Code No: 117BN

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
CLOUD COMPUTING
(Computer Science and Engineering)

Time: 3 Hours   Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART- A
(25 Marks)

1.a)	Differentiate between parallel and distributed computing Paradigms.	[2]
b)	Define Vitual Machines and with neat diagrams explain VM Primitive operations.	[3]
c)	Define PaaS and give any application/enterprise run by using PaaS.	[2]
d)	Write a short note on desired features of a Cloud.	[3]
e)	Explain briefly Public Cloud and Infrastructure Services.	[2]
f)	Explain Virtual Machine life cycle with a neat diagram.	[3]
g)	What are the benefits and obstacles for Cloud Mashups?	[2]
h)	Explain the applications of cloud.	[3]
i)	Write a short note on SLA Management.	[2]
j)	Write a short note on the current state of the Data Security in the Cloud.	[3]

PART-B
(50 Marks)

2.a) Write a short note on Performance Metrics and Scalability Analysis of Distributed systems.
  b) Explain the role of Fault Tolerance and System Availability in Distributed Computing System. [5+5]

OR

3.a) Explain the basic Cluster Architecture with a neat diagram.
  b) Write a short note on Fault-Tolerant Cluster Configurations. [5+5]

4.a) Explain the challenges faced by SaaS paradigm in Cloud Computing.
  b) Explain the three Integration Methodologies used for cloud integration. [5+5]

OR

5.a) Explain the four Enterprise Cloud Adaption Strategies using fundamental cloud drivers.
  b) Write a short note on Porter's five forces market model. [5+5]

6.a) Explain various Migration techniques used in Virtual Machine Migration
  b) Explain Aneka framework architecture with a neat diagram. [5+5]

OR

7.a) Explain Comet-Cloud Architecture with a neat diagram.
  b) Write a short note on importance of Quality and Security in Cloud. [5+5]

8.a) Write a short note on basic principles of cloud computing.
   b) Explain briefly the Layers Enhancements for Federation (RESERVOIR Architecture). [5+5]

OR

9.a) Write a short note on Traditional Approach to SLA Management.
   b) Write a short note on the need for Cloud Mashups and various concepts of Cloud Mashups. [5+5]

10.a) Explain briefly the framework to comprehend the competitive environment in Cloud Computing.
    b) Write a short note on Change Management Maturity Model (CMMM). [5+5]

OR

11.a) Explain in detail the idea of "Cloud Computing and Identity" in Cloud Security.
    b) Explain how Cloud Computing is different from Outsourcing and Provision of Application Services. [5+5]

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Code No: 117EG

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech IV Year I Semester Examinations, November/December - 2016
MANAGEMENT SCIENCE
(Common to ECE, MMT)

Time: 3 Hours   Max.Marks:75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each
question carries 10 marks and may have a, b, c as sub questions.

PART- A
(25 Marks)

1.a) Why are the management principles important for the success of any business organization? [2]

b) State any one principle of Taylor's Scientific Management theory and give suitable example. [3]

c) Give one example each for the adoption of job, batch and mass production methods. [2]

d) Describe the necessity of acceptance sampling. [3]

e) Name the various levels in a Capability Maturity Model (CMM). [2]

f) What are the important steps in manpower planning of a business organization? [3]

g) Define Float, Free Float and Total Float for a project activity. [2]

h) What are the requirements for selecting which activity to crash in any project? [3]

i) What is Bench Marking and how does an organization derive benefit from such initiatives? [2]

j) Why is environmental scanning important in strategy development? [3]

PART-B
(50 Marks)

2.a) Compare and contrast, with suitable examples, departmentation and decentralization in a business organization.

b) According to Hertzberg, what are the two types of factors that influence motivation in any organization? [5+5]

OR

3.a) Explain, with suitable diagram and examples, Abraham Maslow's Hierarchy of Needs in a business organization.

b) Compare and contrast mechanistic and organic structures of an organization. [5+5]

4.a) What are the various types of plant layouts? Explain with suitable examples and diagrams.

b) It was found out after an exercise involving customers and employees that a critical dimension of the service quality of a call center is the wait time of a caller to get to a sales representative. Periodically, random samples of three customer calls are measured for time. The results of the last four samples are in the following table:

Sample	Time (Sec)		
1	495	501	498
2	512	508	504
3	505	497	501
4	496	503	492

Assuming that management is willing to use three sigma control limits, and using only the historical information contained in the four samples and the value of the constants given in the table below, check whether the call center access time is in statistical control or not. (Use x-bar & R chart) [3+7]

Sample Size = m	X-bar Chart Constants A_2	for sigma estimate A_3	d_2	R Chart Constants D_3	D_4	S Chart Constants B_3	B_4
2	1.880	2.659	1.128	0	3.267	0	3.267
3	1.023	1.954	1.693	0	2.574	0	2.568
4	0.729	1.628	2.059	0	2.282	0	2.266
5	0.577	1.427	2.326	0	2.114	0	2.089
6	0.483	1.287	2.534	0	2.004	0.030	1.970
7	0.419	1.182	2.704	0.076	1.924	0.118	1.882

OR

5.a) What are the assumptions in a basic EOQ model of inventory management.

b) A company makes bicycles. It produces 450 bicycles a month and works 12 months a year. It buys the tires for bicycles from a supplier at a cost of $20 per tire. The company's inventory carrying cost is estimated to be 15% of cost and the ordering is $50 per order (irrespective of the order size). Calculate the EOQ, number of orders in a year, total annual ordering cost, inventory carrying cost and total cost of this inventory policy. [3+7]

6.a) What are the essential differences between human resource management (HRM) and personnel management & industrial relations (PM & IR).

b) Why manpower planning is important for any organization? What are the factor the influence man power planning? [3+7]

OR

7.a) What do you understand by a performance appraisal system? What are the objectives of a good performance appraisal system?

b) What do you understand be employee grievances in an organization? What are the benefits of an effective grievance handling system? [4+6]

8.a) Compare and contrast between CPM and PERT, in the context of project management.

b) Draw the suitable network diagram and identify the critical path. What is the duration of the project that will have 50% chance of completion? [4+6]

Activity	Immediate Predecessor	Optimistic (a) time	Most Likely (m) time	Pessimistic(b) time
A	—	1 week	2 weeks	3 weeks
B	—	2	3	4
C	A	1	2	3
D	B	2	4	6
E	C	1	4	7
F	C	1	2	9
G	D,E	3	4	11
H	F,G	1	2	3

OR

9.a) What are the rules to be satisfied for the identification of critical path?

b) You are given the following data about the project tasks, network, and crash times/costs. Calculate the cost of the project at all time durations until you can no longer crash the project anyfurther. Incentives of $500 perday beyond initial duration will be available. [4+6]

	Direct costs			
	Normal		Crash	
ID	Time	Cost	Time	Cost
A	5	$500	4	$600
B	10	$1200	6	$2000
C	13	$3600	11	$4800
D	13	$300	11	$600
E	5	$1000	4	$1400
F	10	$2400	8	$5400
G	5	$700	5	$700
	$9700			
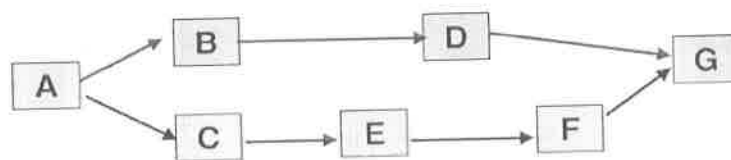
10.a) Perform a SWOT analysis for Indian Railways. Explain your logic briefly.

b) What are the various generic strategy alternatives available to any business organization? Explain with suitable examples. [5+5]

OR

11.a) What is Corporate Strategy Planning Process? Why is this important for long term success of any business organization?

b) What are the various steps in any successful benchmarking process? Explain giving relevant examples. [5+5]

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R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
REMOTE SENSING AND GIS
(Civil Engineering)

Time: 3 Hours

Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

1.a)	What is Image parallax?	[2]
b)	Differentiate vertical and tilted photographs.	[3]
c)	What is false color composite?	[2]
d)	What are the advantages and limitations of Remote Sensing?	[3]
e)	What is Geospatial data?	[2]
f)	What are the different operations performed in GIS?	[3]
g)	What is coverage and nodes?	[2]
h)	What are the advantages of vector data over raster data?	[3]
i)	What is Scanning?	[2]
j)	Explain about IMGRID model.	[3]

PART-B

(50 Marks)

2.a)	How will you calculate scale of a vertical photograph?	
b)	Discuss stereoscopic neat model.	[5+5]

OR

3.a)	Explain the basic geometric characteristics of a Aerial Photographs.	
b)	Explain how will you measure height of an object using aerial photograph.	[5+5]

4.a)	Illustrate the principal divisions of EM energy along with their wavelength ranges.	
b)	Explain different types of resolutions involved in Remote Sensing? Give examples.	[5+5]

OR

5.a)	What are the different methods of data collection in Remote Sensing? Explain.	
b)	Describe interaction of radiation with the earth surface features.	[5+5]

6.a)	What are the sub systems of GIS? Discuss the advantage of analysis sub system.	
b)	Explain the process of joining spatial data with attribute data in GIS.	[5+5]

OR

7.a)	What are the commonly used map projections in GIS? Explain the advantages.	
b)	Describe the UTM Grid system.	[5+5]

8.a) What is topology? Describe with sketches, types of topology established based on entities.

   b) Discuss Spaghetti vector data model. [5+5]

OR

9.a) Explain GBF/DIME vector model.

   b) Explain brief about TIGER vector model.

   c) Discuss POLYVRT vector model. [4+2+4]

10.a) Explain how will you store physical features in raster format with examples.

    b) Explain run length encoding and raster chain method of data compression. [5+5]

OR

11.a) What are the different methods of data input in GIS?

     b) Discuss the various types of errors occur during digitization with sketches. [5+5]

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
AUTOMOTIVE ELECTRICAL AND AUTOTRONICS
(Automobile Engineering)

Time: 3 hours

Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each
question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

1.a)	What are the new developments in electrical storage?	[2]
b)	What is the Function of charging system in an automobile?	[3]
c)	What are the functions of a starter motor?	[2]
d)	What are the requirements of an ignition system for an SI Engine?	[3]
e)	What is meant by heat range of spark plug?	[2]
f)	What is meant by heat range of the voltage regulator?	[3]
g)	"Battery is the heart of electrical system in an automobile" Explain.	[2]
h)	What are the characteristics of force and velocity on power propulsion?	[3]
i)	Explain hybrid control strategy.	[2]
j)	List out different types of clutches.	[3]

PART-B

(50 Marks)

2. What are the different types of batteries? Briefly explain the construction and working of a lead-acid battery. [10]

OR

3.a) What are the differences between alternator and D.C generator for automotive use?
b) Discuss the merits and demerits of generation of direct current. [5+5]

4.a) What are the main components in conventional ignition system and explain each of it?
b) What is the purpose of an ignition system in a petrol engine? [5+5]

OR

5. Explain briefly construction and working of series and shunt automotive starter motor. [10]

6.a) What are the advantages and disadvantages of 6 volt and 12 volt electrical system?
b) Write differences between low and high voltage automotive cables. [5+5]

OR

7.a) Explain automatic wiring system with neat wiring diagram.
b) Write short note on head lamp construction. [5+5]

8.a) Write various differences between electric vehicles and hybrid vehicles.   [5+5]
  b) Write about HEV powertrain sizing.

OR

9.   Explain Hybrid vehicle based on:
     a) Architecture
     b) Transmission assembly.   [5+5]

10. Write short note on:
     a) DC drives
     b) AC drives
     c) SRM drives.   [10]

OR

11.a) Explain the Anti-lock braking system and the effect of weight transfer during braking.
  b) What are power brakes? Explain the working of servo and electric brakes.   [5+5]

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Code No: 217AB

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Pharmacy IV Year I Semester Examinations, November/December-2016
BIOPHARMACEUTICS AND PHARMACOKINETICS

Time: 3hours   Max.Marks:75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

Note: Use Graph Sheet wherever necessary.

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PART-A   **(25 Marks)**

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1.a) Define onset of time and intensity of action in a plasma concentration time curve. [2]
   b) Give the physicochemical properties of a drug that effects drug absorption from GIT.
                                                                      [3]
   c) Define disposition and distribution of drugs.   [2]
   d) Write a note on Blood –brain Barrier (BBB).   [3]
   e) Define clearance and elimination half-life and give their relationship. [2]
   f) Add a note on methylation of drugs.   [3]
   g) Mention the different levels in IVIVC.   [2]
   h) Give the objectives of bioavailability study.   [3]
   i) Mention the formula used for calculation of renal clearance from urinary excretion data.
                                                                      [2]
   j) Plot the graphs of a drug administered by IV bolus and following one compartment open model. Give the equation for the same.   [3]

<div align="center">

PART-B   **(50 Marks)**

</div>

2.a) What is rate limiting step and discuss its importance in absorption of drug from tablets through GIT.
   b) Enumerate different mechanism of drug absorption with examples for each process.
                                                                      [6+4]

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OR

</div>

3.   Discuss in detail on the role of gastric emptying on GI absorption of drugs.   [10]

4.a) Discuss the effect of drug physicochemical properties on the diffusion of drugs.
   b) Calculate the percent unbound drug present outside plasma for two drugs with volume of distribution 40 and 125 liters respectively.   [6+4]

<div align="center">

OR

</div>

5.   Write a note on:
     a) Clinical significance of protein binding
     b) Kinetics of protein binding.   [5+5]

6.   Explain in detail phase I reactions with examples.   [10]

<div align="center">

OR

</div>

7.   Discuss the effect of partition coefficient and pH on the tubular secretion and reabsorption process.   [10]

8. Discuss about the study design in a bioavailability study protocol. [10]

OR

9. Write a note on selection of subjects in a bioavailability study. [10]

10. a) What are the qualities of a mathematical model.
    b) Compare the sigma minus method and rate excretion method. [5+5]

OR

11. Plasma concentration of a drug after intramuscular injection is given below. Calculate the absorption rate constant, absorption half-life, Vd, tmax and Cmax from the data provided: [10]

Time·H	0.5	0.75	1	2	3	4	6	8	12
Con. Mg/ml	0.7	1.5	1.8	3.0	5.3	4.1	3.0	1.2	0.4

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
GROUND WATER DEVELOPMENT AND MANAGEMENT
(Common to CE, CEE)

Time: 3 Hours

Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks
- - -

1.a) Distinguish between zone of aeration and zone of saturation with a neat sketch.
  b) Discuss critically vertical distribution of Ground Water. [8+7]

2.a) Explain the ground water flow equation in radial and polar coordinate system. What is the significance of it?
  b) Derive 3-D differential equation governing ground water flow. [7+8]

3.a) With neat sketches, explain the steady flow of ground water towards a well in both confined and unconfined aquifers.
  b) Explain Dupuit's and Theim's equations along with assumptions. [8+7]

4. Describe Jocob and Chow's simplifications. Also explain non-equilibrium equations. [15]

5. What is the significance of Geophysical methods? Describe common electrode arrangements for resistivity determination with both a) Wenner and b) Schlumberger arrangement. Also, interpret the two layer electrical resistivity measurement from Schlumberger electrode spacing with neat sketches. [15]

6. Discuss the necessity, concept and different methods of artificial recharge of surplus rain water. [15]

7. What is the difference between open and bore wells? Bring out clearly, the differences in construction between them. [15]

8. Describe the occurrence of saline water intrusion. How do you locate fresh water – sea water interface? Explain with neat sketches. [15]

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Code No: 57022

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
OPERATIONS RESEARCH
(Common to ME, MCT, AME)

Time: 3 Hours

Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks
- - -

1.a) The standard weight of a special purpose brick is 5 kg and it contains two basic ingredients X and Y. X costs Rs. 5 per kg and Y costs Rs. 8 per kg. Strength considerations dictate that the brick contains not more than 4 kg of X and a minimum of 2 kg of Y. Since the demand of the product is likely to be related to the price of the brick, find graphically the minimum cost of the brick satisfying the above conditions.

b) Solve the following LPP

Maximize $Z = 4X_1 + 3X_2 + 4X_3 + 6X_4$

Subject to constraints $X_1 + 2X_2 + 2X_3 + 4X_4 \leq 80$,

$\qquad\qquad\qquad\qquad 2X_1 + 2X_3 + X_4 \leq 60$,

$\qquad\qquad\qquad\qquad 3X_1 + 3x_2 + X_3 + X_4 \leq 80$

For every $\qquad\qquad X_1, X_2 X_3$ and $x_4 \geq 0$ [7+8]

2.a) Find the Total cost using North-west corner method. Also find the optimal assignment.

	W1	W2	W3	W4	capacity
F1	95	105	80	15	12
F2	115	180	40	30	7
F3	195	180	95	70	5
Requirement	5	4	4	11	

b) Solve the following travelling salesman problem and find the shortest possible path. [7+8]

	A	B	C	D	E
A	∞	3	6	2	3
B	3	∞	5	2	3
C	6	5	∞	6	4
D	2	2	6	∞	6
E	3	2	4	6	∞

3.a) Write Johnson algorithm to solve n jobs through 3 machines.

b) The maintenance cost and resale value per year of a machine whose purchase price is Rs. 7000 is given below.

Year	1	2	3	4	5	6	7	8
Maintenance cost in Rs.	900	1200	1600	2100	2800	3700	4700	5900
Resale value in Rs.	4000	2000	1200	600	500	400	400	400

When should the machine be replaced? [7+8]

4.a) Explain the following terms
    i) Rectangular games   ii) Saddle point   iii) Payoff matrix.
  b) Obtain the optimal strategies for both persons and the value of the game for zero-sum two-person game whose payoff matrix is given below:

3	2	4	0
2	4	4	2
4	2	4	0
0	4	0	8

[7+8]

5.   A self-servicing store employs one cashier at its counter. Nine customers arrive at an average 5 minutes while the cashier can service 10 customers in 5 minutes. Assuming the Poisson distribution for arrival rate find
    a) The average number of customers in the system,
    b) The average number of customers in the queue.
    c) The average time a customer spends in the system.
    d) The average time a customer waits before being serviced.   [15]

6.a) A stockiest has to supply 400 units of a product every Monday to his customers. He gets the product at Rs.50 per unit from the manufacturer. The cost of ordering and transportation from the manufacturer is Rs.75 per order. The cost of carrying inventory is 7.5% per year of the cost of the product. Find i) the economic lot size ii) the total optimal cost.
  b) What are the advantages and disadvantages of under stocking and overstocking?   [8+7]

7.   Write short notes on:
    a) Golden section method
    b) Fibonacci search method.   [7+8]

8.a) When do you use Simulation technique? Give some examples for simulation where simulation is the only alternative technique to model?
  b) Describe various methods of generating random numbers.   [7+8]

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
MANAGEMENT SCIENCE
(Common to ECE, ETM, MMT)

Time: 3 Hours   Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks
- - -

1.a)   Explain Henry Fayol's principles of Management.
  b)   What are the Social responsibilities of Management?   [8+7]

2.a)   What is meant by Departmentation?
  b)   Discuss the features, merits and demerits of Committee organization structure.   [8+7]

3.   The following data represents the number of defects found on each sewing machine cabinet inspected. Plot a Control chart with control limits. Comment on the chart.   [15]

Sample Number	1	2	3	4	5	6	7	8	9	10
Number of defects	8	10	7	9	6	7	8	9	4	5

4.a)   Define EOQ. Explain the variables that go into the determination of EOQ.
  b)   List out the functions of Marketing.   [8+7]

5.a)   Differentiate between 'Promotion' and 'Transfer'.
  b)   Explain in detail any four methods of Job evaluation.   [8+7]

6.a)   Draw a Network diagram with the following data:
        Operation (Event)   A succeeds none
                     B succeeds A
                     B precedes C
                     D succeeds B
                     C precedes E
                     E succeeds D
  b)   What do you understand by Project crashing?   [8+7]

7.   Analyze the steps involved in the Corporate planning process.   [15]

8.   Explain the following terms briefly:
    a) Total Quality Management
    b) Six Sigma
    c) Benchmarking.   [15]

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Code No: R9602

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Pharmacy IV Year I Semester Examinations, November/December-2016
BIOPHARMACEUTICS AND PHARMACOKINETICS

Time: 3hours   Max.Marks:75

Answer any five questions
All questions carry equal marks
- - -

Note: Use Graph Sheet wherever necessary.

1. Plot concentration time profile following oral administration of drug and define the different pharmacokinetic parameters in the graph.   [15]

2.a) Define absorption. Enumerate different mechanism of absorption and explain any one with suitable examples.
   b) Discuss the importance of dissolution on absorption of drugs from GIT.   [10+5]

3.a) What is apparent volume of distribution and give its importance in pharmacokinetics.
   b) Volume of distribution of a drug is 8000 L.
      i) Determine the amount of drug in the body when concentration of drug in plasma is 500 mg/L.
      ii) Determine plasma concentration when 1g of drug is in the body.   [5+10]

4. Write a note on with appropriate examples
   a) Drug metabolizing enzymes   b) Glucurodination   c) Hydrolytic reactions.
                                                                         [5+5+5]

5.a) Give Henderson- Hasselbach equation and give its importance in renal elimination process.
   b) Define clearance and discuss about bilary clearance in detail.   [10+5]

6. Discuss in detail about the bioavailability measurement methodologies.   [15]

7.a) Differentiate between nonlinear kinetics and linear kinetics.
   b) Write a short note on: i) regression analysis   ii) Analysis of varience.   [5+10]

8. The concentration of a drug after I.V bolus administration was found to be 20 and 10 µg/ml at 4 and 6h respectively. Assuming one compartment open model calculate the following.
   a) Concentration at zero time point (C0)
   b) Half-life
   c) Elimination rate constant.
   d) Volume of distribution
   e) Total systemic clearance.   [15]

--ooOoo--

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
DESIGN PATTERNS
(Common to CSE, IT)

Time: 3 Hours   Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each
question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

1.a) What is Gang of Four *GOF*? [2]
   b) How to select a design pattern? [3]
   c) How many objects is the Singleton responsible for creating? [2]
   d) What are the consequences of the Abstract Factory pattern? [3]
   e) What is the basic problem being solved by the Bridge pattern? [2]
   f) What are the two variations of the Adapter pattern? [3]
   g) What is the intent of mediator pattern? [2]
   h) What are the consequences of Chain of Responsibility pattern? [3]
   i) What is Template method pattern? [2]
   j) What is the purpose of Visitor pattern? [3]

PART-B

(50 Marks)

2.a) What are the different ways in which patterns and frameworks share similarities and in which they differ? Discuss.
   b) Describe the consistent format for describing the design patterns. [5+5]
OR
3.a) Give the step-by-step approach to apply a design pattern effectively.
   b) What is the basis for classifying design patterns? Categorize and tabulate the design patterns. [5+5]

4.a) Discuss about Lexi's user interface and its design problems.
   b) The Singleton uses a special method to instantiate objects. What is special about this method? [5+5]
OR
5.a) What are the implementation issues of prototype design pattern? Discuss.
   b) Can we use an abstract factory for supporting multiple window system in Lexi's design? Explain. [5+5]

6.a) Discuss in detail about the participants and consequences of Composite pattern.
   b) What is the intent and motivation of Façade pattern? Explain. [5+5]
OR

7.a) When can be a Flyweight pattern effectively be applicable? Explain.
  b) What are the different language features that are exploited by proxy pattern? [5+5]

8.a) Write about the implementation issues of memento pattern.
  b) Explain the motivation and applicability of observer pattern. [5+5]

OR

9. What is Command Pattern? Describe in detail about structure, participants and collaborations of Command pattern. [10]

10.a) Discuss the implementation issues of Strategy behavioral pattern.
  b) Explain what to expect from design patterns. [5+5]

OR

11.a) Discuss about the structure and participants of state design pattern.
  b) Write about Pattern community in brief. [5+5]

---ooOoo---

Code No: 117BY

R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
COMPUTER NETWORKS
(Common to ECE, BME)

Time: 3 Hours   Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit.
Each question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

1.a)   Write short notes on interfaces.   [2]
  b)   Explain the characteristics of twisted pair cable.   [3]
  c)   What is the difference between router and gateway?   [2]
  d)   What is meant by collision free protocols?   [3]
  e)   Mention the design issues of network layer.   [2]
  f)   Difference between connectionless and connection oriented networks.   [3]
  g)   Explain about CIDR.   [2]
  h)   Explain the functions of Transport layer.   [3]
  i)   Explain about TELNET.   [2]
  j)   Write the application layer paradigms.   [3]

PART-B

(50 Marks)

2.a)   Explain the functions of various layers in ISO-OSI reference model.
  b)   Explain the term sliding window. Also illustrate and explain the operation of selective repeat.   [5+5]

OR

3.a)   Discuss about unguided transmission media.
  b)   What are the different types of error detection methods? Explain the CRC error detection technique using generator polynomial x^4+x^3+1 and data 11100011.   [5+5]

4.a)   Explain the operation of source Routing Bridges.
  b)   Explain the working of CSMA/CD.   [5+5]

OR

5.a)   Discuss in brief the MAC frame structure for IEEE 802.3
  b)   Explain in detail the operation of pure ALOHA and slotted ALOHA.   [5+5]

6.a)   Explain the Dijkstra's Shortest Path Routing Algorithm with an example.
  b)   Give the general principles of various congestion control algorithm.   [5+5]

OR

7.   What is Congestion control? How it is implemented in Network Layer? What is the role of Choke packet in managing congestion?   [10]

8.a)   Explain the error control mechanism in transport layer.
  b)   Explain about Reverse Address Resolution Protocol.   [5+5]

OR

9.a)   How are connection establishment and connection release managed at the transport layer? Explain.
  b)   With a neat diagram explain the IPv6 header format.   [5+5]

10.a) Compare and Contrast the UDP header and the TCP header.
  b)   Explain the client server model.   [5+5]

OR

11.a) What is Electronic mail? Explain the two scenarios of architecture of E-Mail.
  b)   Explain the TCP service model.   [5+5]

---ooOoo---

R09

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
GIS AND REMOTE SENSING
(Civil Engineering)

Time: 3 Hours
Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks

- - -

1.a) Discuss the classification of Aerial Photographs.
  b) Explain how parallax measurements are done for height determination. [7+8]

2.a) Differentiate between active remote sensing and passive remote sensing.
  b) What are the basic radiation laws? Explain the significance of these laws. [7+8]

3.a) Explain with examples the different types of resolutions involved in remote sensing.
  b) Draw and explain the spectral reflectance curves for vegetation, soil and water. [7+8]

4.a) Define GIS? What are the applications of GIS?
  b) Explain the various components of GIS. [7+8]

5.a) Differentiate between manual digitization and automated digitization.
  b) Differentiate between layer based GIS and feature based GIS. [7+8]

6.a) Describe how you will represent physical features in a vector GIS.
  b) Explain the procedure of inputting attribute data into GIS? What type of errors might occur during input? [7+8]

7. Discuss the following RS and GIS applications
   a) Surface Water Mapping and inventory
   b) Flood Impact assessment. [7+8]

8. Discuss the following RS and GIS applications
   a) Ground water prospects mapping
   b) Inland water quality assessment. [7+8]

---ooOoo---

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
METROLOGY AND SURFACE ENGINEERING
(Automobile Engineering)

Time: 3 Hours   Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks
- - -

1.a) Differentiate between allowance and tolerance, interchangeability and selective assembly.
  b) Find the limit dimension for a clearance fit on the shaft basis system for a basic size of 42 mm diameter, with a min. Clearance of 0.15mm, tolerance on the hole 0.021mm and tolerance on the shaft 0.15mm. Also find the dimensions on the hole basis system. [7+8]

2.a) Explain how the measurements are made with the optical bevel protractor.
  b) Design general type GO and NO-GO gauges for components having 100 H9/d10 fit. The basic size falls in the diameter range of 80-120 mm. the fundamental deviation for 'd' shaft= (-16D0.41) microns. The multipliers for 9 and 10 grades are 40 and 63. Take wear allowance as 10% of gauge tolerance. Sketch the gauges with values.   [7+8]

3.a) Explain why monochromatic light is used for interferometry work and not the white light.
  b) With the help of neat sketch explain the principle of tool maker's microscope.   [8+7]

4.a) What is profilometer? Sketch a profilometer and explain the measurement of surface finish.
  b) What is the principle of working of an electronic comparator? Explain.   [8+7]

5.a) Explain gear metrology of spur gear with teference to tooth thickness by constant chord method?
  b) What is the best size wire for effective diameter measurment? Derive the relationship for the best size wire in terms of its effective diameter.   [8+7]

6.a) What is meant by alignment tests on machine tools? Why they are necessary? Explain.
  b) What is the effect upon the work if tail stock center line is parallel to but slightly above the head stock spindle axis?   [7+8]

7.a) What is diffusion coating? Explain various types of diffusion coating.
  b) Explain the various principles of corrosion and its remedial measures in detail.   [7+8]

8.a) Distinguish between Electro plating and Electro less plating in detail.
  b) Explain the overlay coating process for turbine blades with examples.   [7+8]

---ooOoo---

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
TRANSPORTATION ENGINEERING - II
(Civil Engineering)

Time: 3 Hours

Max. Marks: 75

Note: This question paper contains two parts A and B.

    Part A is compulsory which carries 25 marks. Answer all questions in Part A.
    Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

1.a) What is sleeper density? [2]
  b) Define "Gauge". What are the popularly used gauges in Indian railways? [3]
  c) What is Negative Super elevation? [2]
  d) What is Degree of a curve? What is the relation between Degree of Curve and Radius of Curve? [3]
  e) What is Hangar? [2]
  f) Give classification of Airports as per ICAO. [3]
  g) What is the difference between a Harbour and a Port? [2]
  h) Differentiate between wharves and jetties. [3]
  i) Define ITS. [2]
  j) Give a brief description of benefits of ITS. [3]

PART-B

(50 Marks)

2. Giving a neat diagram of a Permanent way on an embankment, indicate various components. Briefly describe the functions of each component. [10]

OR

3. What are the functions of sleepers in a railway track? What are the requirements of good sleepers? [10]

4. If a 6^0 curve diverges from a main curve of 3^0 in opposite direction in a BG track, compute the super elevation and the permissible speed on branch line, if the maximum speed permitted on main line is 50 kmph. Cant deficiency permitted is 7.6 cm. [10]

OR

5. What are the different gradients used in railway alignment? How do you compute grade compensation? [10]

6. Discuss about the various geometric design elements of a runway and the related design standards. [10]

OR

7. The length of runway at sea level under standard conditions at zero gradient is 1500 m. The airport is planned at an elevation of 900 m above sea level. Monthly mean of maximum daily temperature and mean of average daily temperature are 42.5°C and 21.6°C respectively. The effective gradient of proposed runway is 0.5%. Compute the actual runway length after corrections. [10]

8. Give the classification of Harbours. What are the features of a Harbour? While planning a Harbour, what considerations are to be given importance? [10]

OR

9. Define breakwaters. Explain the types of breakwater structures with the help of neat diagrams. [10]

10. Discuss how Advanced Traveller Information Systems can be effectively used in Traffic Management. [10]

OR

11. Giving an overview of ITS implementation in developing countries like India, discuss the issues related. [10]

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Code No: 117AU

R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
AUTOMOTIVE CHASSIS AND SUSPENSION
(Automobile Engineering)

Time: 3 Hours   Max. Marks: 75

Note: This question paper contains two parts A and B.
      Part A is compulsory which carries 25 marks. Answer all questions in Part A.
      Part B consists of 5 Units. Answer any one full question from each unit.
      Each question carries 10 marks and may have a, b, c as sub questions.

PART- A
(25 Marks)

1.a)	How to find the power required for propulsion of vehicle?	[2]
b)	What is the best suited cross-section used for chassis?	[3]
c)	How the leaf springs are made?	[2]
d)	How the static balancing of wheels be done?	[3]
e)	What is parking brake and emergency brake?	[2]
f)	How the temperature is controlled in brakes?	[3]
g)	What is the principle of working of torsion bar?	[2]
h)	Why shocks and vibrations are created on vehicle?	[3]
i)	What are the sequences of operations for front wheel mounting?	[2]
j)	What are the reasons for not starting the engine?	[3]

PART-B
(50 Marks)

2.a) What are the various forces coming on to the vehicle and explain the methods to overcome them?
   b) What type of frames used for trailers and heavy vehicles?   [5+5]

OR

3.a) What are the various types of automobile wheels used in practice and explain about the advantages of tube less tyres?
   b) What are the requirements of a good tyre and explain about the different gases filling the tyres?   [5+5]

4.a) What are the functions of a steering system and explain the importance of steering gear box?
   b) Describe the constructional details of three wheelers used for transport system.   [5+5]

OR

5.a) How the wheel balancing improves the life of wheels and tyres?
   b) What are the various factors to be considered to improve steering geometry?   [5+5]

6.a) What are the requirements of good braking system and explain about the classification of brakes?
   b) Explain with a schematic diagram the working of hydraulic braking system.   [5+5]

OR

7.a) Bring out the differences between drum and disc brakes and mention the principle of working and applications.
   b) Explain with a schematic diagram the working of parking brakes.   [5+5]

8.a) What is the need of suspension system and mention the factors to be considered in the selection of suspension system.

b) What are the various springs used for suspension system and explain about the importance of coil springs? [5+5]

OR

9.a) Why hydraulic suspension system is preferred over conventional suspension systems?

b) What are the various factors to be considered for a comfort and vibration free journey in a vehicle? [5+5]

10.a) What are the sequence of operations involved in the mounting of front wheel?

b) What are the materials used for the production of springs used in suspension system? [5+5]

OR

11.a) What are the various testing equipment used to know the performance of engine?

b) Explain the functioning of exhaust gas analyzer to find the in gradients in the gases. [5+5]

---ooOoo---

Code No: 57036

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
MICROWAVE ENGINEERING
(Electronics and Communication Engineering)

Time: 3 Hours

Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks
- - -

1.a) Why TEM modes are not possible in hollow rectangular wave guides? Discuss.
 b) A TE_{10} wave at 10 GHZ propagates in a rectangular wave guide of 1.5 cm × 0.6 cm dimensions filled with medium air. Determine guided wave length and wave impedance. [8+7]

2.a) Derive the expressions of field components in TE mode in circular waveguides.
 b) A circular wave guide has internal diameter of 5 cm. Calculate the cutoff frequencies for the modes i) TE_{11} ii) TE_{01}. [10+5]

3.a) Describe the working of H-plane Tee and state why it is called shunt Tee.
 b) A directional coupler is having coupling factor =10 dB and directivity = 40dB. Determine the power coupled in forward and reverse direction when input power is 10 W assuming the coupler is lossless. [8+7]

4.a) State the theorems of Tee junction and prove that a Tee junction cannot be matched to the three arms ?
 b) Explain the working of Magic Tee with neat sketch and discuss any one application. [7+8]

5.a) Draw the mode characteristics of reflex klystron and explain the operation.
 b) A two cavity klystron operates at 4.5 GHz. The Dc beam load voltage is 8 KV, Cavity gap spacing is 2 mm for a given input, the magnitude of gap voltage is 100V. Calculate the time of the electrons in the gap, gap transit angle and range of velocity of electrons as they leave the gap region. [8+7]

6.a) Explain the amplification process of signal in TWT amplifier with the help of diagram.
 b) Explain the principle of operation of cavity magnetron and discuss phase focusing effect. [7+8]

7.a) With the help of two valley theory, explain how negative resistance is created in Gunn diode.
 b) An n-type GaAs Gunn diode has the following parameters.
  Electron drift velocity   : $V_d = 2.5 \times 10^5$ m/sec
  Negative electron mobility   : $\mu_n = 0.015$ m^2/V-sec
  Relative dielectric constant : $\xi = 13.1$
  Determine the criterion for classifying the modes of operation. [9+6]

8. Explain the microwave power measurement using Calorimetric method and Bolometer method. Distinguish between these two methods. [15]

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Pharmacy IV Year I Semester Examinations, November/December-2016
PHARMACEUTICAL ANALYSIS – II

Time: 3hours   Max.Marks:75

Answer any five questions
All questions carry equal marks
- - -

1.a) Define the term lambda max. Why it is selected for qualitative analysis. 2.5×10^{-4}M solution of a drug in a 1 cm length cell at λmax 245 nm has absorbance 1.17. Calculate ε_{max} for this transition.
   b) Differentiate colorimeter with spectrophotometer.
   c) Explain the Woodward-Fieser rules for enones.   [5+5+5]

2.a) Why phosphorescence is a delayed phenomenon compared to fluorescence? Explain with energy level diagram.
   b) Explain the derivatization of non-fluorescent compound into fluorescent compound with two examples.
   c) Explain the principle and application of atomic absorption spectroscopy.   [5+5+5]

3.a) Explain the types of vibration in IR spectroscopy.
   b) Write the wave number of group frequency region and finger print region of IR spectroscopy. Write their use in interpretation of structure of compounds
   c) Write the expected IR peaks for p-nitro phenol and p-nitro benzoic acid.   [5+5+5]

4.a) Explain the principle of NMR spectroscopy.
   b) Explain the shielding and deshielding in NMR spectroscopy.
   c) Write the applications of NMR spectroscopy.   [5+5+5]

5.a) Write instrumentation for a Mass spectrometer in brief.
   b) Write the important characteristics metastable ions and formation of metastable ions.
   c) Explain the principle and application Radio Immuno assay and ELISA.   [5+5+5]

6.a) Write the pharmaceutical applications of Thermal analysis.
   b) Write the factors affecting DTA/DSC curve.
   c) Explain the principle of electrophoresis. Write the different types of electrophoresis.   [5+5+5]

7.a) Differentiate HPTLC over TLC.
   b) Explain the instrumentation for HPLC in brief.
   c) Explain the derivatization in GC with suitable examples.   [5+5+5]

8.a) From the following data for analysis of anti-diabetic drugs using HPLC. Calculate i) Capacity factor Nimesulide and Aceclofenac ii) Resolution between the Nimesulide and Aceclofenac iii) Relative retention time for Nimesulide and Aceclofenac.

Name	t_r(min)	W_b(min)
Unretained	2.09	-
Nimesulide	8.56	0.203
Aceclofenac	15.45	0.183

   b) Write the applications of colorimetry.
   c) Write the pharmaceutical applications of fluorimetry.   [5+5+5]

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Pharmacy IV Year I Semester Examinations, November/December-2016
PHARMACOGNOSY-III

Time: 3hours   Max.Marks:75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each
question carries 10 marks and may have a, b, c as sub questions.

PART-A   (25 Marks)

1.a)	How will you identify Alkaloids on the basis of chemical test?	[2]
b)	Write down the two uses of Rauwolfia.	[3]
c)	Classify glycosides with example?	[2]
d)	What are cardiac glycosides? Explain.	[3]
e)	How will you measure growth in Plant tissue culture?	[2]
f)	How will you establish Plant tissue culture?	[3]
g)	Give the chemical constituents of Taxol.	[2]
h)	Write down the active constituents of Neem.	[3]
i)	Write down the health benefits of Garlic.	[2]
j)	Give the chemical constituents of Ginkgo.	[3]

PART-B   (50 Marks)

2.a)	Write in detail about microscopy and morphology of Ipecac.	
b)	Give the diagnostic features and adulterants of Duboisia.	[5+5]

OR

3.	Write in detail pharmacognostic study about Nux-Vomica.	[10]

4.	Give the test for identification of Glycosides.	[10]

OR

5.	Give the chemical constituents and substitutes of Dioscoria.	[10]

6.	Explain the different types of Plant tissue culture with example.	[10]

OR

7.	What do you mean by Plant tissue culture? Explain.	[10]

8.	Give the chemical nature with structure of Camptothecin.	[10]

OR

9.	Give the Biological Source and uses of Artemisinin.	[10]

10.	Write a short note on anticancer drugs obtained from marine sources.	[10]

OR

11.a)	Define functional foods and Nutraceuticals with example.	
b)	Write down the name of marker compounds of Spirulina.	[5+5]

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R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
MICROWAVE ENGINEERING
(Electronics and Communication Engineering)

Time: 3 Hours   Max. Marks: 75

Note: This question paper contains two parts A and B. Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

1.a) Calculate the group and phase velocities for an angle of incidence of 33^0.   [2]
  b) Explain how the excitation of modes is done in rectangular waveguide?   [3]
  c) What is Q Factor?   [2]
  d) Write short notes on Waveguide Irises.   [3]
  e) What are the limitations of conventional vacuum tubes at microwave frequencies? [2]
  f) What is the principle of working of Backward Wave Oscillator?   [3]
  g) What are the disadvantages of strapping?   [2]
  h) A magnetron has a cathode radius of 2.5 mm and an anode radius of 5 mm. What is the cut-off potential if a 0.27-Wb/m^2 magnetic field is applied?   [3]
  i) What is Q of a Cavity Resonator?   [2]
  j) Why the S-parameters are used in microwaves?   [3]

PART-B

(50 Marks)

2.a) Discuss the significance and advantage of dominant mode in rectangular waveguide.
  b) A rectangular waveguide with a width of 4 cm and a height of 2 cm is used to propagate an electromagnetic wave in the TE10 mode. Determine the wave impedance, phase velocity, and group velocity of the waveguide for the wavelength of 6 cm.   [5+5]

OR

3.a) Distinguish between TE and TM modes of the propagation in rectangular waveguide.
  b) A wave of frequency 6GHz is propagated in a parallel plane waveguide separated by 3cm. Calculate i) the cut-off wavelength for the dominant mode. ii) Wavelength in the waveguide. iii) the group and phase velocities. iv) Characteristic wave impedance. [6+4]

4.a) A 20mV signal is fed to the series arm of a lossless Magic Tee junction. Calculate the power delivered through each port when other ports are terminated with a matched load.
  b) Explain coupling probes and coupling loops.   [4+6]

OR

5.a) Explain the working of a two-hole directional coupler with a neat diagram and derive the expression for the coupling and directivity of a two-hole directional coupler.
  b) For a directional coupler, the incident power is 550 mW. Calculate the power in the main and auxiliary arm. The coupling factor is 30 dB.   [6+4]

6. Explain in detail bunching process and obtain expression for bunching parameter in a two cavity klystron. [10]

OR

7.a) The parameters of a two-cavity klystron are given by $V_b = 900$ V, $f = 3.2$ GHz, and $d = 10^{-3}$ m. Determine electron velocity, transit angle, and beam coupling coefficient.

b) Explain the principle of working of Travelling Wave Tube. [3+7]

8.a) Derive the Hartree anode Voltage equation for linear magnetron.

b) A normal circular magnetron has the following parameters: Inner radius 0.15 m, outer radius 0.45 m, Magnetic flux density 1.6 milli weber/m^2. (i) Determine Hull cut-off voltage (ii) Determine the Hull cut-off magnetic flux density if the beam voltage is 4000 V. [6+4]

OR

9.a) Explain Gunn Effect using two-valley theory? Also explain several modes of operation and applications of Gunn diodes.

b) Give the classification of solid state microwave devices. [6+4]

10.a) Find the S matrix for a matched isolator having an insertion loss of 0.5dB and isolation of 25dB.

b) Explain the S-matrix representation of a multiport microwave network and its significance. [4+6]

OR

11.a) Describe the blocks of microwave bench and their features.

b) Calculate the VSWR of a transmission system operating at 15 GHz. TE_{10} modes is propagating through the waveguide of dimensions 4.0 and 2.1 cm respectively. The distance between two successive minima is 1.5 mm. [7+3]

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R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
DATA WAREHOUSING AND DATA MINING
(Computer Science and Engineering)

Time: 3 Hours   Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit.
Each question carries 10 marks and may have a, b, c as sub questions.

PART- A
(25 Marks)

1.a) Define Data ware housing.   [2]
  b) Differentiate OLAP, ROLAP and HOLAP.   [3]
  c) Discuss about subset selection   [2]
  d) Mention any three measures of Similarity.   [3]
  e) Define Association rule mining two step processes.   [2]
  f) Write short note on support and confidence measures.   [3]
  g) Mention types of classifier techniques.   [2]
  h) Define Pre pruning and post pruning.   [3]
  i) Discuss on Agglomerative and Divisive clustering techniques.   [2]
  j) Mention the various types of clustering methods.   [3]

PART-B
(50 Marks)

2. Explain data mining as a step process of knowledge discovery. Mention the Functionalities of Data mining.   [10]

OR

3. Differentiate Operational database systems and data warehousing. Explain the star schema and fact constellation schemas.   [10]

4. Explain the various Data pre-processing techniques. How data reduction helps in data pre-processing.   [10]

OR

5. How can the data cube be efficiently constructed for discovery-driven Exploration? Explain various operations of a Data Cube.   [10]

6. How can we mine multilevel Association rules efficiently using concept hierarchies? Explain. Illustrate with an A-priori algorithm for the given dataset below. [10]

TID	List of items
001	milk, dal, sugar, bread
002	Dal, sugar, wheat,jam
003	Milk, bread, curd, paneer
004	Wheat, paneer, dal, sugar
005	Milk, paneer, bread
006	Wheat, dal, paneer, bread

OR

7. Can we design a method that mines the complete set of frequent item sets without candidate generation? If yes, explain with example table mentioned above. [10]

8. Describe the data classification process with a neat diagram. How does the Naive Bayesian classification works? Explain. [10]

OR

9. What is prediction? Explain the various prediction techniques. Explain about Decision tree Induction classification technique. [10]

10. What are outliers? Discuss the methods adopted for outlier detection. [10]

OR

11. State K-means algorithm. Apply k-means algorithm with two iterations to form two clusters by taking the initial cluster centers as subjects 1 and 4. [10]

Subject	A	B
1	1.0	1.0
2	1.5	2.0
3	3.0	4.0
4	5.0	7.0
5	3.5	5.0
6	4.5	5.0
7	3.5	4.5

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
ESTIMATING AND COSTING
(Common to CE, CEE)

Time: 3 Hours   Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART- A
                                                                (25 Marks)
1.a)   What is the order of booking dimensions?   [2]
  b)   What are the voluminous units of measurement?   [3]
  c)   What is lift in earthwork calculations?   [2]
  d)   What is volume of fully excavated trapezoidal cross section canal? [3]
  e)   What is a contingent charge?   [2]
  f)   Write short notes on analysis of rate.   [3]
  g)   What is unit weight of 16mm diameter steel bar?   [2]
  h)   Explain lump sum contract.   [3]
  i)   What is years purchase?   [2]
  j)   What is difference between first class brickwork and second class brick work? [3]

PART-B
                                                                (50 Marks)
2.   Estimate quantities for a Low income group house (LIG) using long wall and short wall method a) earthwork in excavation b) lime concrete in foundation c) 1st class brickwork in foundation d) plastering. Assume suitable data.   [10]

OR

3.   Explain in detail about all available estimates for a civil engineering structures.   [10]

4.   Prepare a detailed estimate for earth work for a portion of a road from the following data. The formation level at starting point is 120m. Formation width of road is 10m and side slopes of banking are 2:1. The road is in downward gradient of 1 in 150 up to 120m and then the gradient changes to 1 in 100 downward.   [10]

Distance in m	0	30	60	90	120	150	180	210	240	270	300
R. L. of Ground	114.5	114.75	115.25	115.20	116.10	116.85	118.20	118.25	118.10	117.80	117.25

OR

5.   Explain in detail about the three cases of canal sections with neat sketches.   [10]

6. Prepare analysis of rates for the following item of work.
   1st class brick work in foundation of 1:3 cement mortar – unit 1 cu. m.
   Assume materials and labors in the market rate.   [10]

OR

7. Prepare analysis of rates for the following item of work.
   Cement concrete in foundation 1:4:9 – unit 1 cu. m.
   Assume materials & labors in the market rate.   [10]

8. Estimate the quantity of steel for any type of RCC beam with an illustrative example and
   explain the importance of bar bending schedule?   [10]

OR

9. Explain in detail about contract document.   [10]

10. a) Explain method of valuation based on profit with an illustrative example.
    b) Explain capitalized value of a building considering sinking fund.   [5+5]

OR

11. Explain detailed specifications of Earthwork in excavation.   [10]

--ooOoo--

Code No: 117BD

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
CAD/CAM
(Common to ME, AE, AME, MSNT)

Time: 3 Hours   Max. Marks: 75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART- A
(25 Marks)

1.a)	Write any five advantages and disadvantages by the adoption of CAD.	[2]
b)	Write any 10 AutoCAD commands with small description.	[3]
c)	Differentiate between Algebraic and Geometric form of a curve.	[2]
d)	Write Bezier surface and B-Spline surface mathematical relations.	[3]
e)	What are M03, M30 codes stands for in NC Programming?	[2]
f)	Explain the use of MACROs in part programming?	[3]
g)	List the methods available for taking decisions in a process plan.	[2]
h)	What do you understand by the terms PDIR, MRIR and PPIR?	[3]
i)	Enumerate the benefits of FMS.	[2]
j)	Define off-line and on-line inspections.	[3]

PART-B
(50 Marks)

2.a)   Briefly explain the conventional process of the product cycle in conventional manufacturing environment.

b)   Draw the block diagram of the data exchange method between two different CAD systems using neutral data format.   [5+5]

OR

3.a)   How do you distinguish between a CPU and a Microprocessor.

b)   What are the Input devices and Output devices, explain them briefly.   [5+5]

4.a)   Give a classification of the different surfaces that can be used in Geometric modelling applications.

b)   What is meant by sweep? Discuss in detail the various types of sweep techniques available for 3D geometric construction.   [5+5]

OR

5.a)   What is meant by continuity of curves? What are the types of continuity curves?

b)   Find the equation of a Bezier curve which is defined by four control points as (80,30,0), (100,100,0),(200,100,0) and (250,30,0).   [5+5]

6.a) Explain the principle of CNC system with a block diagram.
  b) Write NC part program for the part shown in the below figure.   [5+5]

OR
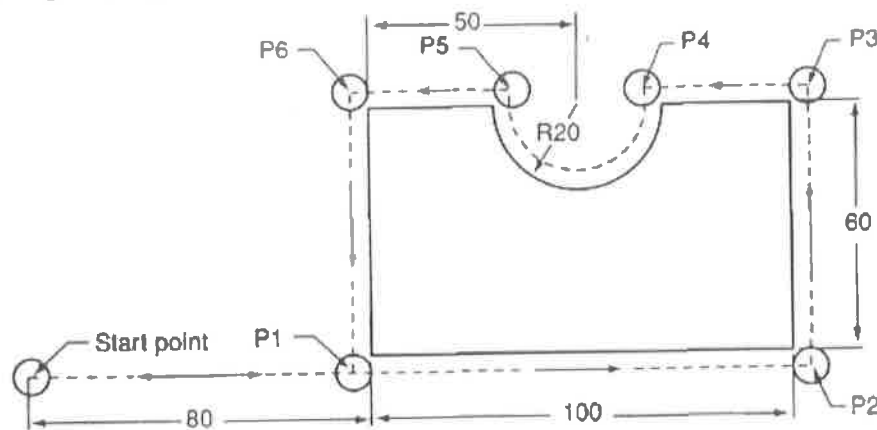
7.a) Explain linier and circular interpolations in CNC systems.
  b) What is manual CNC part programming? Explain with an example.   [5+5]

8.a) What is part family? State advantages and limitations of Group Technology.
  b) Briefly explain the need of CAPP (Computer Aided Process Planning).   [5+5]

OR

9.a) Explain about the OPITZ coding system generally used in Group Technology.
  b) What are the main objectives of MRP (Manufacturing Resource Planning)? Explain them briefly.   [5+5]

10.a) Discuss the various topologies used in CIM with their relative advantages and disadvantages.
  b) How does Lean production differ from Flexible production system? Explain.   [5+5]

OR

11.a) Describe the Scheduling and Dispatching issues related to FMS (Flexible Manufacturing System).
  b) Define computer aided quality control. Explain how it is implemented.   [5+5]

---ooOoo---

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
PAVEMENT DESIGN
(Civil Engineering)

Time: 3 Hours

Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks

- - -

1.a) Define the following:
  i) ESWL   ii) Vehicle damage factor   iii) AADT
  b) Differentiate between different types of pavements with reference to functionality, structure, material and other economic issues?   [7+8]

2.a) What are the stress inducing factors in rigid and flexible pavements?
  b) How do you articulate an interaction between vehicle and pavement interaction? Present an outline on quantifying the different types of vibrations to respond by pavement structure?   [7+8]

3.a) What are the fundamental design concepts in handling the stresses in flexible pavements?
  b) Present the stress solutions for one, two and three layered systems.   [7+8]

4.a) Explain on Westergaard's theory and assumptions? Generate equations for different cases of rigid pavement.
  b) How do you quantify stresses in dowel and tie bars and present the treatment process?   [7+8]

5.a) Characterize the soil by different tests and conclude the characteristics of soil with each character and specifications?
  b) What are the tests to be conducted for bitumen and bitumen mix and present some of the tests in detail to characterize the material?   [7+8]

6.a) Present the IRC suggested for method for flexible pavement design.
  b) What are the pavement design concepts and present the method suggested by Asphalt institute method?   [7+8]

7.a) Present the IRC suggested method for rigid pavement.
  b) Present design procedure for continuously reinforced cement concrete pavement design.   [7+8]

8. Present the pavement design procedure for LOW volume roads. Also discuss on code of practice suggested by MORD.   [15]

---ooOoo---

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech IV Year I Semester Examinations, November/December - 2016
OPTICAL COMMUNICATIONS
(Electronics and Communication Engineering)

Time: 3 Hours

Max.Marks:75

Answer any Five Questions
All Questions Carry Equal Marks
- - -

1.a) With the help of a neat diagram, explain the Ray theory of optical fiber.
  b) List the advantages, disadvantages and applications of optical fiber communication.[8+7]

2.a) A step index multimode fiber with a NA of 0.2 supports approximately 1000 modes at an 850nm wavelength. What is the diameter of its core? How many modes does the fiber support at 1320nm and at 1550nm?
  b) Describe the attenuation mechanisms in an optical fiber. [8+7]

3.a) Explain the "pulsedispersion" with suitable diagram and differentiate MMSIF and MMGIF and SMF by their information carrying capacity with reason.
  b) Light traveling in air strikes a glass plate at an angle $\theta_1 = 33^o$ where θ_1 is measured between the incoming ray and the glass surface. If the refracted and reflected beams make an angle of 90° with each other. What is the refractive index of the glass and what is the critical angle? [7+8]

4.a) With the help of a schematic diagram explain the design features of an edge emitting LED.
  b) Consider a LED with circular emitting area of radius 36μm and a Lambertian Gaussian pattern of 151watts. Compare the optical power coupled into following two types of step index fibers:
    i) SIF with a core radius of 26μm(NA=0.2)
    ii) SIF with a core radius of 51μm(NA=0.2) [8+7]

5.a) Discuss about the considerations needed to launch optical fiber from source into the fiber.
  b) Describe the possible lensing schemes used to improve optical source-to-fiber coupling efficiency. [7+8]

6.a) Explain the operation of avalanche photodiode.
  b) The quantum efficiency of particular silicon RAPD is 80% for the detection of radiation at a wavelength of 0.9μm, when the incident optical power is 0.5 μW. The output current from the device after avalanche gain is 11 μA. Determine the multiplication factor of the photodiode under these conditions. [7+8]

7.a) Explain the following multiplexing with suitable diagrams
    i) OTDM   ii) WDM
  b) Explain in detail about link power budget and rise power budget. [8+7]

8. Explain the following requirements for the design of an optically amplified WDMlink
    a) Link Band width
    b) Optical power requirements for a specific BER. [7+8]

--ooOoo--

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
EMBEDDED SYSTEMS
(Common to ECE, ETM)

Time: 3 Hours   Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks

- - -

1.a) Explain the challenges in embedded computing system design.
  b) What is an embedded computer system? Explain the characteristics of embedded computing applications. [8+7]

2.a) With neat sketch, explain the architecture of 8051 microcontroller.
  b) Explain how to interface external memory to 8051. [10+5]

3.a) Write a program to generate 2 KHz square wave on pin 1.0 of port 1 of 8051.
  b) Explain the assembly language programming process. [8+7]

4.a) Draw the block schematic of digital programming blocks in a PSoC and explain how connections are made to input/output pins.
  b) What is a PSoC? List out its prominent features and limitations. [10+5]

5. Explain the basic precision analog functions available in the PSoC platform. [15]

6.a) What is a semaphore? Explain with an example how semaphores solve the shared data problem?
  b) What is the difference between Message Queues Mailboxes and Pipes in RTOS? [8+7]

7.a) Discuss various methods adopted to reduce power consumption in embedded applications.
  b) Explain the functions of a scheduler in an RTOS and how does the scheduler carryout those functions. [8+7]

8.a) Explain the operation of the CAN bus at the physical layer and data link layer with the help of CAN data frame format diagram?
  b) Write a note in Internet-enabled systems? [10+5]

--ooOoo--

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
COMPUTER GRAPHICS
(Computer Science and Engineering)

Time: 3 Hours   Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks
- - -

1.a) Explain about the Beam Penetration method.
  b) Explain the characteristics of any 3 input devices.   [7+8]

2.a) Write an algorithm of Vector generation line drawing algorithm.
  b) Explain the boundary fill algorithm.   [8+7]

3.a) Derive the transformation matrix for rotation about an arbitrary point.
  b) Show how reflection in the line $y = x$ and in the line $y = -x$ can be performed by a
     scaling operation followed by a rotation.   [7+8]

4.a) Explain the Sutherland – Hodgeman polygon clipping algorithm.
  b) Explain the two dimensional viewing functions.   [8+7]

5.a) Derive the transformation matrix for Hermite-curve.
  b) Describe about the Gouraud Shading.   [7+8]

6. Derive the general perspective transformation on to a plane with reference point
    $R_0(x_0, y_0, z_0)$ Normal vector $N = n_1 I + n_2 J + n_3 K$ and using $C(a, b, c)$ as the centre of
    projection.   [15]

7.a) Explain the BSP – tree method.
  b) What are the advantages and disadvantages of back face detection method. [8+7]

8.a) Describe about the computer assisted animation.
  b) Explain about the key frame systems.   [7+8]

--ooOoo--

Code No: 57024

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
CAD/CAM
(Common to ME, AE, AME)

Time: 3 Hours

Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks
- - -

1.a) Define CAD. Explain the reasons for adopting CAD in an engineering organization.
  b) Describe the following input devices:
     i) digitizer,   ii) tablet,   iii) mouse, and   iv) light pen.   [7+8]

2.a) A scaling factor of 2 is applied in the Y direction while no scaling in the X direction to the line whose two end points are at coordinates (1, 3) and (3, 6). The line is to be rotated subsequently through 30^0 in the counter clockwise direction. Determine the necessary transformation matrix for the operation and the new coordinates of the end points.   [7+8]
  b) Explain the Cohen-Sutherland clipping algorithm.

3.a) A cubic Bézier curve is defined by the control points as (30, 30), (50, 80),(100, 100), and (150, 30). Find the equation of the curve and its mid point.
  b) Compare CSG and B-rep schemes giving their relative advantages.   [7+8]

4.a) State and explain the facilities that are useful for editing geometric entities in a drafting system?
  b) State and describe the various display control commands available in a drafting system.   [7+8]

5.a) For the following component as shown in figure 1, make a part program on a vertical-axis machining centre.
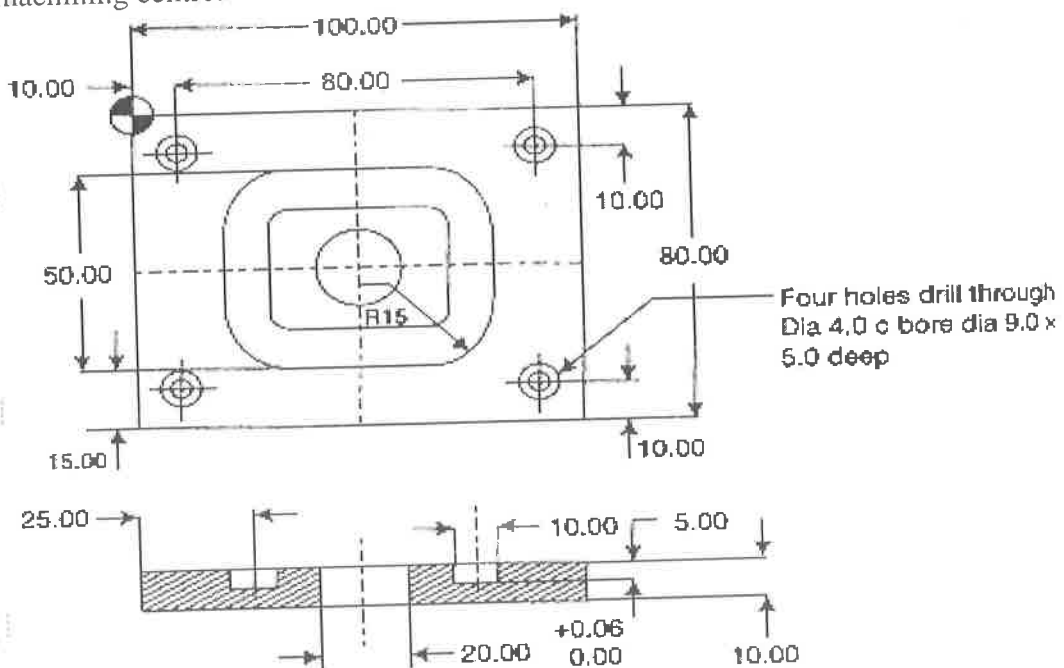

Figure: 1

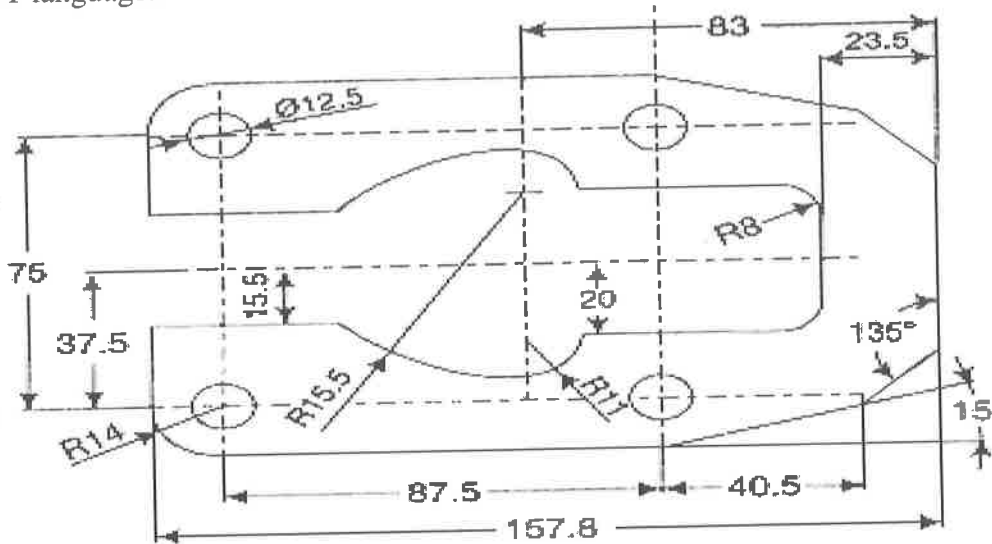b) For the following component as shown in figure 2 develop the part programs using the APT language. [7+8]

Figure: 2

6.a) Develop the form code (first 5 digits) of the Opitz code for rotational components for the component shown in Figure 3.
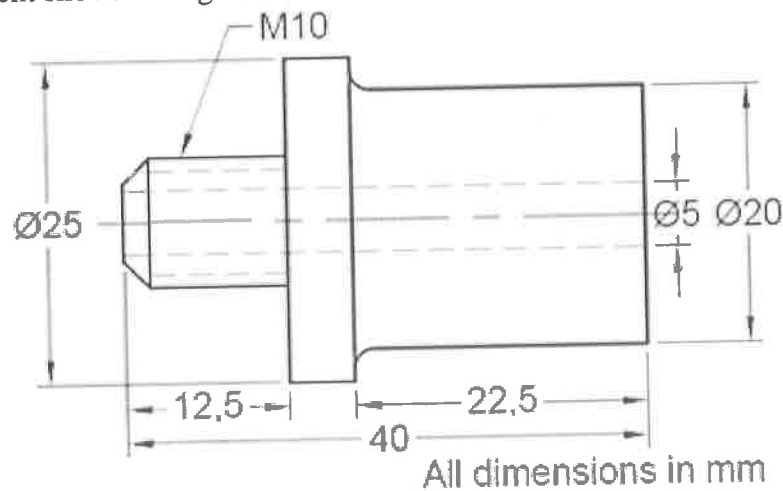

All dimensions in mm

Figure: 3

b) What are the differences between retrieval and generative type of computer aided process planning? Which is better? Explain. [7+8]

7.a) What do you understand by non-contact inspection? Explain the role in a CIM system.
 b) State and explain the steps involved in a machine vision system. [7+8]

8.a) Explain the steps used in implementing lean manufacturing.
 b) Explain with an example how the integration benefits any manufacturing operation. [7+8]

--ooOoo--

Code No: 217AC

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Pharmacy IV Year I Semester Examinations, November/December-2016
PHARMACOLOGY-III

Time: 3hours   Max.Marks:75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks.

PART- A   (25 Marks)

1.a)	Write the differences between laxative, purgative and cathartic?	[2]
b)	What is diarrhea? Write some non pharmacological methods to treat it.	[3]
c)	Write the limitations of sulfonamides.	[2]
d)	How penicillins cause anaphylactic shock?	[3]
e)	Write the mechanism of action of integrase inhibitors in HIV.	[2]
f)	Why treatment of Tuberculosis is difficult?	[3]
g)	Write about combination drug therapy in malaria.	[2]
h)	Write note on anticancer antibiotics.	[3]
i)	What is an antidote? Write some examples.	[2]
j)	How heavy metal causes toxicity?	[3]

PART-B   (50 Marks)

2.a)	Write the pharmacology of H_2 receptors antagonists.	
b)	What is an antiflatulent? Write their clinical uses.	[5+5]

OR

3.a)	Classify antiemetics and write pharmacology of antidopaminergic drugs.	
b)	Write note on anorectics acting via central serotonin pathway.	[5+5]

4.a)	Discuss the drugs that interferes in nucleic acid synthesis.	
b)	Classify quinolones with suitable examples and write the pharmacology 2nd generation fluoroquinolones.	[5+5]

OR

5.a)	Explain how some anticancer drugs destroys DNA structure and function	
b)	Write some preventive measures for antimicrobial drug resistance.	[5+5]

6.a)	Write the pharmacology of Nucleoside and Nucleotide Analogs used in the treatment of HIV	
b)	Discuss the pharmacology of Azoles.	[5+5]

OR

7.a)	Classify urinary tract infections and write first line drugs used to treat them.	
b)	Explain the pharmacology of tissue ameobocides.	[5+5]

8.a) Write the pharmacology of transmission inhibitors used in malaria.
  b) What are specific and non specific immune stimulants? Explain.   [5+5]

OR

9.a) Classify alkylating agents. Write the mechanism of action and unwanted effects of Nitrosoureas.
  b) Write a note on drugs used in trypanosomiasis?   [5+5]

10.a) Barbiturates are toxic at high dose. Justify.
  b) How do you treat atropine poisoning?   [5+5]

OR

11.a) What is aging in organ phosphorous poisoning? How can you treat it?
  b) Define poison and antidote. Explain decontamination procedure.   [5+5]

--ooOoo--

R09

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Pharmacy IV Year I Semester Examinations, November/December-2016
PHARMACOLOGY - III

Time: 3hours

Max.Marks:75

Answer any five questions
All questions carry equal marks

- - -

1.a) Classify drugs used in peptic ulcer. Discuss the pharmacological actions and adverse effects of cimetidine.
 b) i) Define Zollinger-Ellison syndrome.
  ii) What do you mean by GERD?
  iii) Describe regulation of gastric acid. [7+8]

2.a) Define malignant tumors, sarcoma and carcinoma. Write note on alkylating agents as anti cancer drug.
 b) What is cotrimoxazole? Give its spectrum of action. [7+8]

3.a) Write the general mechanism of action of Tetracycline with their adverse effects.
 b) Describe the pharmacology of erythromycin. [7+8]

4.a) Classify anti tubercular drugs.
 b) Explain the mechanism of action of rifampicin. [7+8]

5.a) Explain the mechanism of action and side effects of Amphotericin B.
 b) Describe the treatment involved in UTIs. [7+8]

6.a) Discuss in brief about immunosuppressant drugs.
 b) Explain the role of vinca alkaloids as anti cancer agents. [7+8]

7.a) Explain the general treatment for acute drug poisoning.
 b) How will you manage organophosphorous poisoning. [7+8]

8.a) Enlist drugs used in Erectile dysfunction.
 b) Define Chelating agents. Explain the detail about Dimercaprol. [7+8]

--ooOoo--

Code No: 117CJ

R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
DIGITAL IMAGE PROCESSING
(Electronics and Communication Engineering)

Time: 3 Hours
Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART- A
(25 Marks)

1.a)	Define Weber Ratio	[2]
b)	What is city block distance	[3]
c)	What is mean by Image Subtraction?	[2]
d)	What are Piecewise-Linear Transformations	[3]
e)	What is degradation function?	[2]
f)	What is Gray-level interpolation?	[3]
g)	What are the logic operations involving binary images	[2]
h)	What is convex hull?	[2]
i)	Define Compression Ratio	[3]
j)	What is Arithmetic Coding?	[2]
		[3]

PART-B
(50 Marks)

2.a) Discuss the role of sampling and quantization with an example.
b) With a neat block diagram, explain the fundamental steps in digital image processing.[5+5]

OR

3.a) Discuss the Relationship between Pixels in detail.
b) Discuss optical illusions with examples.
[5+5]

4.a) State different types of processing used for image enhancement.
b) Explain in detail smoothing frequency-domain filters related to images.
[5+5]

OR

5.a) Explain any two methods used for digital image zooming and shrinking.
b) Discuss two dimensional orthogonal unitary transforms.
[5+5]

6.a) Discuss the minimum mean square error filtering.
b) Explain the model of image degradation process.
[5+5]

OR

7.a) Discuss in detail, the Inverse Filtering.
b) Write about Constrained Least Squares Restoration in detail.
[5+5]

8.a) Write Edge Linking And Boundary Detection.
b) Write about detection of discontinuities.
[5+5]

OR

9.a) Discuss the Region Oriented Segmentation.
b) Explain about Hit or Miss Transformation.

[5+5]

10.a) Explain about Lossy and Lossless Predictive Coding
b) Explain about the methods of removal of redundancy.

[5+5]

OR

11.a) Discuss the Transform Based Compression.
b) Write a short note on JPEG 2000 Standards.

[5+5]

--ooOoo--

R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
SOFTWARE PROJECT MANAGEMENT
(Computer Science and Engineering)

Time: 3 Hours
Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit.
Each question carries 10 marks and may have a, b, c as sub questions.

Part- A

(25 Marks)

1.a)	Define late design breakage.	[2]
b)	What are the parameters of cost models?	[3]
c)	What is configurable process?	[2]
d)	What are five staffing principles?	[3]
e)	Define elaboration phase.	[2]
f)	What is WBS?	[3]
g)	What are the responsibilities of SEEA?	[2]
h)	Explain about configuration baseline.	[3]
i)	What are the sources of architectural risks?	[2]
j)	Define MTBF and maturity.	[3]

Part-B

(50 Marks)

2.a)	Explain waterfall model.	
b)	Describe the three generations of software economics.	[5+5]

OR

3. Explain the following:
    a) Adversarial stakeholder relationships
    b) Requirements driven functional decomposition   [5+5]

4.a)	Explain about object-oriented methods and visual modeling.	
b)	What are the modern process approaches for solving conventional problems?	[6+4]

OR

5.a)	How to achieve required software quality? Explain.	
b)	Write and explain any ten principles of conventional software engineering.	[5+5]

6.a)	Briefly discuss about engineering stages.	
b)	Explain in detail about test artifacts.	[5+5]

OR

7.a)	Write the primary objectives of Construction and Transition phases.	
b)	What are engineering artifacts? Explain.	[5+5]

8.a)   Discuss about evolutionary work breakdown structures.
   b)   What are the activities of software assessment team? Explain.   [5+5]

OR

9.a)   Explain in detail about planning guidelines.
   b)   Discuss about automation building blocks.   [6+4]

10.a)   What are process discriminants? Briefly explain.
   b)   Explain culture shifts for modern process transitions.   [5+5]

OR

11.a)   What are management indicators? Explain.
   b)   Explain top ten software management principles.   [5+5]

--ooOoo--

R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
BIG DATA ANALYTICS
(Common to CSE, IT)

Time: 3 Hours   **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each
question carries 10 marks and may have a, b, c as sub questions.

PART- A
(25 Marks)

1.a)	List the types of accidents.	[2]
b)	Write the elements of data architecture.	[3]
c)	List the stages of OODA Loop.	[2]
d)	What are standard reporting templates?	[3]
e)	What is map reduce?	[2]
f)	What is Key-value data store?	[3]
g)	What are the types of machine learning?	[2]
h)	How do you prepare the input data for an algorithm?	[3]
i)	List Quick Visual Options in Tablue.	[2]
j)	What is role of the workspace in Tablue?	[3]

PART-B
(50 Marks)

2.   Explain in detail about Export Job Process.   [10]

OR

3.   List the Guidelines for identifying and reporting an accident or emergency in detail.
                                                                                               [10]

4.a) What is Knowledge Management?
  b) Explain about Model Based Techniques.   [3+7]

OR

5.   Explain about the Kepner-Tregoe Matrix Decision model in detail.   [10]

6.   List the classification of NoSql Databases and explain about Columns based Database.
                                                                                               [10]

OR

7.   Explain about the Graph Databases and Descriptive Statistics.   [10]

8.   Describe Train model using machine learning algorithm, Test model.   [10]

OR

9.   Explain Knowledge Discovery in Databases task in detail.   [10]

10.   Explain data visualization in Tablue.   [10]

OR

11.   Draw insights out of any one visualization tool.   [10]

---ooOoo---

Code No: 117JV

R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
INFORMATION SECURITY ASSESSMENTS AND AUDITS
(Common to CSE, IT)

Time: 3 Hours   Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

1.a) What are performance metrics? [2]
   b) Explain black box information security methodology. [3]
   c) Define vulnerability Analysis. [2]
   d) What are post auditing actions? [3]
   e) What are information security vulnerabilities? [2]
   f) Illustrate about threat management. [3]
   g) Define residual risk. [2]
   h) How to choose a right tool for information security assessment? [3]
   i) Discuss about configuration management. [2]
   j) Which information does Financial Management for IT Services need from Configuration Management? [3]

PART-B

(50 Marks)

2.   Describe the Ethics of an Information Security Auditor. [10]
                                    OR
3.   Explain Infrastructure, Network and communication routes in detail. [10]

4.   Discuss in detail about internal security Audit. [10]
                                    OR
5.   Explain in detail about the concept of social engineering security auditing. [10]

6.   Describe in detail about computer based social engineering. [10]
                                    OR
7.   Illustrate in detail about vulnerability scanning. [10]

8.   Explain the stages of vulnerability analysis in detail. [10]
                                    OR
9.   Describe in detail about the information security risk assessment. [10]

10.   List and explain the requirements for configuration management. [10]
                                    OR
11.   Explain in detail about the development of configuration control policies. [10]

---ooOoo---

R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
ADVANCED FOUNDATION ENGINEERING
(Civil Engineering)

Time: 3 Hours
Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART- A
(25 Marks)

1.a) Write short notes on bearing capacity of foundations subjected to eccentric loads. [2]
  b) Write briefly about foundations on layered soils. [3]
  c) Write about efficiency of pile groups. [2]
  d) Write briefly about negative skin friction in pile foundations. [3]
  e) Define active earth pressure and passive earth pressure. [2]
  f) Write about assumptions in Coulomb's theory of earth pressure. [3]
  g) Write about applications of braced cuts. [2]
  h) Write about earth pressure from strut loads. [3]
  i) Define swell pressure and swelling potential. [2]
  j) Discuss about remedial measures to reduce swelling for expansive soils. [3]

PART-B
(50 Marks)

2. Determine the width of the square footing if it has to carry a gross allowable load of 250kN. The depth of the footing is 1.5m in a medium dense sand with $\emptyset=32^0$, $\gamma=18.5\text{kN/m}^3$ and the load is inclined at an angle of 25^0 to the vertical. Use Meyerhoff's theory. Take factor of safety of 3.0, $N_c=35.49$, $N_q=23.18$ and $N_\gamma=30.22$. [10]

OR

3. Explain in detail about Janbu method of calculating elastic settlement of foundation in clays. [10]

4. A group of nine piles are arranged in a square pattern into a clay stratum with 30cm side and 10m long. The unconfined compressive strength of the clay soil is 90kN/m², Take $\alpha = 0.8$. Calculate the spacing for 100% efficiency of the pile group. Neglect bearing of the piles. [10]

OR

5. Explain about Reese and Matlock Approach for laterally loaded piles with a neat diagram. [10]

6. Explain about stability of the cantilever retaining wall against sliding and overturning with a neat sketch. [10]

OR

7. A retaining wall is of 6m height and retains a cohesionless backfill with $\emptyset=30^0$, $\gamma=18kN/m^3$. Using Rankine's theory, find the point of application of the resultant active thrust when the top of the backfill carrying a uniformly distributed load of $4kN/m^3$ and water table is at 3m depth from the surface. Take saturated unit weight as $19.7kN/m^3$.

[10]

8. Explain about depth of embedment of cantilever walls in clays with a neat sketch. [10]

OR

9. Explain about types of anchorage and location of anchorage with a neat sketch. [10]

10. Explain about granular pile anchor method in expansive soils with a neat sketch. [10]

OR

11. Explain about chemical stabilization of expansive soils. [10]

--ooOoo--

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
OBJECT ORIENTED PROGRAMMING THROUGH JAVA
(Electronics and Communication Engineering)

Time: 3 Hours

Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each
question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

1.a)	What is the difference between an object and a class?	[2]
b)	How does a class accomplish data hiding?	[3]
c)	What is the purpose of inheritance? Give example.	[2]
d)	What is an interface? Give example.	[3]
e)	What are the benefits of exception handling?	[2]
f)	What is thread synchronization? Explain.	[3]
g)	What is Event listener? Explain.	[2]
h)	What is window? What are the operations of window?	[3]
i)	What are the limitations of AWT?	[2]
j)	State the differences between applets and applications.	[3]

PART-B

(50 Marks)

2.a) What are the unique advantages of an object oriented paradigm?
b) What is a constructor? What are its special properties? [5+5]

OR

3.a) What are the different kinds of bitwise and Boolean logical operators in Java?
b) Illustrate dynamic binding with a Java program. [5+5]

4.a) What are the differences between an interface and class. Explain with suitable examples.
b) Describe the various forms of implementing interfaces. Give examples of java code for each case. [5+5]

OR

5.a) Define the variable super and its uses with an example.
b) Write a Java Program to show the use of Abstract classes. [5+5]

6.a) Discuss about "thread priorities" with examples.
b) What do you mean by an exception and error? Give the hierarchy of the exceptions in java. [5+5]

OR

7.a) What does extending a thread mean? Explain by means of a program.
b) How to create a user defined exception? Explain with an example. [5+5]

8.a) What is an event driven programming and how is it structured?
  b) What is an adapter class and how can adapter classes are effective? [5+5]

OR

9.a) Explain the class hierarchy of various window types.
  b) How events are categorized in Java? Explain. [5+5]

10. Write about applet basics and state how it runs in a window. Explain how an applet itself updates its window during an information change. [10]

OR

11.a) With a neat sketch, explain the Swing architecture.
  b) With a program, explain, how to create popup menu's in Swing? [5+5]

--ooOoo--

Code No: 117EZ

R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
METROLOGY AND SURFACE ENGINEERING
(Automobile Engineering)

Time: 3 Hours   Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B
consists of 5 Units. Answer any one full question from each unit. Each question carries
10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a) What is the difference between tolerance and allowance? [2]
   b) Explain the Condition of Interference fit with neat sketch. [3]
   c) Write any two precautions to be followed when using gauge blocks. [2]
   d) What is wear allownace? How it is applied for design of gauges? [3]
   e) Explain drunken error in screw thread. [2]
   f) What are the required characterstics of a comparator? [3]
   g) What are the main spindle errors? [2]
   h) What is meant by alignment test on machine tools? [3]
   i) What is surface coating? [2]
   j) Why it is necessary to clean the surface before provinding coating on it? [3]

PART-B

(50 Marks)

2.a) What are the end standards? Explain with examples the characterisitcs of line standard.
   b) Differentiate between inter changeable assembly and selective assembly with suitable
      examples. [5+5]

OR

3.a) What are the different grades of slip gauges? Explain.
   b) Hole and mating shaft are to have a nominal assembly size with a minimum assembly
      size of 75 mm. The assembly is to have a maximum clearance of 0.25mm and a
      minimum clearance of 0.15mm. The hole tolerance is 1.2 times the shaft tolerance.
      Determine the limits for both hole and shaft by using: [5+5]
      i) Hole basis system   ii) Shaft basis system.

4.   A hole and shaft system had the following dimensions: 95 H 9 /e 14 The multiplier of
      grade 9 and 14 is 40 and 400. The fundamental deviation for 'e' shaft is $-11D^{0.41}$. The
      diameter step is 80 – 120. Design the suitable 'GO' and 'NO-GO' gauges for shaft and
      hole. Gauge tolerance is 10% of work tolerance. Wear allowance is 10% of guage
      tolerance. [10]

OR

5.a) Sketch and explain the optical projector. How do you change the magnification of
      image.
   b) Explain the use of Angle gauges and sine bars for measurement of angle. [5+5]

6.a) Describe the measurement of gear tooth thickness by gear tooth caliper.
  b) Explain with a neat sketch the working of Tomlinson surface meter for surface finish measurment. [5+5]

OR

7.a) What is the best size wire? Derive the expression for the same in terms of the pitch and angle of thread.
  b) Explain the basic principles of
    i) pneumatic comparator and   ii) Electric comparator. [5+5]

8.a) Differentiate between geometrical tests and practical tests on machine tools.
  b) Name the various alignment tests to be performed on milling. Describe any two of them in detail. [5+5]

OR

9.a) What are the various machine tool tests common to most machine tools?
  b) Describe how you would perform the following tests on a lathe.
    i) True running taper socket in main spindle
    ii) True running of locating cylinder of main spindle. [5+5]

10.a) Explain the overlay coatings process for turbine blades in detail.
  b) Name the different mechanical and chemical cleaning processes in detail. [5+5]

OR

11.a) Distinguish between organic coating and diamond coating in detail.
  b) Explain various principles of corrosion and its remedial measures in detail. [5+5]

---ooOoo---

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
AUTOMOTIVE CHASIS AND SUSPENSION
(Automobile Engineering)

Time: 3 Hours

Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks

- - -

1.a) What are the main components of an automobile? Describe all of them briefly.
 b) Describe various component layouts for automobiles. [7+8]

2.a) Explain briefly the various types of chasis construction with the help of suitable diagrams. Make a list of various components mounted on the chasis.
 b) State the various functions performed by an automobile tyre. Discuss the properties expected. [7+8]

3.a) Explain the necessity of power steering in an automobile. Sketch any power steering system and explain its working.
 b) Discuss various factors affecting over-steer and under-steer. [7+8]

4.a) What do you understand from the term 'servo action' in brakes? How is it achieved?
 b) Draw a neat sketch showing the linkage to operate brake master cylinder and describe the same. [7+8]

5.a) What is the purpose of independent suspension? Explain various methods to achieve the same in front and rear axles of cars. Describe its advantages and disadvantages also, if any, compared to the conventional rigid axle suspension.
 b) Differentiate clearly between the functions of a spring and shock absorber. [7+8]

6.a) Explain how air springs are used in vehicles?
 b) Write short notes on tapered leaf springs. [7+8]

7. Explain the steps involved in different laboratory tests conducted on an engine. [15]

8. Discuss in detail the classification of two and three wheeler and give their constructional details. [15]

--ooOoo--

R09

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
DATA WAREHOUSING AND DATA MINING
(Computer Science and Engineering)

Time: 3 Hours   Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks

- - -

1.a) Explain knowledge discovery process with necessary diagram.
  b) Describe major issues in data mining pertaining to user interactions and mining methodologies.
  c) Explain with examples principal component analysis. [5+5+5]

2.a) Make a comparison of OLTP with OLAP.
  b) Explain BUC algorithm for cube computation. [7+8]

3.a) Discuss the limitations of apriori algorithm and suggest mechanisms to improve its efficieny.
  b) What are various kinds of association rules? Give examples for each. [8+7]

4.a) Discuss complete linkage and average linkage methods for hierarchical clustering.
  b) Explain OPTICS algorithm.
  c) How to detect outliers? Discuss any one approach. [5+5+5]

5.a) Describe kernel-based classification for graphs.
  b) Explain link based object classification and challenges associated with it. [7+8]

6.a) Explain the need of tree pruning in decision tree induction.
  b) How to evaluate the accuracy of a classifier. [7+8]

7.a) With examples explain spatial data and non-spatial data.
  b) Discuss any one algorithm for web structure mining.
  c) What data mining functionalities are applicable to multimedia database? [5+5+5]

8.a) How to choose a data mining system? Explain with suitable scenarios.
  b) Explain data mining applications for banking industry.
  c) Write a note on biomedical data analysis. [5+5+5]

--ooOoo--

1.a) Define the term 'Atmospheric disaster' and discuss its effect on people.
 b) Define disaster and refer to major environmental concerns. Discuss recent trends in disaster management with special reference to India. [7+8]

2.a) Write an overview of natural disasters in India.
 b) Distinguish between planetary hazards and extra planetary hazards by taking example in each case. [7+8]

3.a) Explain the disaster occurred in Latur .
 b) What do you mean by disaster mitigation? Explain the methods to reduce the effect of earthquake. [7+8]

4.a) Describe wind and water driven disasters and also explain the preventive measures to reduce these disasters.
 b) What is drought? What are the impacts of droughts? Explain drought control measures. [7+8]

5.a) 'India has witnessed a shift from relief to mitigation and preparedness planning'. Discuss.
 b) Discuss the important guiding principles of rehabilitation and reconstruction. [7+8]

6.a) Discuss Community-Based Disaster Risk Reduction Process.
 b) Highlight the general precautions observed in Search and Rescue operations. [7+8]

7.a) Examine the changing complexion of disaster management in the contemporary context.
 b) Discuss the concept of community based Disaster Management and highlight its principles and challenges. [7+8]

8.a) Examine the types and characteristics of corporate social responsibility with respect to disaster management.
 b) Discuss the role of disaster management authorities in disaster management. [7+8]

--ooOoo--

Code No: 57037

R09

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
COMPUTER NETWORKS
(Common to ECE, EIE, BME)

Time: 3 Hours   Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks
- - -

1.a) Draw the layered architecture of TCP/IP Reference model and describe the functions of each layer.
  b) Distinguish between analog signals and digital signals. How to convert digital data to analog signals and vice versa?   [10+5]

2. Distinguish between
    a) Datagram networks and virtual circuit networks
    b) Circuit switched and packet switched networks
    c) Time Division Multiplexing and Frequency Division Multiplexing   [15]

3.a) Explain one-bit sliding window protocol.
  b) Discuss in detail HDLC protocol.   [7+8]

4.a) Describe any two controlled access protocols.
  b) Give a note on the evolution of Ethernet.   [8+7]

5. Write short notes on:
    a) Virtual LANs   b) ATM   [7+8]

6.a) Make a comparison among unicast, multicast and broadcast communication. Why is not efficient to emulate multiple unicasting for multicasting?
  b) Find the shortest path tree for node 'a' in fig.1 using Dijkstra's algorithm. Illustrate the steps.   [7+8]
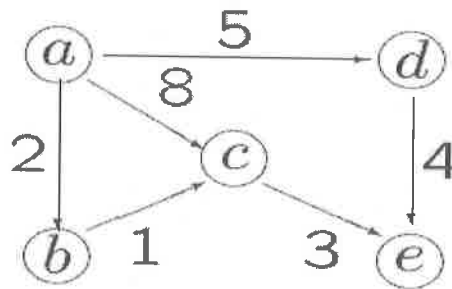
7.a) Is it mandatory to include checksum in the UDP Header? With an example explain how the checksum is computed in the UDP header.
  b) What is congestion? Describe the congestion control mechanisms.   [7+8]

8.a) What is name-address resolution in DNS? Explain the two resolution methods with suitable examples.
  b) Discuss the two connections used in FTP. Also explain how file transfer can be done using a secure channel.   [8+7]

--ooOoo--

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Pharmacy IV Year I Semester Examinations, November/December-2016
PHARMACY ADMINISTRATION

Time: 3hours   Max.Marks:75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each
question carries 10 marks and may have a, b, c as sub questions.

PART-A   (25 Marks)

1.a) Mention the types of public enterprises.   [2]
  b) Mention three important characteristics of business.   [3]
  c) Comment on locating a pharmaceutical industry near baking industry.   [2]
  d) Mention the advantages of statistical quality control.   [3]
  e) Define clinical effectiveness.   [2]
  f) Give three names of banned drugs and reasons for their banning.   [3]
  g) Define product life cycle.   [2]
  h) Mention the differences between pharmaceutical and consumer marketing.   [3]
  i) Give the names of synthetic drugs of vegetable origin.   [2]
  j) Mention the causes for failure of PSUs in India.   [3]

PART-B   (50 Marks)

2.   Write about Joint Stock Company and its organization.   [10]
                              OR
3.   Enumerate the effects of post liberalization on Indian pharmaceutical industry.
                                                                               [10]

4.   Explain the types of plant layout with their relative merits.   [10]
                              OR
5.   Write about quality control charts of variables and attributes.   [10]

6.   Explain the process of adverse drug reaction monitoring highlighting pharmacist's
     role in it.   [10]
                              OR
7.   Write about the a) Pharmacoeconomics and b) Pharmaceutical outcomes.   [5+5]

8.   Give the channels of distribution and discuss the factors influencing them. [10]
                              OR
9.   Write about sales organization and sales promotion policies of pharmaceutical
     industry.   [10]

10. Write about the current status of pharmaceutical industry in India highlighting its
     role in national economy.   [10]
                              OR
11. Write about the procedures for export and import of drugs.   [10]

--ooOoo--

Code No: R9605

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Pharmacy IV Year I Semester Examinations, November/December-2016
PHARMACY ADMINISTRATION

Time: 3hours   Max.Marks:75

Answer any five questions
All questions carry equal marks

- - -

1.a) Enumerate the factors influencing the location of pharmaceutical plant with suitable examples.
  b) What are the advantages of statistical quality control? Write about $\overline{X}$ chart.

  [10+5]

2.a) Differentiate between partnership company and joint stock company. Mention their relative advantages.
  b) Write about health insurance in India and its growth.   [7+8]

3.a) What is pharmacovigilance? Write about the initiatives taken by central government in this? Mention the role of pharmacist in pharmacovigilance.
  b) Write about abuse of prescription drugs and adherence to medications.   [7+8]

4.a) Write about factors influencing the channels of distribution.
  b) What is product life cycle and explain its influence on marketing strategies.

  [7+8]

5.a) Enumerate growth and fall of PSUs in pharma industry in India.
  b) Explain the processes of export and import of drugs.   [7+8]

6.a) Write about Indian Pharmaceutical Association.
  b) Which statutory council governs the profession of pharmacy? Explain its functioning.   [7+8]

7. Explain the layout of a drug store and its functioning.   [15]

8. Write short notes on the following:
   a) Format for monitoring adverse drug reactions
   b) Goals of production management
   c) Stages of new product development   [5+5+5]

--ooOoo--

Code No: 117GA

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
OPTICAL COMMUNICATIONS
(Electronics and Communication Engineering)

Time: 3 Hours

Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit.
Each question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

1.a)	List out the advantages of Optical Communication.	[2]
b)	What are Skew Rays?	[3]
c)	Define dispersion in multimode fibers. What are its effects?	[2]
d)	What is meant by Pulse broadening?	[3]
e)	List the factors that cause intrinsic joint losses in a fiber	[2]
f)	What are the differences between Laser diode and an LED?	[3]
g)	Describe the Quantum limit.	[2]
h)	What are the receiver error sources?	[3]
i)	Illustrate interchannel crosstalk that occurs in WDM networks	[2]
j)	Define Jitter	[3]

PART-B

(50 Marks)

2.a) Explain about Numerical Aperture in the fiber with a neat diagram.

b) A typical refractive index difference for an optical fiber designed for long distance transmission is 1%. Estimate the Numerical aperture and the solid acceptance angle in air for the fiber when the core index is 1.49. Also calculate the critical angle at the core-cladding interface within the fiber. [6+4]

OR

3.a) A multimode step index fiber with a core diameter of 80μm and a relative index difference of 1.5% is operating at a wavelength of 0.85μm. If the core refractive index is 1.48, estimate:
i) The normalized frequency for the fiber
ii) The number of guided modes.

b) Explain in detail the Graded index fibers with neat diagrams. [4+6]

4.a) Explain material dispersion, wave guide dispersion and find an expression for both using electromagnetic field theory.

b) An optical signal at a specific wavelength has lost 55% of its power traversing 7.0km of fiber. What is the attenuation in dB/km of this fiber? [7+3]

OR

5.a) Discuss the connection losses with a neat diagram.
  b) Consider a standard G.652 non-dispersion shifted single mode optical fiber that has a zero-dispersion wavelength at 1310nm with a dispersion slope of $S_o=0.0970$ ps/(nm^2.km). Plot the dispersion in the wavelength range of 1270nm $\leq \lambda \leq$ 1340nm. [6+4]

6.a) Draw and explain the various fiber alignments and joint losses.
  b) Describe various fiber splicing techniques with their diagrams. [5+5]

OR

7.a) Describe the various types of fiber connectors and couplers.
  b) Explain the working of hetero structure LED. [5+5]

8.a) Draw the structure of PIN and APD photo detectors and explain their operation.
  b) What is meant by detector response time? Explain. [5+5]

OR

9.a) With a neat diagram explain the operation of each block in fundamental optical receiver.
  b) With a neat diagram discuss the Analog Receivers. [5+5]

10.a) Discuss the different Line coding used in Optical Links.
  b) A transmitter has an output power of 0.1 mW. It is used with a fiber having NA = 0.25, attenuation of 6 dB/km and length 0.5 km. The link contains two connectors of 2 dB average loss. The receiver has a minimum acceptable power (sensitivity) of – 35 dBm. The designer has allowed a 4 dB margin. Calculate the link power budget. [6+4]

OR

11.a) Discuss the following:
     i) WDM networks
     ii) Ultra high capacity networks.
   b) Describe the measurement of attenuation and dispersion in Optical Fibers. [5+5]

---ooOoo---

Code No: 117DW
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
INDUSTRIAL WASTE WATER TREATMENT
(Civil Engineering)

Time: 3 Hours
Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each
question carries 10 marks and may have a, b, c as sub questions.

PART- A   (25 Marks)

1.a) What is industrial wastewater? How is it different from domestic sewage?   [2]
  b) What is BOD? Write the procedure to estimate BOD of an industrial wastewater sample?
                                                                                      [3]
  c) Define volume reduction of wastes and give one example?   [2]
  d) What are the objectives of proportioning of industrial wastewaters?   [3]
  e) Explain the process of Electrodialysis with the help of a sketch   [2]
  f) Differentiate between dissolved air floatation and dispersed air floatation.   [3]
  g) Draw the flow sheet of sugar manufacturing industry?   [2]
  h) Write the major chemical composition of wastewater obtained from steel industry. [3]
  i) What are the possible hazardous substances that can be present in a wastewater obtained
      from mining industry?   [2]
  j) Write the limitations and drawbacks of CETPs?   [3]

PART-B   (50 Marks)

2.   What are the important chemical parameters of the industrial wastewater? Write the
     methods of estimation for any three parameters.   [10]
                                    OR
3.   Can all industrial wastes be treated in municipal sewage treatment plants? What are the
     limitations to treat the industrial wastes along with domestic wastewater?   [10]

4.   Name seven major methods of neutralizing both acid and alkali wastes? Explain any two
     methods.   [10]
                                    OR
5.   What is meant by Equalization? What is the purpose of equalization? What are the
     methods of equalization and explain any two methods of mixing?   [10]

6.   Why has removal of organic dissolved solids long been the most important and most
     difficult phase of industrial waste treatment? Explain different methods employed for the
     removal from wastewaters?   [10]
                                    OR

7. Describe the principles and problems in using ion exchange and its major use for industrial wastewater? [10]

8. What are the major chemical constituents in wastewater obtained from sugar industry? Discuss the treatment technologies to remove the contaminants? [10]

OR

9. Discuss the optimized design of wastewater treatment systems applied to petroleum industry. [10]

10. Differentiate between high level and low level radioactive wastes, indicating the methods of safe disposal of these types of wastes. How are radioactive wastes being disposed in India? [10]

OR

11. Discuss the most common operational problems along with their trouble shooting methods in CETPs. [10]

--ooOoo—

Code No: 117JK

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
VEHICLE BODY ENGINEERING AND SAFETY
(Automobile Engineering)

Time: 3 Hours

Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit.
Each question carries 10 marks and may have a, b, c as sub questions.

PART- A
(25 Marks)

1.a) What are the various components of the automobile made by FRP? [2]
  b) What are the advantages and applications of extruded Aluminum parts? [3]
  c) How to improve the aesthetic of car shape? [2]
  d) How the aerofoil shape of vehicle improves performance? [3]
  e) How to improve the strength of chassis? [2]
  f) What are the various forces to be considered in the design of the body of vehicle? [3]
  g) What are the reasons for the fatigue of parts and how can it be controlled? [2]
  h) How the side impact occurs on the vehicle and how can it be controlled? [3]
  i) What are the advantages and applications of double decker? [2]
  j) What are the advantages and disadvantages of rear engine? [3]

PART-B
(50 Marks)

2.a) What are the advantages and applications of Austenitie and ferritic stainless steels?
  b) What are the various alloy steels used in Automobiles and explain their properties and applications. [5+5]

OR

3.a) What are the various composites used in practice and explain about the importance of FRP composites?
  b) What are the high strength, temperature resistant composites used in practice and mention their applications? [5+5]

4.a) What is the difference between industrial design and conceptual design in the vehicle body?
  b) How the computer aided design is helpful in the design and manufacture of automobiles incorporating the changes? [5+5]

OR

5.a) How the dash-board is designed to have the display of the information about engine and running of vehicle?
  b) What is aesthetics and erogonomics and how can they be incorporated in the manufacture of vehicle? [5+5]

6.a) What are the various loads coming on to the vehicle and how can these be analyzed in the design of structure?
   b) What are the various shapes of frames used for the vehicles and explain the importance of gusset plates in the design of frames? [5+5]

OR

7.a) Why ladder type of frame is selected for heavy vehicles and trucks?
   b) Explain with a sketch the window winding mechanism used in cars. [5+5]

8.a) What are the causes of vibrations in the chassis bearings and how can it be protected?
   b) How the vibration isolation can be implemented to have comfortable journey in the Automobiles? [5+5]

OR

9.a) How the system damping, material damping is obtained by the design and fabrication of vehicle?
   b) What are the causes of fatigue of the parts and how can these failures be arrested? [5+5]

10.a) What are the various factors to be considered in the design and construction of passenger buses and vans?
   b) Differentiate between mini coach and van considering the shape, capacity and facilities. [5+5]

OR

11.a) How the road conditions create vibrations and instability on the vehicle?
   b) How the loads and loading practices, speed create instability of vehicle? [5+5]

--ooOoo--

R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
EMBEDDED SYSTEM DESIGN
(Electronics and Communication Engineering)

Time: 3 Hours   **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each
question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

1.a) Define "Time-to-market".   [2]
  b) What is the quality attribute "Portability" in the embedded system design context. [3]
  c) What is the role of ASIC in Embedded System design?   [2]
  d) What is Actuator?   [3]
  e) What is the role of Reset Circuit in embedded system?   [2]
  f) What are the merits and drawbacks of 'recursion'?   [3]
  g) What is an Operating system? What are its primary functions?   [2]
  h) What is task control block (TCB)?   [3]
  i) Define Coffman conditions.   [2]
  j) How multiple threads of a process co-operate?   [3]

PART-B

(50 Marks)

2. Define an embedded system? Explain the characteristics of Embedded Systems.   [10]

OR

3. Explain the various purposes of embedded systems in detail with illustrative examples. [10]

4.a) Explain the different factors that needs to be considered in the selection of memory for embedded systems.
  b) Explain the difference between I^2C and SPI communication interface.   [5+5]

OR

5. Explain the different communication buses used in automotive application.   [10]

6. Explain the different sections of a memory segment allocated to an application by the memory manager. [10]

OR

7. Explain the difference between 'pointer to constant data' and 'constant pointer to data' in Embedded C programming. Explain the syntax for declaring both. [10]

8. a) Explain starvation in the process scheduling context. Explain how starvation can be effectively tackled.

   b) What is the difference between a General Purpose kernal and Real-Time kernel? Give an example for both. [5+5]

OR

9. Explain the different multitasking models in the operating system context. [10]

10. Explain in detail, the different task communication synchronization issues encountered in Inter Process communication. [10]

OR

11. Explain the architecture of device driver, with neat sketch and give the applications of device drivers. [10]

---ooOoo---

		R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
COMPUTER FORENSICS
(Common to CSE, IT)

Time: 3 Hours   Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit.
Each question carries 10 marks and may have a, b, c as sub questions.

PART- A

                                                                                              (25 Marks)

1.a)	What is the role of computers in a crime?	[2]
b)	What are the problems of computer forensics evidence?	[3]
c)	What are artifacts?	[2]
d)	List out the steps for processing computer evidence.	[3]
e)	What is computer forensic validation?	[2]
f)	How to validate forensic data?	[3]
g)	What are the needs of computer forensic tools?	[2]
h)	Discuss about email servers.	[3]
i)	What is the use of registries in windows?	[2]
j)	What do you mean by encrypting a disk?	[3]

PART-B

                                                                                              (50 Marks)

2.   Explain briefly about
        a) role of backup in data recovery.
        b) Data recovery solution.   [5+5]

OR

3.   Explain about computer forensic services.   [10]

4.   What are the legal aspects of collecting and preserving computer forensic evidence?
                                                                                               [10]

OR

5.   What are the practical considerations and implementations for computer image
        verification and validation?   [10]

6.a)   Explain about how to secure a computer incident or crime scene.
  b)   Write short notes on network forensic overview.   [6+4]

OR

7.   Explain the process of collecting evidences in private sector incident scenes.   [10]

8.a) What do you understand by mobile device forensics? Explain.
b) Explain about specialized email forensic tools. [6+4]

OR

9. Explain about investigating email crimes and violations. [10]

10. Discuss about
a) Virtual machines   b) MS-DOS startup tasks [5+5]

OR

11. Write short notes on
a) Microsoft file structures   b) Microsoft startup tasks. [5+5]

--ooOoo--

Time: 3 Hours

Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks

- - -

1. Figure shows the plan of a footing subjected to eccentric load with two way eccentricity. The footing is founded at a depth 3 m below the ground surface. Given $e_x = 0.60$ m and $e_y = 0.75$ m, determine Q_{ult}. The soil properties are: $c = 0$, $N_c = 20$, $\gamma = 18.5$ kN/m^3. The soil is medium dense sand. Use Hansen's theory.

[7+8]
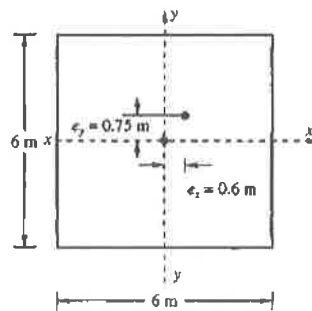
2.a) A concrete footing of 1m × 2m size is resting at a depth of 1m in a soil with E=10^4 kN/m^2, μ=0.3. Estimate the immediate settlement if the footing is subjected to a pressure of 200kN/m^2.Assume footing to be rigid.

b) A square footing 2.5m size is founded at a depth of 1.5m in a sandy deposit which has the corrected N value of 30. The water table is at a depth of 2m from the ground surface. Find the net allowable soil pressure if i) the desired factor of safety is 3.0 and ii) the permissible settlement is 40mm. Use Teng's equation.

[7+8]

3.a) Discuss different methods for the installation of piles. How would you estimate the load carrying capacity of a pile in cohesion less soils?

b) Design a friction pile group to carry a load of 3500 kN including the weight of pile cap, at a site where the soil is uniform clay to a depth of 10 m underlain by rock. The average compressive strength of clay is 50 kN/m^2. The clay may be assumed to be of normal sensitivity and normally loaded with a liquid limit of 70%. Adopt a factor of safety 2.5 against shear failure.

[7+8]

4.a) Describe various types of pile foundations with neat sketches.

b) The pile load test on a 40cm diameter concrete pile in a deposit of sand indicates a settlement of 4mm under a load of 400kN. Estimate the settlement of a 4m×4m pile group. The piles are driven at a spacing of 100cm. The total load on the group pile is 6400kN.

[7+8]

5.a) Discuss the Rankine's earth pressure theory on passive earth pressure in cohesionless soils.

b) A retaining wall is 7 m high, with its back face smooth and vertical. It retains sand with its surface horizontal. Using Rankine's theory, determine active earth pressure at the base when the backfill is: i) dry, ii) saturated and iii) submerged, with water table at 2 m below the surface. Take $\gamma_t=18$ kN/m^3, $\gamma_{sat}=21$ kN/m^3 and $\phi=30^0$. [8+7]

6. An excavation of 8m deep is to be made in cohesionless soil $\gamma=19$kN/m^3 and $\phi=30^0$. The sides of the excavation are supported by anchored sheet piles with fixed end support. Determine the minimum depth of embedment for equilibrium. The anchors are at a depth of 1.5m below the surface. [15]

7.a) What is a well foundation? What are its types? Discuss the components of well foundation with neat sketch.

b) Briefly explain the procedure adopted in well sinking and bring out the problems that are encountered in open sinking. [8+7]

8.a) What are the collapsible soils? Differentiate between collapsible and expansive soils.

b) Explain the Preventive and Remedial measures for foundations on collapsible soils. [8+7]

--ooOoo--

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech IV Year I Semester Examinations, November/December - 2016
DSP PROCESSORS AND ARCHITECTURES
(Common to ECE, ETM)

Time: 3 Hours

Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks
- - -

1.a) Why decimation and interpolation required in digital signal processing? What is its effect in frequency domain?
 b) Let x(n)= [0 3 6 9 12] be interpolated with L=3. If the filter coefficients of the filters are b_k=[1/3 2/3 1 2/3 1/3]. Obtain the interpolated sequence.   [7+8]

2.a) What is rounding error? Explain in context with ADC errors. Describe with an example, DAC converter error due to the zero order.
 b) Differentiate between ADC and DAC errors in DSP.   [7+8]

3.a) Explain the major architectural features used in a digital signal processor to achieve high speed of program execution.
 b) Explain briefly Basic Architectural features of DSP devices.   [7+8]

4.a) Explain:
  i) Stacks   ii) interrupts
 b) Explain interlocking problem and the solution for it.   [7+8]

5.a) With a neat block diagram, Describe the multiplier/adder unit of TMS320c54xx processor.
 b) Describe any three data addressing modes of TMS320c54xx processor.   [7+8]

6.a) With an example explain significance of Q-notation in DSP.
 b) Explain the implementation of PID controller using DSP.   [7+8]

7.a) Determine the following for a 128-point FFT computation:
  i) Number of stages
  ii) Number of butterflies in each stage
  iii) Number of butterflies needed for the entire computation
  iv) Number of butterflies that need no twiddle factors
  v) Number of butterflies that requires real twiddle factors
  vi) Number of butterflies that require complex twiddle factors
 b) What do you mean by bit-reversed index-generation and how it is implemented in TMS320C54xx device?   [7+8]

8.a) Draw the timing diagram for memory interface for read-read-write sequence of operation. Explain the purpose of each signal involved.
 b) Explain an interface between an A/D converter and the TMS320C54XX processor in the programmed I/O model.   [7+8]

---ooOoo---

Code No: 57040

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
TELECOMMUNICATION SWITCHING SYSTEMS
(Electronics and Communication Engineering)

Time: 3 Hours

Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks
- - -

1.a) Draw Trucking diagram of a 10,000 line step by step exchange and explain its operation.
  b) Explain the operation of strowger switching system. [8+7]

2.a) Discuss in detail the second Erlang distribution.
  b) During the busy hour 1200 calls were offered to a group of trunks and 6 calls were lost. The average call duration was 3 minutes find
     i) The traffic offered   ii) The traffic carried   iii) The traffic lost
     iv) The grade of service   v) The total duration of the periods of congestion. [8+7]

3.a) Obtain the grade of service of two stage and three stage networks.
  b) Design a three stage network for connecting 100 incoming trunks to 100 outgoing trunks. [8+7]

4.a) Explain the principle of operation space division and time division switches. [8+7]
  b) Explain in detail the time multiplexed space switching.

5.a) Explain the operation of common control system.
  b) Explain call processing functions. Also draw signal exchange diagram and state transition diagram of a local call. [7+8]

6.a) With a neat diagram explain the in band signaling and out band signaling.
  b) Draw and explain block schematic diagram for relationship of CCITT signaling system No. 7 with layers of OSI 7-layer model. [7+8]

7.a) Explain and derive delays in Datagram packet switching.
  b) Suppose that 64kbps PCM encoded speech is packetized into a constant bit rate ATM cell stream
     i) What is the interval between productions of full cells?
     ii) How long does it take to transmit the cell at 155Mbps?
     iii) How many cells could be transmitted in this system between consecutive voice cells? [8+7]

8.a) Describe the functional architecture and standards of ISDN Channels.
  b) Explain in detail about the National and International numbering schemes. [8+7]

--ooOoo--

R09

Time: 3 Hours   Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks

- - -

1.a)   What is the difference between 8-connectivity and *m*-connectivity.
  b)   Write difference types of transforms and explain the advantages of transforms.   [7+8]

2.   Discuss in detail spatial domain Image enhancement techniques.   [15]

3.a)   Explain how to obtain the frequency domain filters from spatial filters.
  b)   Discuss the smoothing and sharpening filters in frequency domain.   [7+8]

4.a)   Explain clearly the least mean square filters.
  b)   What is restoration and Discuss about the Algebraic approach to restoration?   [7+8]

5.a)   What are the techniques used to detect the points and line of the image? Discuss.
  b)   Explain how Discontinuities are detected.   [8+7]

6.   Explain the following:
  a) Source encoder and decoder.
  b) Error free compression.   [7+8]

7.a)   Explain about Wavelet based denoising.
  b)   Discuss wavelet thresholding methods.   [7+8]

8.a)   Explain about strel function.
  b)   Discuss the dilation and erosion.   [7+8]

---ooOoo---

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December 2016
SOFTWARE TESTING METHODOLOGIES
(Common to CSE, IT)

Time: 3 Hours

Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks

- - -

1.a) What are the consequences of bugs? Explain.
 b) Discuss in detail about a model for testing.   [8+7]

2.a) Describe predicate coverage and testing blindness.
 b) Distinguish between link markers and link counters with examples.   [8+7]

3.a) What are transaction-flow testing techniques? Explain.
 b) Explain in detail about the data-flow model.   [8+7]

4.a) Where do domains comes from? Explain nice domains.
 b) Discuss in detail about domains and testability.   [8+7]

5.a) Explain about approximate number of paths with example.
 b) Describe path products and path expressions.   [8+7]

6.a) Explain about Boolean algebra and Boolean equations.
 b) Discuss about three variable KV chart with examples.   [8+7]

7.a) What are state bugs? Explain in detail.
 b) Write testability tips of states, state graphs and transition testing.   [8+7]

8. Explain the following:
    a) Matrix representation in software
    b) Win-runner testing tool
    c) Node reduction algorithm   [5+5+5]

--ooOoo--

Code No: 217AD

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Pharmacy IV Year I Semester Examinations, November/December-2016
MEDICINAL CHEMISTRY-II

Time: 3hours   Max.Marks:75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A   (25 Marks)

1.a) In the search for a new drug, a pharmacophore often serves as a template for the desired ligand. Discuss briefly. [2]
   b) Define QSAR. Write about free wilson analysis [3]
   c) Give a note on beta lactamase inhibitors. [2]
   d) Mention any three differences between 6-APA and 7-ACA. [3]
   e) Write about major toxicity effects of tetracyclines. [2]
   f) Draw the chemical structures for ciprofloxacin and norfloxacin. [3]
   g) Define antitubercular agents and classify them. [2]
   h) Write about the differences between any two antifungal agents having triazole nucleus. [3]
   i) Give an account on insulin. [2]
   j) Classify diagnostic agents according to their test functionalities. [3]

PART B   (50 Marks)

2.a) Describe Hansch multiparameter model of QSAR analysis.
   b) Explain the importance of pharmacophore in drug design. [5+5]

OR

3.a) Write a note on Computer Aided Drug Design.
   b) Explain physicochemical properties which influence biological activity. [5+5]

4.a) Classify cephalosporins and discuss the structural activity relationship of cephalosporins.
   b) Enumerate various steps involved in the synthesis of penicillin from 6-aminopenicillanic acid. [5+5]

OR

5.a) What are penicillins .Write SAR of Penicillins?
   b) Discuss in detail about various formulations of cephalosporins with examples. [5+5]

6.a) Describe about chemical structure, acid hydrolysis and uses of streptomycin.
   b) Explain various acidity constants in tetracycline molecule. [5+5]

OR

7.a) What are tetracyclines? Describe in detail about SAR of such agents.
   b) Explain about structure and synthesis of Chloramphenicol. [5+5]

8.a) Write about the method of synthesis and uses of dapsone.
  b) Describe the mechanism of action and synthesis of mebendazole.   [5+5]

OR

9.a) Give the mode of action and synthesis of acyclovir.
  b) Mention the classification of sulphonamides with examples. Write the synthesis of
     Sulfamethoxazole.   [5+5]

10.a) Discuss the mechanism of action of various alkylating agents with examples.
   b) Write a note on radioprotective agents.   [5+5]

OR

11.a) Write a short note on Iopanoic acid as Diagnostic agent.
   b) Write the synthesis, mechanism of action and therapeutic uses of methotrexate. [5+5]

--ooOoo--

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Pharmacy IV Year I Semester Examinations, November/December-2016
MEDICINAL CHEMISTRY - II

Time: 3hours   Max.Marks:75

Answer any five questions
All questions carry equal marks

- - -

1. Enumerate various structural modifications implemented for lead to increase the potency and therapeutic index. [15]

2.a) What is Hansch, Hammett and Taft analysis in developing QSAR? Explain the dependent and independent variables in a QSAR equation?

  b) Calculate the $\log P$ value for the structure shown; $\log P$ for benzene = 2.13; $\pi(OH)= -0.67$; $\pi(CH_3)=0.52$? [10+5]
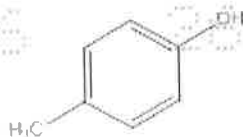
3. Explain the different classes of penicillin's and enzymatic hydrolysis with Pencillinase, amidase. [15]

4.a) Write the structure, Mechanism of action and classification of cephalosporins?

  b) Explain the acid hydrolysis of Cephalosporin C. [7+8]

5.a) Explain biological source, structure and classification of Tetracyclins?

  b) Write the mechanism of action and toxic effects of Tetracyclins. [8+7]

6. Explain the synthesis of chloramphenicol. [15]

7. Write about therapeutic agents developed from recombinant DNA technology. [15]

8. Write about combinatorial synthesis and explain its pros and cons. [15]

--ooOoo--

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
LINUX PROGRAMMING
(Computer Science and Engineering)

Time: 3 Hours   Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each
question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

1.a) What are filters? List out various filters available in linux.   [2]
 b) Explain command substitution   [3]
 c) Distinguish between dup() and dup2() system calls.   [2]
 d) Explain the functionality of fcntl() function.   [3]
 e) Explain the sleep() function with syntax.   [2]
 f) What is the difference between wait() and waitpid()?   [3]
 g) Differentiate between unnamed and named pipes.   [2]
 h) With the help of syntax explain popen() function.   [3]
 i) Explain the necessity of socket address structures.   [2]
 j) Explain how to perform IPC between processes over a network.   [3]

PART-B

(50 Marks)

2.a) Explain various process utilities available in linux.
 b) Write a shell script that deletes all lines containing a specified word in one or more files
     supplied as arguments to it.   [5+5]

OR

3.a) Explain various patterns and actions in awk.
 b) Write an awk script to perform simple arithmetic operations.   [5+5]

4.a) Explain the support given by kernel for files in detail.
 b) What do you mean by a hole in a file? How does the use of lseek() result in hole in a file?
     Explain with an example program.   [5+5]

OR

5. Explain the file and record locking techniques with relevant example code snippet.
                                                                                          [10]

6.a) Explain the layout of a C program image in main memory.
 b) Define orphan process. Write a program to illustrate the orphan process concept.   [5+5]

OR

7. Explain the below system calls with the help of syntax and examples:
    a) kill   b) raise   c) alarm   d) pause   e) abort   [10]

8.a) Describe the API provided by linux for semaphores.
 b) Write a program for locking a file using semaphore [5+5]

OR

9.a) Define unnamed pipe? How do we create unnamed pipe? Explain the limitations of unnamed pipe.
 b) Write a program to accept the two integer numbers accepted by child, add them and result should be passed to parent. Parent process should print result on the screen using pipes. [5+5]

10. Describe Socket system calls used for connectionless protocol with syntax and usage. [10]

OR

11.a) Compare the IPC functionality provided by message queues with shared memory.
 b) Explain how to handle multiple simultaneous clients. [5+5]

---ooOoo---

R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
CELLULAR AND MOBILE COMMUNICATIONS
(Electronics and Communication Engineering)

Time: 3 Hours   Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit.
Each question carries 10 marks and may have a, b, c as sub questions.

PART- A
(25 Marks)

1.a) What is Grade of Service? [2]
 b) Define (i) Coherence time (ii) System Capacity [3]
 c) Define cross talk. [2]
 d) Define the terms (i) Polarization and (ii) Directivity of an antenna system. [3]
 e) What is meant by foliage? Define foliage loss [2]
 f) What is the minimum separation required between cell site antennas? Explain briefly.[3]
 g) What is meant by frequency management [2]
 h) Write short notes on sectorization. [3]
 i) What is meant by hand-off and handoff algorithm [2]
 j) Explain the concept of delaying handoff in brief. [3]

PART-B
(50 Marks)

2. What are the various techniques used to expand the capacity of a cellular system? Explain any two. [10]

OR

3.a) Derive C/I from a normal case in a omnidirectional antenna system.
 b) Write the advantages and disadvantages of 1G and 2G cellular systems. [5+5]

4.a) Determine the signal to co-channel interference ratio at the mobile receiver located at the boundary of its omnidirectional operating cell ,under the influence of interfering signals from six co-channel interfering cells in the first tier in a cellular system designed with i) N=4 and ii) N=7. Assume path loss exponent is 4.
 b) Write short notes on Adjacent channel interference. [6+4]

OR

5.a) Write short notes on: i) space diversity ii) Time diversity.
 b) Discuss how antenna height effects the coverage and interference of cellular system.[5+5]

6.a) Discuss the merits of point to point model.
 b) Explain the effect of propagation of mobile signals over water. [5+5]

OR

7.a) Explain umbrella antenna patterns in detail.
  b) Explain in detail about long-distance propagation.   [5+5]

8.a) Differentiate between FCA and non-FCA in detail.
  b) Explain how the 666 channels are dividing into groups.   [5+5]

OR

9.a) Explain the following: i) channel barrowing   ii) overlaid cells.
  b) Explain the channel assignment to the mobile units in detail.   [5+5]

10.a) What are the various handoff initiation techniques? Explain any two in brief.
   b) Write short notes on: i) Mobile assisted handoff   ii) soft handoff   [5+5]

OR

11.a) How can handoff be initiated at the boundary of two cells, based upon threshold point considering signal at two base stations.
   b) What is meant by a dropped call? What are the factors that influence the dropped call rate?   [5+5]

--ooOoo--

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
INSTRUMENTATION AND CONTROL SYSTEMS
(Common to ME, AME)

Time: 3 Hours   Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each
question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

1.a) Distinguish between Accuracy and Precision. [2]
  b) State and explain briefly desirable and undesirable dynamic characteristics. [3]
  c) List out active transducers. [2]
  d) State the characteristics of manometer fluid. [3]
  e) List out contactless electrical tachometers. [2]
  f) What is the relationship between the rotational speed and the flashing rate of stroboscope directed onto a single radial mark on the rotating wheel? [3]
  g) State the factors to be considered for the selection of material used in strain gauges. [2]
  h) Draw the neat diagram of Sling psychrometer and mention components. [3]
  i) State any two merits of closed loop control systems. [2]
  j) Distinguish between servomechanism and process control. [3]

PART-B

(50 Marks)

2.a) Draw the generalized scheme of a typical measurement system and explain about various components of it.
  b) State and explain various types of errors in measurements. [5+5]
OR
3.a) Draw the block diagram of first order system. Derive the equation of transfer operator for the first order system.
  b) Derive the steady-state responses of first order system with respect to:
     i) Step input and   ii) Ramp input. [4+6]

4. Explain the construction and principle of LVDT with a neat diagram and compare it with capacity pickup transducer. [10]
OR
5.a) Explain the working principle of Bimetallic thermometer with a neat diagram.
  b) A platinum resistance thermometer has a resistance of 140.5 and 100.0 Ω at 100 and 0^0C respectively. If its resistance becomes 305.3 Ω when it is in contact with a hot gas, determine the temperature of the gas. Take the temperature coefficient of platinum as 0.0039^0C^{-1}. [5+5]

6. Explain with a neat sketch the functioning of displacer type liquid level measuring instrument. [10]

OR

7. Explain construction and the working principle of a Rotameter with a neat diagram.
[10]

8.a) Define gauge factor. Explain the factors which affect the gauge factor.
  b) Explain the method for measuring the bending strain using the resistance strain gauge with a neat sketch. [5+5]

OR

9.a) List out various types of electrical hygrometers for measuring the relative humidity. Explain atleast one in detail with a neat diagram.
  b) What are the load cells? Explain the working principle of strain gauge load cell with a neat diagram. [5+5]

10.a) State advantages and limitations of open-loop control system.
  b) Draw and explain block diagram for level control system. [5+5]

OR

11.a) Draw a block diagram of a typical closed loop system.
  b) Draw and explain block diagram for speed control system. [5+5]

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R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
WATER RESOURCES ENGINEERING-II
(Civil Engineering)

Time: 3 Hours   Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

Note: Khosla's curves will be made available.

PART- A

(25 Marks)

1.a) What are the various storage zones of a reservoir?   [2]
 b) How the inflow of sediment into a reservoir can be controlled?   [3]
 c) Write short note on uplift force on a gravity dam.   [2]
 d) Describe the treatment commonly given to the foundation of gravity dam. [3]
 e) What are the seepage failures of earth dam?   [2]
 f) How hydraulic jump is created when hydraulic jump curve is higher than the tail water curve?   [3]
 g) What is the purpose of divide wall?   [2]
 h) What is meant by piping in the foundation of a weir?   [3]
 i) Briefly explain the function of cross regulator.   [2]
 j) Classify the canal modules.   [3]

PART-B

(50 Marks)

2.a) Briefly describe reservoir sedimentation and the procedure to determine the life of a reservoir.
 b) Classify dams based on their use.   [5+5]

OR

3.a) Describe the procedure to determine safe yield from a reservoir of a given capacity.
 b) Illustrate the advantages and disadvantages of an arch dam.   [5+5]

4. The following figure gives profile of a gravity dam with reservoir level as shown. If the co-efficient of friction is 0.8 and weight density of concrete is 2.4t/m^3, check the safety of the dam against sliding, overturning and max and min vertical stress. Assume any other data not given.   [10]

7m

∇

10m

97m

100 m

75 m
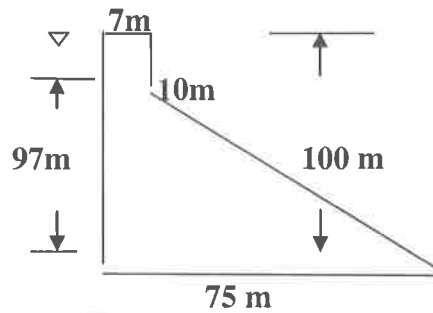
OR

5.a) Define elementary profile of dam and derive the base width of elementary profile based on stress and sliding criteria. Consider the full reservoir condition.

   b) Write detailed notes on earthquake forces on gravity dams. [5+5]

6.a) Explain different types of earthen dams.

   b) Describe the measures to prevent seepage failures in earth dams. [5+5]

OR

7.a) Describe various types of spillways.

   b) Explain different types of spillway gates. [5+5]

8.a) Draw a neat sketch showing various components of a diversion headwork. Explain briefly the functions of each component.

   b) Briefly explain Bligh's theory and discuss its limitations. [5+5]

OR

9. An horizontal impervious floor of a weir on permeable soil is 15 m long and has sheet piles at both ends. The upstream pile is 5 m deep and the downstream pile is 6 m deep. The weir creates a net head of 3.0 m. The downstream end of weir is located at a distance of 7 m from the upstream end of impervious floor. Calculate the uplift pressures at the junction of the inner faces of the pile with the weir floor, by using Khosla's theory. Also determine the thickness of apron at the downstream side of the weir. [10]

10.a) Describe various components of a canal cross-regulator with a neat sketch.

    b) What is meant by semi-modular outlet? Explain how APM outlet is working as semi-module outlet? [5+5]

OR

11.a) What are the various cross drainage works?

    b) Write the design procedure of an aqueduct. [5+5]

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
DISTRIBUTED COMPUTING
(Computer Science and Engineering)

Time: 3 Hours

Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks

- - -

1.a) Classify various computing techniques.
 b) Demonstrate thread synchronization in distributed applications with suitable example. [7+8]

2.a) With a neat sketch explain the publish/subscribe model of distributed computing.
 b) Discuss in detail the merits, demerits and principles of client server model of distributed application paradigm. [8+7]

3.a) Write a simple java program to establish connection between two machines using socket and server socket classes.
 b) Distinguish the following classes in java.net package.
    i) InetAddress
    ii) Inet4Address
    iii) Inet6Address
    iv) InetSocketAddress [7+8]

4.a) List all the steps for building, testing and debugging a RMI application.
 b) Explain architecture of RMI in detail. [7+8]

5.a) Demonstrate interoperable naming service of CORBA with example.
 b) Explain briefly Inter ORB Protocols. [8+7]

6.a) What is virtual organization? Explain how to create virtual organization using grid computing.
 b) Write a simple java web service to convert distance in meters to kilometers. [8+7]

7.a) List out the capabilities of open grid services architecture.
 b) Explain Service Oriented Architecture (SOA) in detail. [5+10]

8.a) Differentiate web services and grid services.
 b) Discuss about security infrastructure of GT3. [7+8]

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
INSTRUMENTATION AND CONTROL SYSTEMS
(Common to ME, AME)

Time: 3 Hours
Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks

1.a) What do you mean by static calibration? give the steps which are necessary in performing a calibration.
 b) Differentiate between the repeatability and reproducibility.
 c) What are the different standard inputs for studying the dynamic response of a system? explain them briefly. [5+5+5]

2.a) Briefly explain the various types of working principle of photo electric transducers.
 b) Describe the construction and working principle of optical pyrometer? List out the limitations and advantages. [8+7]

3.a) Explain constructional details of McLeod pressure gauge.
 b) List out the advantages and disadvantages of bellows over diaphragm gauges.
 c) Explain the construction, working and theory of thermal conductivity gauges for measurement of vacuum. Explain how radiation effects are minimized. [5+5+5]

4. Explain the working principle of following with suitable examples:
 a) Ultrasonic level   b) Cryogenic fuel level indicator
 c) Hot wire anemometer. [5+5+5]

5.a) Describe the working principle of D.C. Tachometer generator and what are its advantages and disadvantages.
 b) What are the advantages and disadvantages of centrifugal speed tachometer?
 c) Explain the construction, principle of working and advantages of LVDT accelerometers. [5+5+5]

6.a) List the main advantages of semiconductor strain gauges.
 b) Explain one method of temperature compensation using an adjacent arm compensating gauge.
 c) Describe the working principle of strain gauge bridge with neat sketch. Indicate their arrangement for measurement of torque on a circular shaft. [5+5+5]

7.a) What are the hygroscopic materials? Explain the working of any one of the absorption hygrometers.
 b) Describe the working principle of hydraulic load cell.
 c) Explain the construction and working of a eddy current brake. What are its advantages and limitations? [5+5+5]

8.a) What are the basic elements of control systems? Explain them with neat sketches.
 b) Describe a speed control system for controlling the speed of an IC engine. [8+7]

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
ESTIMATING AND COSTING
(Civil Engineering)

Time: 3 Hours   Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks
- - -

1.   Explain in detail about all available estimates for a civil engineering structures.   [15]

2.   Estimate by centre line method the quantities of the following items of Low Income Group
        (LIG) house. Assume necessary data.
        a) Earth work excavation in foundation.
        b) P.C.C in foundation
        c) Brick work in footing
        d) D. P. C.   [15]

3.   Prepare a detailed estimate for earth work for a portion of a road from the following data.
        The formation level at starting point is 120m. Formation width of road is 10m and side
        slopes of banking are 2:1. The road is in downward gradient of 1 in 150 up to 120m and
        then the gradient changes to 1 in 100 downward.   [15]

Distance in m	0	30	60	90	120	150	180	210	240	270	300
R. L. of Ground	114.5	114.75	115.25	115.20	116.10	116.85	118.20	118.25	118.10	117.80	117.25

4.   Prepare analysis of rates for the following items of work.
        a) R. C. C work in column 1:1½:3 – unit 1 cu. m.
        b) Reinforced brick work in slabs 1:3 mortar – unit 1 cu. m.
        Assume materials & labors in the market rate.   [15]

5.   Estimate the quantity of steel for RCC slab with an illustrative example and explain the
        importance of bar bending schedule.   [15]

6.   Explain process of tendering contract for public work.   [15]

7.   Explain in detail about different methods of valuation.   [15]

8.   Explain detailed specifications for earthwork in excavation and plastering.   [15]

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