Set No. 1

IV B.Tech I Semester Supplementary Examinations, March 2013
POWER SEMICONDUCTOR DRIVES
(Electrical & Electronics Engineering)

Time: 3 hours   Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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1. Draw and explain the power circuit diagram of semi-converter feeding a separately excited D.C motor. Explain with typical voltage and current waveforms, the operation in continuous armature current Mode.   [16]

2. The speed of a 25 HP, 380V, 1800 rpm separately excited dc motor is controlled by a three phase fully controlled converter and is fed from a 210V 50 Hz supply and is star connected. The field circuit is also supplied from the same converter and the current is set to maximum possible value. The rated armature current of the motor is 170A.motor parameters are R_a=0.999Ω, L_a=0.73mh, Ω=0.33.

   (a) Determine the no load speeds at firing angles 0^0 and 30^0. Assume that no load current is 10% of the rated current and is continuous.

   (b) Find the firing angle to obtain rated power at rated motor speed.

   (c) Determine the speed regulation.   [16]

3. (a) With neat circuit diagram and waveforms, explain dynamic braking of separately excited motor by single phase converter.

   (b) A dc shunt motor has the armature resistance of 0.04Ω and the field winding resistance of 10Ω. Motor is coupled to an over hauling load with a torque of 400N-m. Following magnetization curve was measured at 600 rpm:

Field Current, A	2.5	5	7.5	10	12.5	1.5	17.5	20	22.5	25
Back emf, V	25	50	73.5	90	102.5	110	116	121	125	129

   Calculate the value of R_B when the motor is required to hold overhauling load at 1200rpm.   [8+8]

4. What is a Chopper? Explain the Chopper control of a D.C series motor.

   (a) Motoring Mode

   (b) regenerative braking mode and also draw the Speed-Torque Curves in each mode.   [8+8]

5. (a) Generally the stator voltage control is suitable for speed control of Induction motor in fan and pump drives. Discuss in detail why the above method is useful.

   (b) Explain why the stator voltage control is not an efficient method of control.
                                                                              [8+8]

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6. A 3 Phase,1500 rpm Induction motor is developing torque of 3000 Syn. watts at an input frequency of 50Hz. If the motor torque is now reduced to 1500 Syn.watts, determine the new value of stator frequency. The motor is operating in constant HP region. Assume constant rotor frequency and neglect effect of rotor resistance.

[16]

7. (a) State the major features of Rotor resistance control of Wound Rotor Induction motor.

   (b) In the rotor resistance control, what type of motor speed - torque characteristics will be obtained if one phase has a loose contact? [8+8]

8. Discuss in detail with suitable circuit diagram the principle of operation of Self-controlled Synchronous motor drive employing load commutated thyristor inverter.

[16]

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Code No: M0221/R07

$\boxed{\textbf{Set No. 2}}$

IV B.Tech I Semester Supplementary Examinations, March 2013
POWER SEMICONDUCTOR DRIVES
(Electrical & Electronics Engineering)

Time: 3 hours   Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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1. Derive the Speed, Torque Equations of a fully controlled converter connected to separately excited D.C motor with continuous current operation with necessary waveforms.   [16]

2. The speed of a 150 HP 650V 1750 rpm separately excited dc motor is controlled by a three phase fully controlled converter and is fed from a 460V 50 Hz supply. The rated armature current of the motor is 170A.motor parameters are R_a=0.999Ω, L_a=0.73mh. Ω=0.33.

   (a) Determine the no load speeds at firing angles 0^0 and 30^0. Assume that no load current is 10% of the rated current and is continuous.

   (b) Find the firing angle to obtain rated speed of 1750rpm at rated motor current.

   (c) Determine the speed regulation for the firing angle obtained in part b. [16]

3. (a) With neat circuit diagram and waveforms, explain dynamic braking of separately excited motor by single phase converter.

   (b) A dc shunt motor has the armature resistance of 0.04Ω and the field winding resistance of 10Ω. Motor is coupled to an over hauling load with a torque of 400N-m. Following magnetization curve was measured at 600 rpm:

Field Current, A	2.5	5	7.5	10	12.5	1.5	17.5	20	22.5	25
Back emf, V	25	50	73.5	90	102.5	110	116	121	125	129

   Calculate the value of R_B when the motor is required to hold overhauling load at 1200rpm.   [16]

4. A class-A chopper, operating in time-ratio control, is supplying the armature of the separately excited dc motor. Show that the motor speed-torque relationship is ,
   $\omega_m = \frac{\delta.V}{K} - \frac{R_a}{K^2}T_a$
   Where V - chopper input voltage, Ra - Armature resistance, Ta - motor torque, K-torque constant.   [16]

5. An inverter supplies a six pole three-phase cage Induction motor rated at 415V, 50Hz. Determine the approximate voltages required of the inverter for motor speeds 600/800/1500/ 1800 rpm.   [16]

6. Explain the principle of varying the speed of an Induction motor by variable frequency control of stator voltage. Draw the speed torque curves for variable frequency control for motoring and braking modes.   [16]

|"|'|||||"|"||'|'| 1 of 2

7. A 3 phase, 440 V, 6 pole, 970 rpm, 50 Hz, Star connected Induction motor has the following parameters referred to the stator.
R_s = 0.2 ohm, R_r' =0.15 ohm, X_s = 1.5 ohm, X_r'= 4. The stator to rotor turns ratio is 3.5.ohm.The motor speed is controlled by Static Scherbious drive. The drive is designed for a speed range of 30% below the Synchronous speed. The max. value of the firing angle is 170^0. Calculate

(a) The turns ratio of the transformer

(b) Torque for a speed of 750 rpm and α =140^0. [16]

8. (a) What is the basic difference between true synchronous mode and self control mode for variable frequency control of Synchronous motor?

(b) When operating in true synchronous mode, why the frequency must be changed in small steps? [8+8]

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Set No. 3

IV B.Tech I Semester Supplementary Examinations, March 2013
POWER SEMICONDUCTOR DRIVES
(Electrical & Electronics Engineering)

Time: 3 hours   Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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1. Draw and explain the power circuit diagram of semi-converter feeding a D.C series motor. Explain with typical voltage and current waveforms, the operation in both continuous armature current Mode.   [16]

2. Draw the circuit diagram and explain the operation of three phase, half wave converter drives.   [16]

3. Explain various speed control method of D.C motors and also draw speed-torque curves for each method.   [16]

4. (a) Derive the expressions for average motor current, current Imax and Imin and average torque for chopper-fed dc separately excited motor.

   (b) A dc chopper controls the speed of a separately excited motor. The armature resistance is R_a=0.05Ω. The back emf constant is K_v=1.527v/A-rad/s. The rated field current is I_f= 2.5A. The dc input voltage to the chopper is V_s= 600V. If it is required to maintain a constant developed torque of T_d = 547N-m, plot the motor speed against the duty cycle k of the chopper.   [8+8]

5. A 3 phase Squirrel cage Induction motor having 6 poles operating at 50 Hz has rotor resistance and stand still reactance referred to stator are 0.2 ohm and 1 ohm per phase when it is operated at rated voltage and rated frequency has a slip of 4 percent at full load . At what speed the motor will operate when the stator impressed voltage is reduced to 1/1.414 times the rated voltage. Assume that the load torque remains constant at the rated motor torque.   [16]

6. Derive torque speed characteristic of an Induction motor operating on variable frequency supply for

   (a) V/f=Constant.

   (b) E/f =Constant.   [8+8]

7. The speed of a 3ϕ SRIM is controlled by variation of smotor resistance. The full load torque of the motor is 50NM. at a slip of 0.3. The drives load having a charecterstic $T\alpha N^2$. The motor has 4 poles and operates on $50H_z$, 400V supply. Determine the speed of the motor for 0.8 times the rated torque the operating condition is obtained with additional resistance in the circuit. The resistance is controlled by chopper in the motor circuit. Determine the average torque developed for a time ratio of 0.4. [16]

|''|'|||||''|''||'|'|

8. (a) What is the basic difference between true synchronous mode and self control mode for variable frequency control of Synchronous motor?

   (b) When operating in true synchronous mode, why the frequency must be changed in small steps? [8+8]

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Set No. 4

IV B.Tech I Semester Supplementary Examinations, March 2013
POWER SEMICONDUCTOR DRIVES
(Electrical & Electronics Engineering)

Time: 3 hours   Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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1. Give the general circuit layout of single phase D.C drives? Enumerate the various single phase D.C drives used. [16]

2. A dc motor driven from a 3 phase full converter draws a dc line current of 90 A with negligible ripple.

   (a) Sketch the line voltage taking it zero crossing and becoming positive at wt=0.Also sketch line current and thyristor current for a firing angle of 30^0.

   (b) Calculate average and rms values of thyristor current.

   (c) Compute power factor at ac source.

   (d) For motor constant of 2.5 and Ra of 0.4Ω.calculate the motor speed.[16]

3. What are the differences between the ideal and practical dual converters applied for the control of dc motors. [16]

4. A 220V, 70A D.C series motor has combined resistance of armature and field is 0.12 ohms running on no-load with the field winding connected to a separate source. It gave following magnetization characteristics at 600 rpm

FieldCurrent(A)	10	20	30	40	50	60	70	80
TerminalVoltage (V)	64	118	150	170	184	194	202	210

Motor is controlled in regenerative braking by a chopper with a source voltage of 220V.

   (a) Calcul;ate motor speed for a duty ratio of 0.5 and motor breaking torque equal to rated motor torque.

   (b) Calculate maximum allowable motor speed for a maximum permissible current of 70A and maximum permissible duty ratio of 0.95.

   (c) What resistance must be inserted in armature circuit for the drive to run at 1000 rpm without exceeding armature current beyond 70 A? the duty ratio of the chopper has a range from 0.05 to 0.95.

   (d) To What extent the number of turns in field winding should be reduced to run at 1000 rpm without exceeding armature current beyond 70 A? [16]

5. (a) Generally the stator voltage control is suitable for speed control of Induction motor in fan and pump drives. Discuss in detail why the above method is useful.

   (b) Explain why the stator voltage control is not an efficient method of control.
   [8+8]

|"|'|'||||"|"||'|'| 1 of 2

6. A 3 Ph Star connected Induction motor operating at a frequency of 60 Hz consists of 4 poles. The parameters of the stator and rotor referred to stator side are $R_1 = R_2 = 0.024$ ohm and $X_1 = X_2 = 0.18$ ohm. If the motor is controlled by the variable frequency control with v/f constant ratio determine the following parameters at an operating frequency of 12 Hz. Starting torque and rotor current in terms of their values at rated frequency. [16]

7. Draw the circuit diagram and explain the operation of rotor- resistance control using chopper. Mention the advantages and disadvantages of the above method of control. [16]

8. (a) What is the basic difference between true synchronous mode and self control mode for variable frequency control of Synchronous motor?

   (b) When operating in true synchronous mode, why the frequency must be changed in small steps? [8+8]

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Set No. 1

IV B.Tech I Semester Supplementary Examinations, March 2013
OPERATIONS RESEARCH
**(Common to Mechanical Engineering, Mechatronics, Electronics &
Telematics, Production Engineering and Automobile Engineering)**

Time: 3 hours   **Max Marks: 80**
Answer any FIVE Questions
All Questions carry equal marks
⋆ ⋆ ⋆ ⋆ ⋆

1. (a) What is a feasible region? Is necessary that it should always be a convex set?

   (b) Use the graphical method to solve the following LP Problem
      Maximize $Z = 6 \ x_1 - 4 \ x_2$
      subject to the constraints
      $$2x_1 + 4x_2 \leq 4$$
      $$4x_1 + 8x_2 \geq 16 \qquad x_1, x_2 \geq 0.$$ [6+10]

2. A salesman has to visit five cities A, B, C, D and E. The distance (in hundred kilometers) between the five cities are given in figure 2.

Figure 2

   If the salesman starts form city A and has to come back to city A after travelling to all the cities, which route should he selected so that total distance traveled is minimum. [16]

3. A company is considering to replace grinder X presently of worth Rs 10,000 by a new grinder Y of Rs 20,000 but will be economic in running expenditures. The expected life of grinder X is 5 years with running expenditures of Rs 4,000 in fist year and then additional increase of Rs 400 per year for next four years. For the new grinder, the annual running cost is Rs 1,000 per year and scrap value of Rs 2,000. As an advisor to the company, find

   (a) The present value of the cost of old and new grinders considering 12 per cent normal rate interest.

(b) Suggest whether the old grinder be replaced by the new grinder, assuming the life of new grinder to be 5 years. [16]

4. (a) Which competitive situation is called a game? What is the maximin criterion of optimality?

(b) Obtain the strategies for both players and the value of the game for two-person zero-sum game whose payoff matrix is given in figure 4b. [8+8]

Player A		Player B					
	B_1	B_2	B_3	B_4	B_5	B_6
A_1	1	3	-1	4	2	5
A_2	-3	5	6	1	2	0

Figure 4b

5. A branch of National Bank has only one typist. Since the typing work varies in length (number of pages to be typed), the typing rate is randomly distributed approximating a Poisson distribution with mean service rate of 8 letters per hour. The letters arrive at a rate of 5 per hour during the entire 8-hour work day. If the type writer is valued at Rs. 1.50 per hour, determine

(a) Equipment Utilization.

(b) The per cent time an arriving letter has to wait.

(c) Average system time.

(d) Average idle time cost of the typewriter per day. [16]

6. A newspaper boy buys papers from Rs.1.40 and sells them for Rs.2.45 each. He cannot return unsold newspapers. Daily demand has the following:

No. of Customers	25	26	27	28	29	30	31	32	33	34	35	36
Probability	0.03	0.05	0.05	0.1	0.15	0.15	0.12	0.1	0.1	0.7	0.6	0.02

If each day's demand is independent of the previous day?s how many papers he should order each day? [16]

7. Solve the following LPP by dynamic programming:
Maximum $Z = 50x_1 + 100x_2$,
Subject to
$$2x_1 + 3x_2 \leq 48,$$
$$x_1 + 3x_2 \leq 42,$$
$$x_1 + x_2 \leq 21,$$
$$x_1, x_2 \geq 0.$$
[16]

8. Define simulation. Explain utility of simulation to solve inventory problems. [16]

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Set No. 2

IV B.Tech I Semester Supplementary Examinations, March 2013
OPERATIONS RESEARCH
(Common to Mechanical Engineering, Mechatronics, Electronics &
Telematics, Production Engineering and Automobile Engineering)
Time: 3 hours   Max Marks: 80
Answer any FIVE Questions
All Questions carry equal marks
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1. (a) Explain what is meant by degeneracy in LPP? How can these problems be solved?

   (b) Solve the following LP Problem by two phase method
   Maximize $Z = 5x_1 + 8x_2$
   subject to the constraints
   $$3x_1 + 2x_2 \geq 3$$
   $$x_1 + 4x_2 \geq 4$$
   $$x_1 + x_2 \leq 5$$
   $$x_1, \ x_2 \geq 0.$$ [6+10]

2. (a) Describe the transportation problem with its general mathematical formulation.

   (b) Find the optimum solution to the transportation problem given in figure 2b for which the cost, origin-availabilities, and destination-requirements are given. [6+10]

	To					
	A	B	C	D	E	a_i
I	3	4	6	8	8	20
From II	2	10	1	5	30	30
III	7	11	20	40	15	15
IV	2	1	9	14	18	13
b_j →	40	6	8	18	6	78

Figure 2b

3. (a) Discuss the treatment of unequal service life in replacement analysis. Discuss the minimum cost replacement model. Under what conditions is the minimum cost replacement model applicable?

   (b) A truck-owner finds from his past experience that the maintenance costs are Rs 200 for the first year and then increase by Rs 2,000 every year. The cost of Truck Type A is Rs 9,000. Determine the best age at which to replace the

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truck. If the optimum replacement is followed what will be the average yearly cost of operating the truck? Truck Type B costs Rs 20,000. Annual operating costs are Rs. 400 for the first year and then increase by Rs 800 every year. The truck owner has now the Truck Type A, which is one year old. Should it be replaced by B type, and if so, when? [6+10]

4. (a) In a game of matching coins with two players, suppose A wins one unit of value when there are two tails and loses $1/2$ unit of value when there is one head an one tail. Determine the pay off matrix, the best strategies for each player and the value of the game to A.

   (b) Two players A and B showing each other, put on a table a coin, with head or tail up. A wins Rs 8 when both the coins show head and Re 1 when both are tails. B wins Rs 3 when the coins do not match. Given the choice of being matching player (A) or non-matching player (B) which one would you choose and what would be your strategy? [8+8]

5. Trains arrive at the yard every 15 minutes and the service time is 33 minutes. If the line capacity of the yard is limited to 4 trans, find

   (a) The probability that the yard is empty.

   (b) The average number of trains in the system. [16]

6. (a) Discuss about significance of inventory.

   (b) A stockist purchases an item at the rate of Rs. 40 per piece from a manufacturer. 2,000 units of the item are required per year. What should be the order quantity per order if the cost per order is Rs.15 and the inventory charges per year are 20 per cent? [6+10]

7. Solve the following problem:
   Maximize $Z = u_1^2 + u_2^2 + u_3^2$,
   Subject to $\quad u_1{}^2 . u_2{}^2 . u_3{}^2 = 6$,
   $\qquad\qquad u_1, u_2, u_3$ all positive integers. [16]

8. Define simulation. Explain utility of simulation to solve Queuing problems. [16]

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Set No. 3

IV B.Tech I Semester Supplementary Examinations, March 2013
OPERATIONS RESEARCH
**(Common to Mechanical Engineering, Mechatronics, Electronics &
Telematics, Production Engineering and Automobile Engineering)**

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

Answer any FIVE Questions
All Questions carry equal marks
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1. (a) What is meant by a feasible solution of an LP problem?

   (b) A company produces two types of leather belts say A and B. Belt A is of superior quality and B is inferior. Profits on the two are 40 and 30 paise per belt, respectively. Each belt of type A requires twice as much time as required by a belt of type B. If all the belts were of type B, the company could produce 1000 belts per day. But the supply of leather is sufficient only for 800 belts per day. Belt A requires a fancy buckle and only 400 of them are available per day. For belt B only 700 buckles are available per day. Solve this problem to determine how many units of the two types of belts the company should manufacture in order to have a maximum overall profit? [6+10]

2. (a) With reference to the transportation problem define the following:

       i. Feasible solution
      ii. Basic feasible solution
     iii. Optimal solution.

   (b) Determine an initial basic feasible solution and optimal solution to the transportation problem given in figure 2b. [6+10]

	I	II	III	IV	Supply
A	13	11	15	20	2,000
From B	17	14	12	13	6,000
C	18	18	15	12	7,000
Demand	3,000	3,000	4,000	5,000	15,000

Figure 2b

3. (a) What is replacement problem? Describe some important replacement situations.

   (b) The following table gives the running costs per year and resale price of a certain equipment whose purchase price is Rs. 5000.

Year :	1	2	3	4	5	6	7	8
Running costs (Rs.) :	1500	1600	1800	2100	2500	2900	3400	4000
Resale value (Rs.) :	3500	2500	1700	1200	800	500	500	500

At what year is the replacement due? [6+10]

4. (a) Discuss equivalence of matrix game and the problem of linear programming. Explain the method of solving a zero-sum two persons game as a linear programming problem.

(b) Find the minimax and maxmin value of the following game : [8+8]

$$\begin{bmatrix} 3 & 7 & -1 & 3 \\ 4 & 8 & 0 & -6 \\ 6 & -9 & -2 & 4 \end{bmatrix}$$

5. Workers come to tool store room to enquire about special tools (required by them) for accomplishing a particular project assigned to them. The average time between two arrivals is 60 seconds and the arrivals are assumed to be in Poisson distribution. The average service time (of the tool room attendant) is 40 seconds. Determine.

(a) Average queue length.

(b) Average length of non-empty queues.

(c) Average number of workers in system including the worker being attended.

(d) Mean waiting time of an arrival and

(e) Average waiting time of an arrival who waits. [16]

6. A contractor has to supply 10,000 bearings per day to an automobile manufacturer. He finds that when he starts production run, he can produce 25,000 bearings per day. The cost of holding a bearing in stock for a year is Rs. 2 and the setup cost of a production run in Rs.180. How frequently should production run be made? Also find production run time and total variable cost. (Assume 200 days in the year) [16]

7. A manufacturer has entered into a contract for the supply of the following number of units of product at the end of each month:

Month	January	March	August	October	November	December
No. of Units	10	5	20	3	6	30

The units manufactured during each month are available for supply at the end of the month or they may be kept in storage at a cost of Rs. 2 per unit per month. Each time the manufacture of a batch of units is undertaken, there is a setup cost of Rs. 400. Determine the production schedule which will minimize the total cost. [16]

8. What is the importance of simulation and modeling? Explain utility of simulation to solve inventory problems. [16]

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Set No. 4

IV B.Tech I Semester Supplementary Examinations, March 2013
OPERATIONS RESEARCH
(Common to Mechanical Engineering, Mechatronics, Electronics &
Telematics, Production Engineering and Automobile Engineering)

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

Answer any FIVE Questions
All Questions carry equal marks
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1. (a) Give out line of the simplex method in LPP.

   (b) Solve the following problem by simplex method
   Maximize $Z = 5x_1 - 2x_2 + 3x_3$
   subject to the constraints

   $$2x_1 + 2 x_2 - x_3 \geq 2$$
   $$3x_1 - 4x_2 \leq 3$$
   $$x_2 + 3x_3 \leq 5 \qquad x_1, x_2, x_3 \geq 0. \qquad [6+10]$$

2. The expected times required to be taken by a salesman in traveling from one city to another are given in figure 2.

To City

	A	B	C	D	E
A	–	10	13	11	12
B	10	–	12	10	12
C	13	12	–	13	11
D	11	10	13	–	10
E	12	12	11	10	–

From City

Figure 2

How should the salesman plan his trip so that he covers each of these cities not more than once and completes his trip in minimum possible time required for traveling? [16]

3. (a) Discuss briefly the various types of replacement problems.

   (b) A firm has a machine whose purchase price Rs. 1,00,000. Its running cost and resale price at the end of different years are as follows:

Year :	1	2	3	4	5	6
Running Cost (Rs) :	7,500	8,500	10,000	12,500	17,500	27,500
Resale price (Rs) :	85,000	76,500	70,000	60,000	40,000	15,000

    i. Obtain the economic life of the machine and the minimum average cost.

    ii. The firm has obtained a contract to supply the goods produced by the machine, for a period of five years form now. After this time period, the firm does not intend to use the machine, if the firm has a machine of this type with is one year old, what replacement policy should it intends to replace the machine not more than once? [6+10]

4. (a) Discuss equivalence of matrix game and the problem of linear programming. Explain the method of solving a zero-sum two persons game as a linear programming problem.

   (b) Find the minimax and maxmin value of the following game : [8+8]

$$\begin{bmatrix} 3 & 7 & -1 & 3 \\ 4 & 8 & 0 & -6 \\ 6 & -9 & -2 & 4 \end{bmatrix}$$

5. A bank has two counters for withdrawals. One counter handles withdrawals of value less than Rs.1,000 and the other counter Rs.1,000 and above, Analysis of service time shows an exponential distribution with mean service time of 6 minutes per customer for each counter. Arrival of customers follows Poisson distribution with mean 8 per hour for first counter and 5 per hour for the second counter.

   (a) What are the average waiting times per customer of each counter? [16]

6. A contractor has to supply 10,000 bearings per day to an automobile manufacturer. He finds that when he starts production run, he can produce 25,000 bearings per day. The cost of holding a bearing in stock for a year is Rs. 2 and the setup cost of a production run in Rs.180. How frequently should production run be made? Also find production run time and total variable cost. (Assume 200 days in the year) [16]

7. Maximize   Z $= 3x_1 + 5x_2$
   Subject to $x_1 \le 4$
                  $x_2 \le 6,$
                  $3x_1 + 2x_2 \le 18$
                  $x_1, x_2 \ge 0.$ [16]

8. Explain how 'Simulation' is useful in optimization process. [16]

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Set No. 1

IV B.Tech I Semester Supplementary Examinations, March 2013
WEB TECHNOLOGIES
(Computer Science & Engineering)

Time: 3 hours   Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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1. Create a HTML document that has five frames.There must be two rows of frames, the first with three frames and the other with two frames. The frames in the first row must have equal width. The left frame in the second row must be 50 percent of the width of the display. Each of the frames in the top row must display a document that has a form. The left top frame must have two test boxes, each 30 characters wide, labeled Name and Address. The middle top frame must have five radio buttons with color name labels. The right top frame must have four checkboxes, labeled with four kinds of car equipment such as a CD player and air conditioning. The two bottom frames must have images of two different cars. The top row of frames must use 20 percent of the height of the display.   [16]

2. (a) Create a javascript which has event handlers for the buttons "red", "blue", "green", "yellow" and "orange" which must produce messages stating the chosen favorite color.The event handler must be implemented as a function, whose name must be assigned to the *onclick* attribute of the radio button elements. The chosen color must be sent to the event handler as a parameter.

   (b) Insert an image into a web page. Write a script which displays a message when the mouse is over the image. The co-ordinates of the mouse should be displayed if click is attempted on the image.   [8+8]

3. (a) Explain the use of XML schema in the web designing application.

   (b) Write about the importance of namespaces in XML.   [8+8]

4. Take the *TickTock* Bean available in BDK, build an application which controls the *Colors* Bean. Develop the necessary code to exhibit the bound properties of java beans with the above mentioned beans.   [16]

5. (a) What are basic steps in building and testing a simple servlet?

   (b) Give a note on servlet API.   [8+8]

6. (a) Write a JSP that greets the user by name.

   (b) Discuss about javax.servlet.jsp package.   [10+6]

7. (a) Discuss Request scope in detail with an example.

   (b) What are memory usage considerations? Explain.   [8+8]

8. Create a JSP to check the status of a bus ticket reservation from the server database. Status will be marked with a character- R- Reserved, W-waiting, C-cancelled. [16]

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Set No. 2

IV B.Tech I Semester Supplementary Examinations, March 2013
WEB TECHNOLOGIES
(Computer Science & Engineering)

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

Answer any FIVE Questions
All Questions carry equal marks
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1. (a) Create a HTML document that contains at least 200 words of text. The text of every starting word in the sentence should be blue, every last word in the sentence should be green and nouns should be yellow.

   (b) Create a HTML document that marks up your resume. [8+8]

2. (a) Compare and contrast HTML and DHTML.

   (b) Write a javascript to validate a form consisting of a username. Also navigate to another web page after validation. [8+8]

3. Design an XML schema for hospital information management. Include every feature available with schema. [16]

4. "A BeanInfo Interface is used by the developer"- show how this statement is justified and explain with an example how BeanInfo serves the purpose. [16]

5. (a) Create a HTML form with three input fields first name, last name and e-mail. Pass these values to a servlet. In the servlet, verify all input fields are not null and display them back to client.

   (b) Give the signature of a method which in used to read bytes from the stream for a servlet. Explain its usage. [10+6]

6. (a) Develop a JSP to accept users first name and then welcome the user by name.

   (b) Discuss about javax.servlet.jsp.tagext package. [10+6]

7. Create a login form for a mail server and JSP to validate and to perform appropriate actions. [16]

8. Explain the process of getting/accessing metadata for a resultset. [16]

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Set No. 3

IV B.Tech I Semester Supplementary Examinations, March 2013
WEB TECHNOLOGIES
(Computer Science & Engineering)

Time: 3 hours   Max Marks: 80

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

1. (a) Explain how images can be inserted in to a HTML document.

   (b) Explain how forms are created.

   (c) What is the difference between group of checkbox buttons and group of radio buttons?   [5+6+5]

2. (a) Develop a javascript to generate 'ARMSTRONG NUMBERS' between the range of 1 to 1000. [Eg: 153 is an Armstrong number, since sum of the cube of the digits is equal to the number i.e.,$1^3 + 5^3 + 3^3 = 153$]

   (b) Describe the various String Objects with suitable examples.   [8+8]

3. (a) Compare and contrast HTML and XML.

   (b) Write a DTD for the XML document which has the student details with following fields arranged in a tabular format. Also assume the values of each field.
   Name   Registration number   Department   Class   [8+8]

4. Take the *TickTock* Bean available in BDK, build an application which controls the *Colors* Bean. Develop the necessary code to exhibit the bound properties of java beans with the above mentioned beans.   [16]

5. (a) Explain the method of reading the names and values of parameters that are included in a client request. Illustrate with an example program.

   (b) Discuss the methods defined by ServletRequest interface.   [8+8]

6. Java server pages simplify the delivery of dynamic web content. Justify this statement with a help of example program.   [16]

7. (a) Make a comparison of scriplets and beans.

   (b) How data will be shared between JSPs.   [8+8]

8. Discuss the complex mechanism necessary to retrieve the database content from a Java Server page.   [16]

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Set No. 4

IV B.Tech I Semester Supplementary Examinations, March 2013
WEB TECHNOLOGIES
(Computer Science & Engineering)

Time: 3 hours   Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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1. Explain the following terms related to HTML table:

   (a) Cell padding and spacing

   (b) Borders

   (c) Formatting content in Table cells

   (d) Nested tables.   [4+4+4+4]

2. (a) Define Dynamic HTML. Elaborate in what way is Dynamic HTML different from HTML.

   (b) Write a javascript which must have a paragraph of at least 10 lines of text that describes your college. The paragraph must be centered on the page and have only 20 characters per line. A light gray image of your college must be superimposed over the center of the text as a nested element.   [8+8]

3. (a) Create an XML schema for a catalog of four-stroke motorbikes, where each motorbike has the following child elements-*make*, *model*, *year*, *color*, *engine*, *chasis number* and *accessories*. The *engine* element has the child elements *engine number*, *number of cylinders*, *type of fuel*. The *accessories* element has the attributes like *disc brake*, *auto − start* & *radio*, each of which is required and has the possible values *yes* and *no*. Entities must be declared for the names of *three* popular motorbike makes.

   (b) Describe the Document object model.   [8+8]

4. (a) Show the relevance of the Java Archive files and the JAR utility in the creation of a java bean.

   (b) With a relevant example explain how a bean can be added to a BeanBox.
                                                                             [8+8]

5. (a) What is MIME? What is meant by MIME types of file? Which is the method that can return the MIME type of file?

   (b) Explain the interface that enables servlet to log events and access information about their environment.

   (c) How to start a web browser and request a servlet.   [6+6+4]

6. (a) Give a note on fixed- template data.

   (b) Describe Model-View-Controller setup.

|'|'|||||'|'||'|'|

(c) Write about javax.servlet.jsp.tagext package. [6+5+5]

7. (a) Develop a JSP that pulls the data from the request scope.

(b) What is meant by debugging? Discuss debugging in JSP. [8+8]

8. Develop a JSP to conduct On line examination. Objective type questions will be display to the user on the browser. User will mark the answer and clicks a submit button. The user answer will be checked against the answers in the database at server. Results - Marks will be displayed again on the browser. [16]

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Set No. 1

IV B.Tech I Semester Supplementary Examinations, March 2013
MICRO CONTROLLERS AND APPLICATIONS
(Common to Electronics & Communication Engineering, Bio-Medical
Engineering and Electronics & Telematics)

Time: 3 hours
Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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1. (a) Write about capture registers.
   (b) Write about control registers. [8+8]

2. Give any four examples for interrupt control flow instruction and explain. [4×4]

3. (a) List out the interrupt system specifications.
   (b) Write a brief about multiple interrupt marking. [6+10]

4. Indicate which mode and which timer are selected for each of the following instructions.
   (a) MOV TMOD, #00H.
   (b) MOV TMOD, #12H.
   (c) MOV TMOD, #15H. [5+5+6]

5. (a) With the help of a neat diagram explain the half-step 8 - step sequence of a stepper motor. Also show the interfacing circuit to 8051.
   (b) Write an assembly code to generate 4 step pulse sequence for a 4-phase steppermotor. [8+8]

6. (a) Describe the functions of IDE(Integrated Development environment)
   (b) What are the development phases in a project? Explain the software development cycle for a project. [8+8]

7. (a) How is a watch dog time used in 80196? How do we disable a watchdog timer feature in a program? When do we need to disable it?
   (b) Explain PWM-control register of Intel 80196. How can we get a duty cycle of 25% at the PWM output using PWM-control? [8+8]

8. (a) What are the Thumb version load-store multiple instructions? Explain them with example.
   (b) Explain how Thumb state changes to ARM state and vice verse. [8+8]

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Set No. 2

IV B.Tech I Semester Supplementary Examinations, March 2013
MICRO CONTROLLERS AND APPLICATIONS
(Common to Electronics & Communication Engineering, Bio-Medical
Engineering and Electronics & Telematics)

Time: 3 hours
Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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1. Write a program in assembly language of 8051 and draw the timing diagrams for the program to divide two numbers. [16]

2. How do you manipulate the external memory using stack of 8051 microcontroller? [16]

3. Discuss the hardware and software attributes of vectored interrupts. [16]

4. Bring out the merits and demerits of time '0' & timer 1 in all aspects. [16]

5. (a) What are the features of a micro controlled unit for the Industrial process control system.

   (b) How can we use the incremental shaft angle encoder to measure the motor speed every second? [8+8]

6. A Robot has there motors having three angle encodes. Each motor receives an input from three tasks. The fourth task measures the position of each motor and sends three directions to the motors to rotate by a^0, b^0, and C^0 Which RTOS will schedule there tasks and which RTOS functcions are used in this system design[16]

7. (a) How is a watch dog time used in 80196? How do we disable a watchdog timer feature in a program? When do we need to disable it?

   (b) Explain PWM-control register of Intel 80196. How can we get a duty cycle of 25% at the PWM output using PWM-control? [8+8]

8. (a) How can we change the PSR contents through instructions in ARM? Explain different PSR instructions in ARM.

   (b) Explain how a constant is loaded into a general purpose register of ARM processor.

   (c) What is Thumb state? [6+6+4]

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Set No. 3

IV B.Tech I Semester Supplementary Examinations, March 2013
MICRO CONTROLLERS AND APPLICATIONS
(Common to Electronics & Communication Engineering, Bio-Medical
Engineering and Electronics & Telematics)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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1. Draw and explain the block diagram of external data memory interface. [16]

2. How do you resolve the conflicts among stack and register banks. [16]

3. Narrate the procedure for bit memory map with suitable examples. [16]

4. Narrate how you can program TINEO and TIMER1 in 8051C. [2×8]

5. (a) What is meant by the term 'contact debounce'? How is this problem taken care in the interface of keyboard to a microcontroller?

   (b) A key board has two keys: run and stop. Write a program that is interrupt driven by these two keys using INT0 for run key and INT1 for the stop key. Let the Bounce time is 10ms for the keys. [8+8]

6. (a) What is meant by context switching? Explain with an example

   (b) Explain the Non-pre emptive multitasking technique with an example [8+8]

7. (a) Explain IOCO and IOSO register for timer 1 in 80196

   (b) what are the interrupt sources for synchronous serial transmission and reception in 80196? What are the identification flags and local enable bits for these sources? [8+8]

8. (a) How can we change the PSR contents through instructions in ARM? Explain different PSR instructions in ARM.

   (b) Explain how a constant is loaded into a general purpose register of ARM processor.

   (c) What is Thumb state? [6+6+4]

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Set No. 4

IV B.Tech I Semester Supplementary Examinations, March 2013
MICRO CONTROLLERS AND APPLICATIONS
(Common to Electronics & Communication Engineering, Bio-Medical Engineering and Electronics & Telematics)

Time: 3 hours   Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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1. Write in detail about TIMERS in 8051.   [16]

2. How do you manipulate the external memory using stack of 8051 microcontroller?
                                                                      [16]

3. Narrate the procedure for bit memory map with suitable examples.   [16]

4. (a) Give procedure to reset TMOD register.

   (b) Does programming TMOD register effects PSW? It so how?   [8+8]

5. (a) With the help of a neat diagram explain the half-step 8 - step sequence of a stepper motor. Also show the interfacing circuit to 8051.

   (b) Write an assembly code to generate 4 step pulse sequence for a 4-phase step-permotor.   [8+8]

6. (a) What are the advantages of time slice scheduling by an RTOS

   (b) Explain three ways in which an RTOS handles the ISRS in a multitasking environment   [8+8]

7. (a) Explain the software times interrupt in 80196

   (b) Justify the priority orders provided in 80196 for the maskable interrupts

   (c) What are vector addresses for Interrept servicing to timer 1 and timer 2 in Intel 80196?   [5+5+6]

8. (a) What are the Thumb version load-store multiple instructions? Explain them with example.

   (b) Explain how Thumb state changes to ARM state and vice verse.   [8+8]

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