Code : 1GA71

R-11

IV B.Tech. I Semester Regular & Supplementary Examinations Nov/Dec 2015
Management Science
(Common to EEE & CSE)

Max. Marks: 70   **Time: 03 Hours**

Answer *any five* questions
All Questions carry equal marks (14 Marks each)
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1.	a)	Discuss various types of Organization Structures.	7M
	b)	Explain the functions of management	7M
2.	a)	What is Statistical Quality Control, and explain use of X Chart, R Chart, C and p chart.	8M
	b)	Discuss selective inventory control of ABC Analysis	6M
3.	a)	Describe Product Life Cycle, and what is its significance	7M
	b)	Explain the New Product Development Process	7M
4.	a)	Discuss the basic functions of HR Manager	7M
	b)	Discuss the role of Recruitment Selection, Training and Development, for enterprise growth.	7M

5.   The following table gives the activities in construction project and time duration.

Activity	Preceding activity	Normal time(days)
1-2	--	20
1-2	-	25
2-3	1-2	10
2-4	1-2	12
3-4	1-3,2-3	05
4-5	2-4,3-4	12

a) Draw activity network of project.   6M

b) Find the total float and free float for each activity.   4M

c) Determine the critical path and project duration.   4M

6.	a)	Discuss on Mission, Goals, Objectives, Policy, Strategy, Programs in corporate planning	7M
	b)	Discuss on SWOT Analysis	7M
7.	a)	What is Enterprise Resource Planning (ERP),how it enhances productivity	7M
	b)	Discuss on Total Quality Management (TQM)	7M
8.	a)	Discuss Ethical Issues In Operations Management	7M
	b)	Discuss Normative Ethical Theories on Egoism, Utilitarianism and Altruism	7M

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Code : 1G372

R-11

IV B.Tech. I Semester Regular & Supplementary Examinations Nov/Dec 2015
Digital Signal Processing
(Common to EEE & ECE)

Max. Marks: 70   **Time: 03 Hours**

Answer *any five* questions
All Questions carry equal marks (14 Marks each)
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1. a) Test the stability of LTI systems, whose impulse responses are,

   i). $h(n) = (0.2)^n u(n)$.   ii). $h(n) = (0.3)^n u(n) + 2^n u(n)$.   8M

   b) A causal system is represented by the following difference equation

   $y(n) + \dfrac{1}{4} y(n-1) = x(n) + \dfrac{1}{2} x(n-1)$. Find the system transfer function H(z) and the

   impulse response.   6M

2.   Let x(n) be a real sequence of length – N and its N - point DFT is given by X(K),
       Show that:
       a. X(N-K) = X*(k)
       b. X(0) is real,
       c. If N is even, then X(N/2) is real.   14M

3. a) Find the 8–point DFT of real sequence x(n)={1,2,2,2,1,0,0,0} by using DIF-FFT algorithm.   7M

   b) Show that the direct computation of the *N*-point DFT of a length-*N* sequence
       requires 4N^2 real multiplications and (4*N-2*) N real additions.   7M

4. a) A linear time invariant system is described by the following input-output relation
       2y(n)-y(n-2)-4y(n-3) = 3x(n-2).Realize the system in the following form:
       i)   Direct form-I realization.
       ii) Transposed realization of Direct form-II.   7M
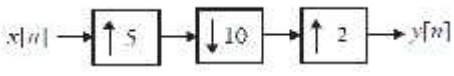
   b)
       Realize the given system function $H(z) = 1 + \dfrac{1}{4} z^{-1} + \dfrac{17}{8} z^{-2} + \dfrac{1}{4} z^{-3} + z^{-4}$ by using :

       i.   Direct form
       ii. The linear phase form.   7M

5.   Determine the system function H(z) of the lowest order Chebyshev filter that meet
       the following specifications:

       a. 3dB ripple in the pass band $0 \le |w| \le 0.3f$

       b. At least 20 dB attenuation in the stop band $0.6f \le |w| \le f$.

       Use the Bilinear transformation.   14M

6.   A low pass filter is to be designed with the following desired frequency response

   $H_d(e^{jw}) = H_d(w) = \begin{cases} e^{-j2w,} & |w| < \dfrac{f}{4} \\ 0, & \dfrac{f}{4} < |w| < f \end{cases}$. Determine the filter coefficients $h_d(n)$ and

   h(n) if w(n) is rectangular window defined as follows: $w_R(n) = \begin{cases} 1, 0 \le n \le 4 \\ 0, otherwise \end{cases}$.

   Also, find the frequency response, H(w) of resulting FIR filter.   14M

7. a) Show that the up-sampler and down sampler are the time invariant systems.   7M

   b) Develop an expression for the output y[n] as a function of the input x[n] for the
       multirate structure of given figure.

                                                                         7M

8   Explain about Discrete Multitone Transmission of digital data.   14M

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R-11

Code : 1G271

IV B.Tech. I Semester Regular & Supplementary Examinations Nov/Dec 2015

Fundamentals of HVDC & FACTS Devices

(Electrical & Electronics Engineering)

Max. Marks: 70   **Time: 03 Hours**

Answer *any five* questions

All Questions carry equal marks (14 Marks each)

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1. What is the need for interconnection of systems? Explain the merits of connecting HVAC systems by HVDC tie-lines?   14M

2. Draw and explain a block diagram of the Hierarchical levels of controls of HVDC transmission system.   14M

3. Discuss the various sources of reactive power for HVDC converters.   14M

4. Obtain the mathematical model of a d.c. network and d.c. converter, including converter controller.   14M

5. What are the basic types of facts controllers explain in short.   14M

6. What are the objectives of shunt compensation? Explain them.   14M

7. Explain the SSSC with a neat sketch and characteristics.   14M

8. Explain the basic operating principle of an UPFC.   14M

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Code : 1G275

R-11

IV B.Tech. I Semester Regular & Supplementary Examinations Nov/Dec 2015
Renewable Energy Sources
(Electrical & Electronics Engineering)

Max. Marks: 70   **Time: 03 Hours**

Answer *any five* questions
All Questions carry equal marks (14 Marks each)
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1. a) Write short notes on solar radiation data?   6M

   b) Explain the Moll-Gopczyheski solari meter & Velochme Pyranometer?   8M

2. a) How the performance of concentrating collector is evaluated?   6M

   b) With neat diagrams, explain the Fresnel lens collector and point Focusing collector?   8M

3. Describe in brief, the different energy storage methods used in the solar system.   14M

4. a) What are the advantages of vertical axis machines over horizontal type? Describe a rotor for relatively low velocity wind.   10M

   b) Describe the main considerations in selecting a site for wind generators?   4M

5. a) What is meant by wet fermentation and dry fermentation?   6M

   b) Discuss the combustion characteristics of bio-gas?   8M

6. a) Write short notes on
   i) Magma Resources
   ii) Valcanoes   6M

   b) With neat diagram, Explain the operation of Flashed – Steam system?   8M

7. a) Describe the 'closed cycle' OTEC System; with its advantages over 'open cycle' system.   8M

   b) Write short notes on wave energy conversion machines.   6M

8. a) How see beck coefficients vary with temperature?   6M

   b) Write short notes on Joul and Thomson effects.   8M

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Code : 1G272

R-11

IV B.Tech. I Semester Regular & Supplementary Examinations Nov/Dec 2015
Switch Gear and Protection
(Electrical & Electronics Engineering)

Max. Marks: 70 **Time: 03 Hours**

Answer *any five* questions
All Questions carry equal marks (14 Marks each)
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1. a) Explain the problems involved in interruption of low inductive currents and capacitor currents in a circuit breaker. 6M

   b) In a 132 kV substation, reactance and capacitance upto the location of the circuit breaker are 5 and 0.02 µF respectively. A resistance of 500 Ohm is connected across the circuit breaker. Determine the i) Natural frequency of oscillations ii) Damped frequency of oscillations and iii) Critical value of resistance. 8M

2. a) Explain the working of air blast circuit breaker with reference to
       i) Axial blast and   ii) Cross blast. 7M

   b) What are the advantages and disadvantages of
       i) Bulk oil circuit breaker   ii) Minimum oil circuit breaker. 7M

3. a) What is universal torque equation? Using this equation obtains the characteristics of directional relay. 7M

   b) Explain the principle of percentage differential protection with its characteristics. 7M

4. a) Obtain the generalized characteristics of static Amplitude comparator and Phase comparator and explain their dual operation. 7M

   b) Draw the block diagram of microprocessor based Mho relay. Write a required program for the operation of that relay when there is a fault. 7M

5. a) State and explain following faults with respect to alternator
       i) Excitation failure   ii) Over Speed. 6M

   b) A 3- phase transformer rated for 33 kV/6.6 kV, is connected as star/delta and the protection current transformer on the low voltage side have the ratio of 400:5. Determine the ratio of CT on the high voltage side and also state how the CTs should be connected for the protection. 8M

6. a) With neat figure, explain frame leakage protection of bus bar. 7M

   b) Explain the differential protection scheme of bus bar? What are the drawbacks of the scheme and remedial measures to overcome them? 7M

7. a) Explain the phenomenon of Arcing grounds and suggest the method to minimize the effect of this phenomenon. 6M

   b) A 132 kV, 50 Hz, 3-Phase, 100km long transmission line has capacitance of 0.012 µF per km per phase. Determine the inductive reactance and kVA rating of the arc suppression coil suitable for the line to eliminate the arcing ground phenomenon. 8M

8. a) Discuss the importance of basic impulse insulation level (BIL) in the design of electrical equipment? 7M

   b) Explain construction and operation of a zinc-oxide type lightening arrestor. 7M

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Code : 1G47C

R-11

IV B.Tech. I Semester Regular & Supplementary Examinations Nov/Dec 2015
Soft Computing Techniques
(Electrical & Electronics Engineering)

Max. Marks: 70   **Time: 03 Hours**

Answer *any five* questions
All Questions carry equal marks (14 Marks each)
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1. a) Describe a biological neuron? Model an artificial neuron?   8M

   b) Realize logical AND using McCulloch –Pitts Model?   6M

2. a) Explain the architecture of the perceptron net used for pattern classifications?   8M

   b) Explain discrete and continuous perceptron networks?   6M

3.   Explain back propagation algorithm (BPA) to train multilayer feed forward neural
       network. Derive weight update equations of output layer and hidden layer?   14M

4. a) What is hetero associative memory? With an architecture explain the training
       algorithm used in hetero associative net?   8M

   b) What are the two types of Bidirectional associative memory? Explain with the
       help of architecture?   6M

5. a) What are the operations that can be performed by a fuzzy set?   7M

   b) State whether R o S = S o R. Explain?   7M

6. a) What are the various methods employed for the membership value assignment?   6M

   b) Compare the methods center of sums and center of largest area with
       necessary examples?   8M

7.   Explain the reproduction, crossover and mutation in GA, give example for each
       process?   14M

8.   Discuss how genetic algorithm can be used to solve Economic load dispatch problem? 14M

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