synchronization in different systems. [8]
4. a) Explain difference between internal and external fragmentation. [8]
b) What is paging? Discuss in detail about basic method in paging. Also give the structure of Page table. [8]
5. a) Consider a system with five processes P_0 through P_4 and three resource types A,B,C. Resource type A has 10 instances ,resource type B has 5 instances and resource type C has 7 instances .Suppose that, at time T_0 the following snapshot of the system has been taken

	<u>Allocation</u>			<u>Max</u>			<u>Available</u>		
	A	B	C	A	B	C	A	B	C
P_0	0	1	0	7	5	3	3	3	2
P_1	2	0	0	3	2	2			
P_2	3	0	2	9	0	2			
P_3	2	1	1	2	2	2			
P_4	0	0	2	4	3	3			

- Find whether this system is safe or not .Also find sequence that satisfies safety requirement.
- b) Explain about recovery from deadlock in detail. [10+6]

Code No: K0329/R07

R07

Set No.2

6. a) Write about different types of File accessing methods. [8]
b) In what situations would using memory as a RAM disc be more useful than using its disk cache. [8]
7. a) Explain in detail about swap space management . [8]
b) How do system designers choose a RAID level? Discuss in detail about problems with RAID. [8]
8. a) List the various techniques followed by password crackers in learning password.[8]
b) What protection problems may arise if a shared stack is used for parameter passing. [8]

FirstRanker

Code No: K0329/R07

R07

Set No.3

IV B.Tech II Semester Supplementary Examinations, July, 2011

OPERATING SYSTEM CONCEPTS

(Mechanical Engineering)

Time: 3 hours

Max. Marks: 80

**Answer any FIVE Questions
All Questions carry equal marks**

1. a) Explain the functions of an operating system. [8]
b) With the help of neat diagram, describe the Computer Components. [8]
2. a) Explain about various Multithreading models. [10]
b) Describe the differences among the Short-term, Medium-term and Long-term scheduling. [6]
3. What is semaphore? Define the Binary semaphore Primitives and explain Semaphore mechanism with an example. [16]
4. a) In a fixed Partitioning Scheme. What are the advantages of using unequal Size Partitions ? [4]
b) What are the distinctions among logical, relative & physical addresses? [4]
c) Explain about LRU Page- Replacement Algorithm with an example. [8]
5. a) Write the algorithm for finding out whether a system is in a safe state or not? Explain the algorithm with a suitable example. [6]
b) Draw the life cycle of an I/O request and explain it in detail. [10]
6. a) Discuss the elements of file management. [8]
b) Discuss the address information elements of a file directory. [8]
7. a) Discuss about RAID Structure? [8]
b) What is meant by stable – storage? Explain about stable – storage implementation. [8]
8. Write a short notes on
i) Language –Based Protection. [6]
ii) Program threats [5]
iii) Principles of protection . [5]

Code No: K0329/R07

R07**Set No.4**

IV B.Tech II Semester Supplementary Examinations, July, 2011

OPERATING SYSTEM CONCEPTS

(Mechanical Engineering)

Time: 3 hours**Max. Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. a) With the help of neat diagram, describe the computer components. [8]
 b) List the various mechanisms in the evolution of operating system, giving only the merits and demerits of each. [8]
2. a) Write about kernel level threads. [5]
 b) Differentiate between process & threads. [5]
 c) Write short notes on Thread scheduling in Windows. [6]
3. a) What is a semaphore? What are the various operations defined on it? [8]
 b) Explain about weak semaphores and strong semaphores? [8]
4. a) Explain any two techniques for structuring the page table. Discuss with suitable examples. [10]
 b) What are inverted page tables? [6]
5. How deadlocks can be avoided? Explain with the help of necessary Algorithms. [16]
6. a) Explain what is tree –Structured directory? [8]
 b) Explain about free Space Management. [8]
7. a) What is the difference between preemptive and non preemptive scheduling? Explain an algorithm for each scheduling type. [10]
 b) Write short notes on Problems with RAID [6]
8. a) Explain about access matrix. [8]
 b) What is the difference between a threat and an attack? Explain about the various security attacks [8]

Code No: L0424

R07**Set No. 1**

IV B.Tech. II Semester Supplementary Examinations, July, 2011
DSP PROCESSORS AND ARCHITECTURES
(Common to Electronics & Communication Engineering, Electronics &
Instrumentation Engineering and Bio-Medical Engineering)

Time: 3 Hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. a) Explain the sampling process used in Digital Signal Processing with relevant example. [8]
b) Illustrate the properties of Fast Fourier Transform with suitable examples. [8]
2. a) Explain the fixed-point format and floating-point format for signals and coefficients in DSP systems. [8]
b) Describe the D/A conversion errors for evaluating computational accuracy in DSP implementations. [8]
3. a) Explain the basic architectural features considered for programmable digital signal-processing devices. [8]
b) Explain the concepts of hardware architecture and parallelism related to speed issues required for programmable DSP devices. [8]
4. a) Describe the concept of hardware looping related to execution control and pipelining in DSP processors. [8]
b) Illustrate pipeline programming models with relevant examples. [8]
5. With suitable example, explain the following relevant to TMS320C54XX Digital Signal Processors.
(a) Interrupts
(b) Data addressing modes [16]

Code No: L0424

R07

Set No. 1

6. a) What is meant by 'Q-notation'? Explain the concept of multiplication of numbers represented using the Q-notation. [8]
b) With suitable example, explain 2-D signal processing used in the implementations of basic DSP algorithms. [8]
7. a) Implement an FFT algorithm for 2-point and 4-point DFT computation with the aid of necessary signal flow graphs. [8]
b) Draw an 8-point DIT FFT implementation structure based on a butterfly computation for TMS320C54xx Digital Signal Processors. [8]
8. a) Discuss about memory space organization for TMS320C54xx Digital Signal Processing devices. [8]
b) Draw the block diagram of a multichannel buffered serial port of C54xx and explain its importance on the TMS320C5416 DSP. [8]

Code No: L0424

R07

Set No. 2

IV B.Tech. II Semester Supplementary Examinations, July, 2011
DSP PROCESSORS AND ARCHITECTURES
(Common to Electronics & Communication Engineering, Electronics &
Instrumentation Engineering and Bio-Medical Engineering)

Time: 3 Hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. a) What is meant by digital filters? Draw the block diagram of a digital filter and explain its significance. [8]
b) Give the representation of a linear time-invariant system and explain the terms, 'convolution', 'Z-Transform' and 'The system function' related to LTI System. [8]
2. a) Draw the circuit diagram of Compensating filter and perform the analysis. [8]
b) Differentiate A/D and D/A conversion errors concerned to computational accuracy in DSP applications. [8]
3. a) With the aid of suitable structure, explain the basic DSP computational building block of 4X4 Braun multiplier. [8]
b) Draw the bus structures of von Neumann, Harvard and for the architecture with one program memory and two data memories and briefly explains them. [8]
4. a) Explain the interrupts activation during the process of execution control in DSP processors. [8]
b) Describe the concept of pipelining and its performance in DSP processors. [8]
5. a) Draw the block diagram and explain the direct addressing mode for TMS320C54xx Digital Signal Processors. [8]
b) Give the summary of the instruction set of TMS320C54xx Digital Signal Processors. [8]

Code No: L0424

R07

Set No. 2

6. a) Write the significance of FIR and IIR filters. Give their implementation procedures using DSP algorithms in brief. [8]
- b) Write notes on Decimation Filters and give the digital decimation filter implementation with a decimation factor three and a low pass filter of length five. [8]
7. a) Draw a general DIT FFT butterfly in-place computation structure and explain its importance in DSP implementations. [8]
- b) Perform and explain an 8-Point DFT implementation with its signal flow graph. [8]
8. a) With the aid of suitable timing diagrams explain the memory interface signals for a read-read-write sequence of operations to programmable DSP devices. [8]
- b) Explain the concept of CODEC programming with relevant example. [8]

Code No: L0424

R07**Set No. 3**

IV B.Tech. II Semester Supplementary Examinations, July, 2011
DSP PROCESSORS AND ARCHITECTURES
 (Common to Electronics & Communication Engineering, Electronics &
 Instrumentation Engineering and Bio-Medical Engineering)

Time: 3 Hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. a) Obtain the frequency response of an FIR filter, $y(n) = x(n) - x(n-1)$ using MATLAB. [8]
 b) Discuss about analysis and design tool for DSP systems. What are the various operations will be carried out by the design tool? [8]
2. a) Define the terms 'Dynamic Range' and 'Precision' related to computational accuracy and give their significance for various number representations. [8]
 b) Describe the DSP computational errors for evaluating computational accuracy in DSP implementations. [8]
3. a) Describe the speed issues that are required for programmable DSP devices. [8]
 b) Explain the basic architectural features for programmable DSP devices. [8]
4. a) Describe the branching effects during the process of execution control and pipelining in DSP processors. [8]
 b) Explain the interlocking mechanism that occurs in the process of execution and pipelining in DSP processors. [8]
5. a) Draw and explain the functional diagram of the barrel shifter of the TMS320C54xx Digital Signal Processors. [8]
 b) Illustrate the following addressing modes of TMS320C54XX Digital Signal Processors. [8]
 - i) Immediate Addressing
 - ii) Absolute Addressing And
 - iii) Accumulator addressing

Code No: L0424

R07

Set No. 3

6. a) Develop the TMS320C54xx MATLAB program to multiply two 16-bit numbers in Q15 notation. [8]
b) Perform digital interpolation using a FIR filter with interpolation factor is equal to five. [8]
7. a) Discuss the various types of FFT algorithms for the efficient computation of the DFT. [8]
b) Write a note on computation of the signal spectrum relevant to FFT algorithms. [8]
8. a) Design an interface to connect a 64K X 16 flash memory to a TMS320C54xx device. The processor address bus is A0-A15. [8]
b) Draw main program flow chart for the signal loopback program and receive interrupt service routine flow chart for a CODEC-DSP interface example. [8]

Code No: L0424

R07

Set No. 4

IV B.Tech. II Semester Supplementary Examinations, July, 2011
DSP PROCESSORS AND ARCHITECTURES
(Common to Electronics & Communication Engineering, Electronics &
Instrumentation Engineering and Bio-Medical Engineering)

Time: 3 Hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. a) Explain the frequency domain representation of linear time-invariant systems. [8]
b) Write notes on Digital Filters. [8]
2. a) Explain Double-Precision fixed-point format and Block floating-point format for signals and coefficients in DSP systems. [8]
b) Describe the A/D conversion errors for evaluating computational accuracy in DSP implementations. [8]
3. a) Draw and explain the block diagram of a barrel shifter and perform the implementation of a 4-bit shift-right barrel shifter. [8]
b) What is meant by on-chip memory? Explain the organization of the on-chip memory relevant to bus architecture and memory concept. [8]
4. a) Describe the concept of pipelining and its performance in DSP processors. [8]
b) Explain the various branching effects that are required to consider during the process of execution and pipelining in DSP processors. [8]
5. a) With suitable sketch, explain the functional operation of central processing unit of TMS320C54xx Digital Signal Processors. [8]
b) With the aid of functional diagram explain the multiplier/adder unit of TMS320C54xx Digital Signal Processors. [8]

Code No: L0424

R07**Set No. 4**

6. Implement a digital IIR low pass filter using a Chebyshev-II prototype algorithm with the following specifications.

$$\omega_p = 0.2\pi$$

$$R_p = 1 \text{ dB}$$

$$\omega_s = 0.3\pi$$

$$A_s = 15 \text{ dB}$$

Give the necessary MATLAB source code. [16]

7. a) Describe the concept of overflow and scaling for the implementation of FFT algorithms with suitable examples. [8]
b) Perform an implementation for an 8-point DIT FFT algorithm which includes spectrum computation using the FFT result. [8]
8. a) With neat sketch, explain how the Direct Memory Access is going to be interfaced to programmable DSP devices. [8]
b) With suitable CODEC interface circuit, explain its programming concept. [8]

Code No: K0423/R07

Set No. 1

IV B.Tech II Semester Supplementary Examinations, July 2011
ARTIFICIAL NEURAL NETWORKS
 (Electronics & Communication Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Explain the differences between conventional computation and neural network computation.
 (b) Explain the structure of the brain and its organization. [8+8]
2. (a) Explain the concept of Hebbian learning principle and its mathematical modeling.
 (b) Given are a set of input training vectors and initial weight vector. The learning constant is assumed to be 0.1. The desired responses for X_1 , X_2 and X_3 are $d_1=-1$, $d_2=-1$ and $d_3=1$ respectively for a bipolar binary case. $X_1 = [1, 2, 0, 1]^T$, $X_2 = [0, 1.5, -0.5, -1.0]^T$ and $X_3 = [-1, 1, 0.5, -1]^T$. $W^0 = [1, -1, 0, 0.5]^T$. With Widrow-Hoff learning rule evaluate weight vector after completion of one cycle of training. [8+8]
3. (a) Write the training algorithm of multi category single layer perceptron networks.
 (b) Can single layer Perceptron classify linearly non-separable patterns? If not, why? [8+8]
4. (a) Explain the working principle and training algorithm of Kohonen's self-organizing map.
 (b) Write short note on Grossberg layer. [10+6]
5. (a) Explain Learning Vector Quantizer (LVQ).
 (b) Compare Kohonen SOM and LVQ. [8+8]
6. (a) Define and explain energy (Lyapunov) function of Hopfield Neural Network.
 (b) Discuss storage capacity and energy function of the Hopfield network. [8+8]
7. Explain the function of ART network and explain its operation with relevant Equations. [16]
8. Discuss how ART network can be used for
 - (a) image processing
 - (b) Character recognition. [8+8]

Code No: K0423/R07

Set No. 2

IV B.Tech II Semester Supplementary Examinations, July 2011
ARTIFICIAL NEURAL NETWORKS
(Electronics & Communication Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Compare the performance of a computer and that of a biological neural network in terms of speed of processing, size and complexity, storage fault tolerance and control mechanism.
 (b) Explain the biological neuron and an artificial neuron. [10+6]
2. (a) Describe McCulloch-Pitts (MP) neuron model and explain the assumptions involved in this theory. Also design a network using MP neuron to realize the NAND gate.
 (b) With suitable diagrams explain the competitive network. [8+8]
3. With suitable diagram, derive the weight update equations in backpropagation algorithm for a multilayer feed forward neural network and explain the effect of learning rate, and momentum terms or weight update equations. [8+8]
4. (a) Explain briefly about the counter propagation training algorithm.
 (b) Explain the architecture of Grossberg layer and its learning algorithm. [8+8]
5. Explain Kohonen's self-organized feature map algorithm and mention its applications. [16]
6. (a) Define and explain energy (Lyapunov) function of Hopfield Neural Network.
 (b) Discuss storage capacity and energy function of the Hopfield network. [8+8]
7. Discuss the following characteristics of ART network:
 - (a) Top-down weight initialization
 - (b) Bottom-up weight adjustments. [8+8]
8. (a) Discuss "image segmentation" using ANN.
 (b) Explain "Texture classification" using ANN. [8+8]

Code No: K0423/R07

Set No. 3

IV B.Tech II Semester Supplementary Examinations, July 2011
ARTIFICIAL NEURAL NETWORKS
(Electronics & Communication Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Explain the classification of artificial neural networks
(b) Explain the characteristics of artificial neural networks.
(c) What are the popular nonlinear functions used in modeling artificial neuron?
Explain each of them. 5+5+6
2. What are different types of learning schemes used in training of artificial neural networks?. Explain each of them clearly with suitable examples. [16]
3. With suitable diagram, derive the weight update equations in backpropagation algorithm for a multilayer feed forward neural network and explain the effect of learning rate, and momentum terms or weight update equations. [8+8]
4. Describe the architecture of a counter propagation networks. Explain the training of counter propagation network and also discuss the practical considerations. [16]
5. Explain Kohonen's self-organized feature map algorithm and mention its applications. [16]
6. (a) Describe the Hopfield neural network models.
(b) Explain the concept of stability in neural networks and discuss the stability of Hopfield networks. [8+8]
7. (a) Explain three states of ART network.
(b) Write short note on the basic architecture and operation of ART network. [8+8]
8. (a) Explain the steps in the solution of a general optimization problem by a neural network.
(b) How an optimization problem formulated for solution using a neural network model. [8+8]

Code No: K0423/R07

Set No. 4

IV B.Tech II Semester Supplementary Examinations, July 2011
ARTIFICIAL NEURAL NETWORKS
(Electronics & Communication Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Explain the structure of the brain and its organization.
(b) With suitable diagrams explain the model of artificial neuron and also explain the important activation functions used in ANN. [8+8]
2. (a) What are the assumptions made in McCulloch-Pitts theory? Explain.
(b) What are different types of learning schemes used in training of artificial neural networks?. Explain each of them clearly. [6+10]
3. (a) Write the training algorithm of multi category single layer perceptron networks.
(b) Can single layer Perceptron classify linearly non-separable patterns? If not, why? [8+8]
4. With suitable diagram explain the algorithm and working of Kohonens self-organizing map. [16]
5. Discuss Learning Laws:
(a) Winner take all
(b) Grossberg-in-star and
(c) Grossberg out-star. [16]
6. (a) Describe the Hopfield neural network models.
(b) Explain the concept of stability in neural networks and discuss the stability of Hopfield networks. [8+8]
7. Discuss the following characteristics of ART network:
(a) Top-down weight initialization
(b) Bottom-up weight adjustments. [8+8]
8. (a) Discuss "image segmentation" using ANN.
(b) Explain "Texture classification" using ANN. [8+8]

Code No: K0525/R07

Set No. 1

**IV B.Tech II Semester Supplementary Examinations, July 2011
HUMAN COMPUTER INTERACTION
(Computer Science & Engineering)**

Time: 3 hours

Max Marks: 80

**Answer any FIVE Questions
All Questions carry equal marks**

1. Give a brief note about the Chronological history of Graphical user interface (GUI). [16]
2. Explain in detail about the following principles of using interface design
 - (a) Aesthetically pleasing
 - (b) clarity
 - (c) compatibility. [16]
3. Give a detailed note about obstacles and pitfalls in the development path of interface Design process. [16]
4. What are the qualities of visually pleasing composition of good screen design. Explain about each briefly. [16]
5. (a) Discuss the following screen based controls
 - i. selection controls
 - ii. Buttons.(b) What is meant by List box? Discuss its purpose. [8+8]
6. Give a brief note about the following factors which influence the selection of icons:
 - (a) Familiarity
 - (b) Simplicity
 - (c) Clarity
 - (d) Consistency
 - (e) Context
 - (f) Expectancy
 - (g) Directness
 - (h) Discriminability. [16]
7. What are the factors, with respect to widgets support, to be considered in choosing among user-interface building tools? Explain them clearly. [16]
8. (a) What are the function keys? Discuss their advantages.
(b) Distinguish between DVORAK and QWERTY layouts. [8+8]

Code No: K0525/R07

Set No. 2

IV B.Tech II Semester Supplementary Examinations, July 2011
HUMAN COMPUTER INTERACTION
(Computer Science & Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. What is GUI? What is the importance of GUI? [16]
2. Give a detailed note about the principles for the Xerox START, Which established the foundation for the Graphical interface. [16]
3. Briefly explain about the techniques for determining requirements. [16]
4. Give a brief note about
 - (a) Scatter plots
 - (b) Bar graphs
 - (c) Segmented or stacked bar graphs
 - (d) Pie charts. [4×4]
5. What are the guidelines for selecting the proper device-based control? Explain indetail. [16]
6. What is an icon? What are the various kinds of icons? Explain them clearly. [16]
7. Give a brief note about the features of user-interface building tools. [16]
8. Write brief notes on the following
 - (a) Projectors
 - (b) Lift-off strategy
 - (c) Mouse
 - (d) Heads-up display. [4×4]

Code No: K0525/R07

Set No. 3

IV B.Tech II Semester Supplementary Examinations, July 2011
HUMAN COMPUTER INTERACTION
(Computer Science & Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Explain the importance of good Interface design. [16]
2. (a) Define the terms
 - i. User interface
 - ii. Objects and
 - iii. Action.(b) Distinguish between direct and indirect manipulations. [10+6]
3. Explain how to gain a complete understanding of users mental model while determining basic business functions. [16]
4. Give a brief note about the following headings types used in screen design.
 - (a) Control section heading
 - (b) Control sub- section/ row heading
 - (c) field group heading
 - (d) web page heading. [4×4]
5. What are the guidelines for selecting the proper device-based control? Explain indetail. [16]
6. (a) What is a message? Discuss the common message types.
(b) What is meant by combining mediums? What are its characteristics? [8+8]
7. (a) Distinguish natural language, formal and semiformal languages used in software specifications.
(b) State and explain any two specification methods. [8+8]
8. Write brief notes on the following
 - (a) Projectors
 - (b) Lift-off strategy
 - (c) Mouse
 - (d) Heads-up display. [4×4]

Code No: K0525/R07

Set No. 4

**IV B.Tech II Semester Supplementary Examinations, July 2011
HUMAN COMPUTER INTERACTION
(Computer Science & Engineering)**

Time: 3 hours

Max Marks: 80

**Answer any FIVE Questions
All Questions carry equal marks**

1. What is GUI? What is the importance of GUI? [16]
2. (a) Define the terms
 - i. User interface
 - ii. Objects and
 - iii. Action.(b) Distinguish between direct and indirect manipulations. [10+6]
3. Explain how to gain a complete understanding of users mental model while determining basic business functions. [16]
4. (a) Give a brief note about the role of Font type, Font families, and Font size in good web page design.
(b) what is the role of
 - i. overlapping
 - ii. Drop shadows and
 - iii. texture change in conveying the depth of level or 3-D appearance. [8+8]
5. Explain how menus can be written. [16]
6. (a) Discuss the issues that are to be considered in combining mediums.
(b) Explain the role of color as
 - i. A formatting aid
 - ii. A visual code. [8+8]
7. (a) Give a BNF notation for a telephone book entry.
(b) What are the characteristics of a good user-interface architect in developing software tools? [8+8]
8. (a) List the typical layouts of cursor movement keys.
(b) Distinguish between QWERTY and ABCDE style. [8+8]

Code No: K0826

R07**Set No. 1**

IV B.Tech. II Semester Supplementary Examinations, July, 2011
OPTIMIZATION OF CHEMICAL PROCESSES
(Chemical Engineering)

Time: 3 Hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

- 1 a) What is Optimization? Why it is needed? Briefly discuss the applications of optimization. [6]
 b) Fit the model: $y = \beta_0 + \beta_1 x$ to the following y (the measured response) and x (the independent variable) data using least squares method. [10]

X	0	1	2	3	4	5
Y	0	2	4	6	8	10

- 2 a) Define 'stationary point' and 'saddle point' [6]
 b) Determine the stationary points of $f(x) = 2x_1^2 - 3x_1 - 5x_2^2 + x_2 + 6x_1x_2$ [10]
- 3 Minimize the following using Newton-Raphson method
 a) $f(x) = x^2 - 6x + 3$ [8]
 b) $f(x) = x^4 - 20x^3 + 0.1x$ [8]
- 4 Discuss about the following methods.
 a) Grid search [6]
 b) Simplex method [10]

Code No: K0826

R07**Set No. 1**

- 5 Suppose we wish to blend three metals A, B and C to form 10 tons of an alloy. The alloy must satisfy certain specifications. Namely, the alloy must contain at least 25% lead, not more than 50% tin and at least 20% zinc. The compositions and costs of three metals shown in table: [16]

Metal (Component)	A	B	C
Lead	0.1	0.1	0.4
Tin	0.1	0.3	0.6
Zinc	0.8	0.6	0.0
\$/ton	1,400	2,000	3,000

What blend of these metals will produce an alloy which satisfies the specifications at minimum cost? Formulate it as LPP and solve using graphical method.

- 6 The objective function C for the annual costs of a pipe line transporting of a fluid is given by [16]

$$C = C_1 D^{1.3} L + 0.142(C_0/\eta) m^{2.8} \mu^{0.2} \rho^{-2.0} D^{-4.8} L.$$

Where C_0 and C_1 are cost coefficients. D and L are diameter and length of the pipe. m, ρ and μ are mass flow rate, density and viscosity of the fluid, and η is pump efficiency. The velocity of the fluid, v flowing through the pipe is given by $V = 4m / (\rho \pi D^2)$. Obtain expression for D_{opt} and optimal V_{opt}

- 7 The steady state dependence of chemostat variables, namely, cell mass concentration x and substrate concentration s are expressed by the following equations: [16]

$$X = y_{x/s} [S_f - \{(DK_s)/(\mu_{max} - D)\}]$$

$$S = \{(DK_s) / (\mu_{max} - D)\}$$

Where D is the dilution rate. The parameter values are: maximum specific growth rate $\mu_{max} = 1.0 \text{ h}^{-1}$, yield factor $Y_{x/s} = 0.5$, substrate growth rate constant $K_s = 0.2 \text{ g/lit}$, substrate feed concentration $S_f = 10.0 \text{ g/lit}$. The rate of cell mass production per unit reactor volume is D_x . Show that the system exhibits washout condition at $D_x = \mu_{max}$.

- 8 Write short notes on the following : [8]

a) Working principles of Genetic Algorithms [8]

b) Differences between Genetic Algorithms and traditional methods.

Code No: K0826

R07**Set No. 2**

IV B.Tech. II Semester Supplementary Examinations, July, 2011
OPTIMIZATION OF CHEMICAL PROCESSES
(Chemical Engineering)

Time: 3 Hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

- 1 For a 2-stage adiabatic compressor where the gas is cooled to the inlet gas temperature between stages, the theoretical work is given by : [16]
 $W = k p_1 V_1 / k - 1 [(p_2/p_1)^{(k-1)/k} - 2 + (p_3/p_2)^{(k-1)/k}]$
 Where $k = C_p/C_v$, p_1 = Inlet pressure, P_2 = Intermediate stage pressure P_3 = Outlet pressure, V_1 = inlet volume. We wish to optimize the intermediate pressure p_2 so that the work is a minimum. Show that if $p_1 = 1$ atm, $P_3 = 4$ atm, $P_2^{opt} = 2$ atm
- 2 a) What is Hessian matrix and explain how it is useful in calculation of convexity and concavity of a function. [6]
 b) Determine the convexity and concavity of a function. [10]
 $2x_1^2 - 2x_1x_2 + 1.5x_2^2 + 7x_1 + 8x_2 + 24$
- 3 Minimize the following using Secant method.
 a) $f(x) = x^2 - 6x + 3$ [8]
 b) $f(x) = x^4 - 20x^3 + 0.1x$ [8]
- 4 Describe about the 'Powell's method' used in multivariable optimization. [16]

Code No: K0826

R07

Set No. 2

- 5 Write short notes on
- a) Degenerated LP's [8]
 - b) Duality in Linear Programming [8]
- 6 Derive the equations for optimizing the process design of a baffled shell and tube single pass counter flow heat exchanger in which the tube fluid is in turbulent flow and there is no phase change of fluids in the shell or tubes. [16]
- 7 Explain the scheme of obtaining optimal residence time in an ideal isothermal batch reactor. [16]
- 8
- a) Write real time applications of Genetic algorithms [8]
 - b) Write briefly about real coded GA's [8]

Code No: K0826

R07**Set No. 3**

IV B.Tech. II Semester Supplementary Examinations, July, 2011
OPTIMIZATION OF CHEMICAL PROCESSES

(Chemical Engineering)

Time: 3 Hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

- 1 a) What is optimization? What are the essential features of an optimization problem. [8]
 b) Describe the important examples of the applications of optimization. [8]
- 2 a) Discuss about 'convex region' [6]
 b) Determine the convexity and concavity of a function [10]
 $2x_1^2 - 2x_1x_2 + 1.5x_2^2 + 7x_1 + 8x_2 + 24$
- 3 a) Explain the procedure of Region Elimination method? Compare with other methods [8]
 b) Does the following sets of constraints form convex region? Explain [8]
 $g_1(x) = -(x_1^2 + x_2^2) + 9 \geq 0.$
 $g_2(x) = -x_1 - x_2 + 1 \geq 0.$
- 4 a) What is conjugate search direction? Explain [6]
 b) Describe about simplex method. [10]

1 of 2

Code No: K0826

R07**Set No. 3**

- 5 A one hundred pound mix of a certain type of iron is to be formed, [16]
containing a minimum of 2% carbon, and 2% manganese. Four materials
are available for blending. Determine the least cost blend.

	A	B	C	D
% Carbon	2	3	4	5
% Manganese	3	2	1	0
% Iron	95	95	95	95
Cost, \$/100lb	10	15	8	7

Formulate it as LPP and solve using graphical method.

- 6 Draw the schematic diagram of a power system of a system for the [16]
recovery of waste heat from a boiler. Ignoring mechanical friction and heat
leaks, obtain an expression for the optimum value of the working fluid
temperature T_H , at which the sum of the operating costs and surface area
costs would be minimum.
- 7 Describe the design procedure for “Chemostat” for obtaining the [16]
maximum product.
- 8 Write a comparative analysis of Genetic algorithms and conventional [16]
methods.

Code No: K0826

R07**Set No. 4**

IV B.Tech. II Semester Supplementary Examinations, July, 2011
OPTIMIZATION OF CHEMICAL PROCESSES

(Chemical Engineering)

Time: 3 Hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

- 1 a) Discuss about classification of models and explain about model building procedures. [8]
 b) Explain about factorial experimental designs. [8]
- 2 a) Define 'unimodal' and 'multimodal' functions with examples. [6]
 b) Distinguish between the local and global extrema of the following objective function $f(x) = 2x_1^3 + x_2^2 + x_1^2x_2^2 + 4x_1x_2 + 3$ [10]
- 3 Apply the golden section method to reduce the interval of uncertainty for the maximization of the function $f = 6.64 + 1.2x - x^2$ from [0, 1] to less than 2% of its original size. Show at least 4 iterations. [16]
- 4 Discuss about the following methods [8]
 a) Uni-variate search [8]
 b) Newton method

Code No: K0826

R07**Set No. 4**

- 5 a) Examine the following problem [10]
- Minimize: $f = 3x_1 + x_2 + x_3$
- Subjected to: $x_1 - 2x_2 + x_3 \leq 11$
 $-4x_1 + x_2 + 2x_3 \geq 3$
 $2x_1 - x_3 = -1$,
 $x_1, x_2, x_3 \geq 0$
- Is there a basic feasible solution to the problem? Answer yes or No, and explain
- b) Write briefly about Karmarkar's algorithm [6]
- 6 a) Mention the variables that must be considered by an engineer while making an analysis for selection of optimal evaporator equipment. [10]
- b) What are the categories into which optimization problems for steady state distillation are classified in general? Discuss briefly. [6]
- 7 In optimal pipe diameter calculation write the equations for [16]
- a) Objective function
- b) D^{opt} , optimum diameter
- c) V^{opt} , optimum velocity
- 8 Discuss the working principles & similarities between GA's and traditional methods. [16]

Code No: K1023/R07

Set No. 1

IV B.Tech II Semester Supplementary Examinations, July 2011
TELEMETRY AND TELECONTROL
(Electronics & Instrumentation Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Explain the concept of different electrical systems used in short distance telemetry. [16]
2. Write short notes on:
 - (a) Quantization
 - (b) Pulse modulation scheme
 - (c) Frequency and phase modulation
 - (d) Componder. [4+4+4+4]
3. What is the bandwidth requirement of the overall channel(FM) if there are 7 data channels with cut-off frequencies 6,8,11,14,20,25 and 35 Hz? The IRIG standard specifies the subcarrier centre frequency for the 14 Hz cut-off signal channel as 960 Hz. [16]
4. (a) What is the advantage of a differential PCM(DPCM) system?
(b) Sketch the block diagram of such a system both on the transmitter and receiver sides, and, for modulation and demodulation. Explain the operation? [8+8]
5. On what 'parameters' of a system does the carrier level depend in satellite telemetry? Why is the 'receiver gain-to-temperature' ratio as a factor so important in a receiver system? Discuss. [16]
6. Compare the optical Telemetry with other telemetry systems. [16]
7. What are the methods used in digital telecontrol with out coding method? Explain any two of them. [16]
8. Briefly explain Telecontrol of ship signals,Navigation signs,Radar installation. [16]

Code No: K1023/R07

Set No. 2

IV B.Tech II Semester Supplementary Examinations, July 2011
TELEMETRY AND TELECONTROL
(Electronics & Instrumentation Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Why is frequency telemetry considered superior to voltage or current telemetry even in short cases? Give the frequency ranges for the standard analogue signal of 4 to 20 mA range in frequency telemetring system?
(b) How can the analogue signal be converted into frequency for transmission?
[10+6]
2. Briefly explain block schematic for obtaining PCM line wave form? [16]
3. Explain the about scheme of a:
(a) PM circuit using a varactor diode.
(b) PM circuit using a transistor. [8+8]
4. Deduce an expression for the signal to noise ratio at the output of PCM receiver? [16]
5. (a) On what factors does the overall carrier-to-noise density ratio depend in satellite communication?
(b) If bandwidth tends to infinity, show that the above ratio is proportional to the maximum information rate can be transmitted for a given carrier power. [16]
6. With a block diagram explain the multi sources multiplexed single-user fiber optic sensor array Telemetry system with different types of fibre optic data lines. [16]
7. Define Telecontrol. Draw a block diagram of Telecontrol installation and explain each functional block. [16]
8. What is meant by remote regulation.Explain about remote regulation with examples. [16]

Code No: K1023/R07

Set No. 3

IV B.Tech II Semester Supplementary Examinations, July 2011
TELEMETRY AND TELECONTROL
(Electronics & Instrumentation Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Explain a telemetry system where measured variable is shown as a function of AC or DC voltage?
(b) Draw the sketch of pneumatic transmitter and explain? [8+8]
2. Write short notes on:
 - (a) Quantization
 - (b) Pulse modulation scheme
 - (c) Frequency and phase modulation
 - (d) Componder. [4+4+4+4]
3. Explain scheme of transmitting side of FDM. [16]
4. (a) Explain the encoding process in DPCM.
(b) Explain the decoding process in DPCM. [8+8]
5. Explain briefly the Telemetry and Communications. [16]
6. (a) Explain the historical development of optical fibres with the help of electromagnetic spectrum?
(b) Draw a graph showing the refractive index distribution of central core cladded optical fibre and explain the plot? [8+8]
7. (a) List out the signal apparatus used for Telecontrol installation.
(b) Explain about the recorders used for recording binary data and explain how individual messages are distinguished from one another by Acoustic means/signal o/p. [16]
8. Explain briefly the following:
 - (a) Telecontrol apparatus
 - (b) Telecontrol using information Theory. [8+8]

Code No: K1023/R07

Set No. 4

IV B.Tech II Semester Supplementary Examinations, July 2011
TELEMETRY AND TELECONTROL
(Electronics & Instrumentation Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Explain a telemetry system where measured variable is shown as a function of AC or DC voltage?
 (b) Draw the sketch of pneumatic transmitter and explain? [8+8]
2. What are the different line codes used in communication systems? What are their advantages and disadvantages? Discuss with pulse diagrams. [16]
3. (a) What makes PPL discriminator so popular in communication applications?
 (b) In a PLL discriminator the phase detector has a gain of 5 V/r, the VCO has a gain of 10 KHz/volt and the controller gain is 15. If the phase locking fails by $\pm 10\%$, by how much is the frequency output in error? Assume set phase and frequency as 30° and 10 MHz respectively? [8+8]
4. (a) Give an account of PCM/PM or PCM/FM standards?
 (b) Compare PCM, PWM, PPM, Delta modulation with each other and list two advantages and disadvantages of the system. [8+8]
5. Explain the process of FDMA along its modulation technique in space craft communication. [16]
6. (a) What is dispersion? Explaining intermodal dispersion?
 (b) If the critical(minimum)angle of an incident ray for transmission in a fibre of length 150m is 85° , what is the maximum dispersion in the fibre? [10+6]
7. (a) List out the signal apparatus used for Telecontrol installation.
 (b) Explain about the recorders used for recording binary data and explain how individual messages are distinguished from one another by Acoustic means/signal o/p. [16]
8. Give a brief account of telecontrol using information theory? [16]

Code No: K1221 /R07

R07

Set No.1

IV B.Tech II Semester Supplementary Examinations, July, 2011

MULTIMEDIA DATABASES

(Information Technology)

Time: 3 hours

Max. Marks: 80

**Answer any FIVE Questions
All Questions carry equal marks**

1. a) Explain briefly about object oriented Databases . Give examples.
b) Compare point quad trees and MX-Quad trees. [8+8]
2. Write briefly about image processing? [16]
3. Explain different retrieval techniques for text/Document database. [16]
4. a) Explain querying the content of video libraries.
b) Give a detailed note on how to capture audio content through discrete transformations. [8+8]
5. a) Describe about query languages for retrieving multimedia data.
b) Explain indexing SMDs with enhanced inverted indices. [8+8]
6. Explain creating objects in multimedia presentations. [16]
7. Discuss about object oriented data model with UML. [16]
8. How would one model the following spatial relationships using 9-intersection model or OGIS topological operations? [16]
 - (i) A river (Line String) originates in a country (Polygon).
 - (ii) A country (e.g., Vatican city) is completely surrounded by another (e.g., Italy) country.
 - (iii) A river (e.g., Missouri) falls into another (e.g., Mississippi) river.
 - (iv) Forest stands partition a forest.

Code No: K1221 /R07

R07

Set No.2

IV B.Tech II Semester Supplementary Examinations, July, 2011

MULTIMEDIA DATABASES

(Information Technology)

Time: 3 hours

Max. Marks: 80

**Answer any FIVE Questions
All Questions carry equal marks**

1. a) Explain k-d trees with examples.
b) Discuss various multidimensional data structures. [8+8]
2. Discuss briefly about representing image DB's with Relations [16]
3. Discuss in detail about word stems and frequency tables. [16]
4. What is TV - tree? Explain the organization of a TV - tree. [16]
5. a) Explain about Indexing SMDs with enhanced inverted indices.
b) Design Multimedia Database. [8+8]
6. Give in detail about efficient solution of temporal presentation constraints. [16]
7. a) Discuss Trends in Object-Oriented data Modeling with UML?
b) Discuss scientific rigor and rationality favor the field model", but the human mind prefers the object model. [8+8]
8. Discuss briefly about Spatial Query language [16]

Code No: K1221 /R07

R07

Set No.3

IV B.Tech II Semester Supplementary Examinations, July, 2011

MULTIMEDIA DATABASES

(Information Technology)

Time: 3 hours

Max. Marks: 80

**Answer any FIVE Questions
All Questions carry equal marks**

1. a) Compare different data structures.
b) Briefly discuss R-trees. [8+8]
2. a) Explain how to retrieve images by spatial layout.
b) Explain about similarity based retrieval in image processing. [8+8]
3. Give a detailed note on Precision and Recall concepts in text/Document Database. [16]
4. Write briefly about the following [16]
 - i) Video segmentation
 - ii) Indexing Audio data
5. a) Explain about Indexing SMDS with enhanced inverted indices.
b) Design Multimedia Database. [8+8]
6. Briefly specify multimedia documents with temporal constraints. [16]
7. Explain how to extend ER model pictograms with examples. [16]
8. Discuss briefly about Spatial Query language. [16]

Code No: K1221 /R07

R07

Set No.4

IV B.Tech II Semester Supplementary Examinations, July, 2011

MULTIMEDIA DATABASES

(Information Technology)

Time: 3 hours

Max. Marks: 80

**Answer any FIVE Questions
All Questions carry equal marks**

1. a) Explain briefly about object oriented databases. Give examples.
b) Elucidate on MX-Quad trees and Point Quad trees. [8+8]
2. a) Compare R-Tree and Point Quad tree data structures.
b) Compare K-d tree and R-Tree Data structures. [8+8]
3. What is TV - tree? Explain the organization of a TV - tree. [16]
4. a) Explain how content of a single video can be organized.
b) How to index audio data in audio databases. [8+8]
5. a) Describe about query languages for retrieving multimedia data.
b) Explain indexing SMDs with enhanced inverted indices. [8 + 8]
6. a) Explain about the principle of uniformity.
b) How to organize multimedia data based on the above principle. [8+8]
7. Explain spatial constraints in distributed multimedia presentations. [16]
8. What is virtual object? Explain with set of triples. [16]

Code No: K1222/R07

Set No. 1

IV B.Tech II Semester Supplementary Examinations, July 2011
NETWORK MANAGEMENT SYSTEMS
(Information Technology)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. What are the challenges in managing the network? Explain. [16]
2. What is an internet Document? Explain in detail about the evolution of SNMP document v1 & v2 with a neat sketch. [16]
3. (a) Explain about the administrative model of internet management?
(b) Describe about the SNMP access policy in detail. [8+8]
4. (a) Give an example for argumentation of tables by considering the ASN.1 constructs.
(b) Explain about the ASN.1 constructs for appending Dense table. [8+8]
5. (a) What are the differences between Ethernet and TokenRing LANs.
(b) Explain the ATM RMON MIB. [8+8]
6. (a) Summarize the scope of the TMN recommendations.
(b) Explain the trunk systems of TMN model.
(c) List the various TMN documents. [8+4+4]
7. Explain in detail the basic software tools that aid in obtaining network parameters or diagnosing network problem. [16]
8. (a) Give brief description about DMI infrastructure.
(b) Explain how an embedded agent is configured on Hewlett-Packard. [8+8]

Code No: K1222/R07

Set No. 2

IV B.Tech II Semester Supplementary Examinations, July 2011
NETWORK MANAGEMENT SYSTEMS
(Information Technology)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Gigabit Ethernet using CSMA/CD is specified to have a 100-meter drop cable. Show that this corresponds to a slot time of 512 bytes to detect collision. Assume a repeater delay of two microseconds. [16]
2. What is meant by MIB (Management Information Base). Give the genetic representation of range information. [16]
3. Explain the SNMP GetNextRequest operation for the MIB with suitable example. [16]
4. Describe the following in detail:
 - (a) The SNMP Bilingual Manager
 - (b) The SNMP Proxy server. [16]
5.
 - (a) Give brief description about protocol directory group and protocol distribution group of RMON2 MIB.
 - (b) Explain the application layer functions of RMON2 MIB.
 - (c) Discuss briefly about TokenRing statistics of RMON1. [8+4+4]
6.
 - (a) With the help of neat sketch explain the physical architecture of a TMN.
 - (b) Discuss the layers of TMN service architecture. [8+8]
7.
 - (a) Explain in detail about the network management system requirements.
 - (b) Give brief description about functional NMS configuration. [10+6]
8. Write short notes on the following:
 - (a) protocol adapters.
 - (b) CIM object manager.
 - (c) web client.
 - (d) Management information base for desktop management interface. [4×4]

Code No: K1222/R07

Set No. 3

IV B.Tech II Semester Supplementary Examinations, July 2011
NETWORK MANAGEMENT SYSTEMS
(Information Technology)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. You are given a class B IP address of 145.45.x.y for your network node. As a network engineer, you are asked to configure your network for 126 subnets (Remember that 0 and 1 are reserved).
 - (a) How would you configure your address for subnets and hosts?
 - (b) What is the maximum number of hosts that each subnet can accommodate? [8+8]
2. Describe about a managed LAN with the help of a real-world example? [16]
3. Explain the Get and Set type PDUs and PDU ASN.I. [16]
4. Explain the following:
 - (a) DISPLAY - HINT for Object format.
 - (b) Addition of space table to Base table. [16]
5. (a) List the various RMON2 MIB Groups, tables, OIP and their functions.
 (b) Explain the various basic MIB Compliance and application layer MIB compliance types of RMON2. [10+6]
6. (a) Give brief description about the Physical architecture of TMN.
 (b) Classify and explain about OSI system management functional area. [6+10]
7. Give brief description about the following:
 - (a) Functional components.
 - (b) SNMP Get command.
 - (c) ping command. [8+4+4]
8. (a) Explain the implementation of web server on NMS platform.
 (b) Briefly explain the embedded web based management. [8+8]

Code No: K1222/R07

Set No. 4

IV B.Tech II Semester Supplementary Examinations, July 2011
NETWORK MANAGEMENT SYSTEMS
(Information Technology)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) List the differences between bridge and a repeater.
(b) List the differences between router and protocol converter. [8+8]
2. Explain the SNMP data types and tags with suitable examples. [16]
3. An SNMP manager sends a request for the values of the sysUpTime in the System group and ifType in the interfaces group for ifNumber value of 3. write the PDUs with the fields in for
(a) the get-request PDU, and
(b) the get-response PDU with noSuchName error messages for ifType. [16]
4. Describe the conformance information and explain about the sub modules with the help of object groups and a neat sketch. [16]
5. (a) Explain the various functions associated with RMON1 MIB.
(b) Draw the diagram showing network configuration with RMONs. Explain. [8+8]
6. (a) Give the functions of system management functional areas.
(b) Explain in detail about TMN service architecture. [6+10]
7. (a) Draw the architecture of solstice enterprise manager and explain about it.
(b) Explain briefly about packet internet groper. [8+8]
8. (a) In detail explain the windows management instrumentation.
(b) Give brief description about CIMOM. [10+6]

Code No: K1223 /R07

R07

Set No.1

IV B.Tech II Semester Supplementary Examinations, July, 2011

BIOMETRICS

(Information Technology)

Time: 3 hours

Max. Marks: 80

**Answer any FIVE Questions
All Questions carry equal marks**

1. a) How does biometric matching work? Explain in detail.
b) Discuss in detail about the benefits of biometric security. [8+8]
2. a) Explain in detail about operating steps for finger scan.
b) Give strengths and weakness of finger scan technology. [8+8]
3. a) Explain about features and components of facial scan.
b) List and explain about strengths and weaknesses of facial scan technologies. [8+8]
4. a) Discuss competing iris scan technology in detail.
b) List out the strengths and weaknesses of iris scan technology. [8+8]
5. a) Explain in detail about different competing voice scan technologies.
b) Explain in detail about the strengths and weakness of voice scan technologies. [8+8]
6. a) What is hand scan? Describe the components and working of hand scan?
b) How is Retina scan different from Iris scan? Explain. [8+8]
7. a) Explain about BioAPI and BAPI biometric standards.
b) Give in detail about biometric solution matrix with an example. [8+8]
8. a) How can we trust and secure a biometric transaction? Explain.
b) Explain in detail about False rejection rate and Match on card. [8+8]

Code No: K1223 /R07

R07

Set No.2

IV B.Tech II Semester Supplementary Examinations, July, 2011

BIOMETRICS

(Information Technology)

Time: 3 hours

Max. Marks: 80

**Answer any FIVE Questions
All Questions carry equal marks**

1. a) What is false match rate? Explain its significance in biometrics.
b) How is verification and identification differed in biometrics? Explain. [8+8]
2. a) Describe about the features and components of finger scan technologies. [8+8]
b) Discuss in detail about types of algorithms used for interpretation for finger scan techniques.
3. a) Explain about operating steps in facial scan technologies.
b) Explain in detail different competing facial scan technologies. [8+8]
4. a) What is iris scanning? Discuss in detail.
b) Describe different features and components of iris scan. [8+8]
5. a) Describe in detail about the operating steps of voice scan technology.
b) Discuss voice scan features in detail also explain different components of voice scan. [8+8]
6. a) Discuss about behavioral biometrics in detail.
b) Explain about hand scan biometrics in detail. [8+8]
7. a) Explain in detail about designing privacy sympathetic biometric systems.
b) Give comparison of privacy factor in different biometric technologies. [8+8]
8. Write short notes on [4x4=16]
 - a) Failure to Enroll (FTE)
 - b) Choice of biometric network access
 - c) False Rejection Rate (FRR)
 - d) Match on Card (MOC)

Code No: K1223 /R07

R07

Set No.3

IV B.Tech II Semester Supplementary Examinations, July, 2011

BIOMETRICS

(Information Technology)

Time: 3 hours

Max. Marks: 80

**Answer any FIVE Questions
All Questions carry equal marks**

1. a) Compare the traditional authentication methods with the biometric authentication methods.
b) What is False Non Match Rate? Explain its significance in biometrics. [8+8]
2. a) What are the different components of finger scan technology? How does the finger scan technology work? Explain.
b) Discuss different competing finger scan technologies. [8+8]
3. a) Describe in detail about the operation of facial scan technology.
b) List out the strengths of facial scan technology. [8+8]
4. a) How does iris scan work? Explain.
b) Discuss competing iris scan technologies in detail. [8+8]
5. a) What are the components of voice scan technology? Explain the working of each of the components in detail.
b) Discuss strengths and weakness of voice scan in detail. [8+8]
6. a) Compare and contrast hand scan and retina scan technologies.
b) Explain signature scan and keystroke scan in detail. [8+8]
7. Write short notes on [4x4=16]
 - a) BAPI
 - b) Bio Privacy
 - c) CDSA/HRS
 - d) Information security for financial services.
8. a) Discuss in detail about biometric transactions.
b) Give detailed notes on biometrics for network security. [8+8]

Code No: K1223 /R07

R07

Set No.4

IV B.Tech II Semester Supplementary Examinations, July, 2011

BIOMETRICS

(Information Technology)

Time: 3 hours

Max. Marks: 80

**Answer any FIVE Questions
All Questions carry equal marks**

1. a) What is the importance of derived metrics in biometrics?
b) What is failure to enroll rate? Explain its importance in biometrics. [8+8]
2. Briefly explain about different algorithms used for interpretation in finger scan Technologies and also focus on the strengths and weakness of finger scan technologies. [16]
3. a) Explain the functioning of facial scan technology.
b) Describe about other competing facial scan technologies that are available. [8+8]
4. a) Describe about iris scan technology in detail and also explain where this technology is applicable.
b) What are the components of iris scan? Explain in detail. [8+8]
5. a) What is voice scan? Explain how it works in detail with a neat sketch.
b) Explain in detail about the application, strengths and weakness of voice scan technologies. [8+8]
6. What is Automated Finger Print Identification System (AFIS)? How does it differs from hand scan? Explain. [16]
7. a) What are biometric standards? Explain their application programming interfaces.
b) Give a detailed note on biometric middleware. [8+8]
8. a) Explain about various statistical measures that are used in biometrics.
b) Explain how biometrics is useful for network security. [8+8]

Code No: K1924

R07

Set No. 1

IV B.Tech. II Semester Supplementary Examinations, July, 2011
ELECTRONIC MEASUREMENTS AND INSTRUMENTATION
(Electronics and Computer Engineering)

Time: 3 Hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. a) Give the classification of errors and precautions to minimize them.
b) Explain the significance of the number of significant figures in a stated quantity.
2. With a neat circuit diagram and wave forms explain the working of a standard sweep generator.
3. a) Explain about Harmonic distortion Analyze
b) State the applications of a spectrum analyzer.
4. a) Why is a delay line used in the vertical section of an oscilloscope?
b) Draw the block diagram of an oscilloscope and explain the function of each block.
5. a) With a block diagram explain the operation of a sampling oscilloscope.
b) Explain the working of a current probe for a CRO?
6. a) Explain various sources of errors in bridge circuit measurements.
b) Draw the circuit diagram of Maxwell bridge and derive the equations for unknown variables.
7. a) What is the difference between active and passive transducers?
b) Define gauge factor of a strain gauge and derive the expression for it.
8. a) What are the different pressure sensing elements
b) What are the various configurations used in a DAS?

Code No: K1924

R07

Set No. 2

IV B.Tech. II Semester Supplementary Examinations, July, 2011
ELECTRONIC MEASUREMENTS AND INSTRUMENTATION
(Electronics and Computer Engineering)

Time: 3 Hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. a) Explain the basic principle of a series type of ohmmeter.
b) Explain the following
i) Resolution ii) Fidelity iii) lag iv) sensitivity.
2. Draw the block diagram of a function generator and explain each block in detail.
3. a) Sketch the block diagram of a swept TRF spectrum analyzer and explain its operation.
b) Explain the following terms associated with Spectrum Analyzer:
i) Sensitivity ii) Dynamic Range iii) Harmonic Mixing.
4. a) Explain blanking and unblanking in an oscilloscope and discuss the need for blanking.
b) With a block diagram explain the operation of a dual beam oscilloscope.
5. a) Describe the procedure for oscilloscope measurement of phase, frequency using Lissajous figures.
b) Explain how the time period is measured using a frequency counter.
6. a) Explain various null detectors used in dc bridges
b) Draw the circuit diagram of Hay's bridge and derive the equations for unknown variables

Code No: K1924

R07

Set No. 2

7. a) Explain the working principle of a thermistor
b) With a neat diagram explain the operation of an LVDT.

8. a) What are the main elements of velocity transducer?
b) Illustrate the principle of force summing devices using suitable examples and sketches.

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Code No: K1924

R07

Set No. 3

IV B.Tech. II Semester Supplementary Examinations, July, 2011
ELECTRONIC MEASUREMENTS AND INSTRUMENTATION
(Electronics and Computer Engineering)

Time: 3 Hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. a) Sketch a circuit diagram to show how a PMMC instrument can be used as a dc voltmeter. Explain the circuit operation.
b) What is a true RMS meter? Explain its Construction and operation.
2. With a block diagram explain the operation of a random noise generator.
3. a) What is the difference between a wave analyzer and a spectrum analyzer
b) Sketch the block diagram of a swept super heterodyne spectrum analyzer and explain its operation.
4. a) Sketch the basic circuit and output waveforms of an oscilloscope sweep generator and explain the circuit operation.
b) Write short notes on the synchronization of the sweep
5. a) With a block diagram explain the operation of a digital storage oscilloscope.
b) Explain how the frequency is measured using a frequency counter.
6. a) Why is Wagner's additional ground connection made?
b) Draw the circuit diagram of Wien's bridge and derive the equation for frequency.
7. a) Where are piezoelectric transducers mainly used and Explain their operation .
b) What is a load cell? Explain its operation.
8. a) Draw the experimental set up measuring force using piezoelectric crystal
b) Draw the block diagram of a standard DAS and explain function of each block.

Code No: K1924

R07

Set No. 4

IV B.Tech. II Semester Supplementary Examinations, July, 2011
ELECTRONIC MEASUREMENTS AND INSTRUMENTATION
(Electronics and Computer Engineering)

Time: 3 Hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. a) Differentiate between i) accuracy and precision ii) Threshold and dead band
b) Sketch the circuit diagram for a multi range voltmeter using i) individual multiplier resistors ii) series connected multiplier resistors. Explain the circuit operation in each case.
2. Draw the block diagram of a function generator and explain each block in detail.
3. a) Compare the selectivity characteristics of the Spectrum Analyzer and Wave Analyzer.
b) Explain the operation of a digital Fourier analyzers.
4. a) Discuss the screen of a CRT and the factors affecting the brightness of the display.
b) Explain the operation of a dual trace oscilloscope.
5. a) With a block diagram and wave forms explain the operation of a sampling oscilloscope
b) Explain how the time period is measured using a frequency counter.
6. a) Explain how a Kelvin's double bridge can accurately measure low resistances. Also derive the condition for balance.
b) Why is Wagner's additional ground connection made?
7. a) Explain the working principle of a thermocouple
b) Explain the construction and working of strain gauge.
8. a) Explain how humidity is measured?
b) What are the important factors that decide the configuration and sub system of a DAS?