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R-11 / R-13

Code : 1GA71

IV B.Tech. I Semester Regular & Supplementary Examinations Nov 2016

Management Science
(Common to EEE & CSE)

Max. Marks: 70

Time: 03 Hours

Answer any five questions
All Questions carry equal marks (14 Marks each)

1. Expand term referring to functions of management in “POSDCORB” and discuss any three function of management in brief termed in the above abbreviation. 14M
2. a) Explain the objectives of plant layout. 6M
 b) What are the merits and demerits of centralized and decentralized purchase.in an organization? 8M
3. Discuss stages of product life cycle? Explain in brief the emphasis of marketing vary at various stages of product life cycle. 14M
4. a) What is the importance of managing human resource in an organization? 6M
 b) Discuss any two of the following 8M
 - i. Wage and Salary administration
 - ii. Performance appraisal
 - iii. Grievance Handling
5. A small project consists of the following activities with time as estimates as given below:

Predecessor Event – Successor Event (i-j)	Estimated duration (in months)		
	Optimistic	Most likely	Pessimistic
1-2	2	2	14
1-3	2	8	14
1-4	4	4	16
2-5	2	2	2
3-5	4	10	28
4-6	4	10	16
5-6	6	12	30

- i. Draw a network
 - ii. Calculate average expected time for each activity
 - iii. Calculate the earliest expected time and latest allowable occurrence time for each event
 - iv. Determine the critical path 14M
6. a) What are elements of corporate planning process? 5M
 b) Discuss essential steps (outline) in corporate planning through a flowchart. 9M
7. a) What is the role of Management Information System in an organization? 6M
 b) Discuss in brief any two of the approaches: 8M
 - i. Just-in-Time
 - ii. Value Analysis
8. a) Explain the relationship between ethics and an organization 7M
 b) Discuss three general normative ethical theory in brief 7M

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Code: 1G372

IV B.Tech. I Semester Regular & Supplementary Examinations Nov 2016

Digital Signal Processing

(Common to EEE & ECE)

Max. Marks: 70

Time: 3 Hours

Answer any **five** questions.

All Questions carry equal marks (14 Marks each)

1. a) Determine the response $y(n)$, $n \geq 0$ of the system described by the linear constant coefficient difference equation $y(n)-4y(n-1)+4y(n-2)=x(n)-x(n-1)$ where $x(n)=(-1)^n u(n)$ and initial conditions are $y(-1)=y(-2)=1$. 10M
 b) Find whether the system is causal or non-causal for the following
 (i) $y(n)=x(n)+x(n-1)$ 4M
 (ii) $y(n)=x(n^2)$
2. Determine the 8-point DFT for the sequence $x(n)=\{1,1,1,1,1,0,0,0\}$. 14M
3. a) Calculate the number of complex multiplications required for direct DFT and FFT computation for $N=8$. 4M
 b) Compute the 8-point DFT for the sequence $x(n)=\{1,0,0,0,0,0,0,0\}$ with a neat butterfly diagram using DIT-FFT algorithm. 10M
4. Realize the system with the following difference equation in direct form-I, direct form-II, Cascade and Parallel :
 $y(n) = -3/8y(n-1) + 3/32y(n-2) + 1/64y(n-3) + x(n) + 3x(n-1) + 2x(n-2)$. 14M
5. Design a Chebyshev filter with a pass band attenuation of $p=3\text{db}$ at a frequency $f_p=1\text{Khz}$, and a stop band attenuation of $s=16\text{db}$ at a stopband frequency $f_s=2\text{Khz}$. 14M
6. a) What are the desirable characteristics of the window for FIR filter design. 4M
 b) Design an ideal HPF (high pass filter) with a frequency response
 $H_d(w) = 0, -\pi/2 \leq w \leq \pi/2$
 $= 1, \pi/2 \leq w \leq 3\pi/2$ using Hanning window for $N=7$. 10M
7. a) Sketch the following signals $x(n) = n+4, n \geq 0$
 $= 0, \text{ otherwise}$
 Also sketch their decimated & interpolated version of the above signal with a factor of '3'. 7M
 b) Explain applications of multirate signal processing. 7M
8. a) Discuss about spectral analysis of sinusoidal signals. 7M
 b) Explain about digital music synthesis. 7M

Hall Ticket Number :

R-11 / R-13

Code : 1G271

IV B.Tech. I Semester Regular & Supplementary Examinations Nov 2016

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)

1. Analyze a six pulse rectifier bridge circuit with an overlap angle less than 60° with the help of neat sketch. Deduce the relevant equations and draw the necessary waveforms. 14M
2. a) Explain in detail about individual phase control firing scheme. Also mention the drawbacks of this scheme. 7M
b) Draw the complete converter control characteristics and explain the process of power reversal. 7M
3. a) Discuss about characteristic and non-characteristic harmonics generated in HVDC systems. 7M
b) What are the adverse effects of harmonics produced by the HVDC converters? 7M
4. a) Explain the sequential method for AC-DC power flow. 7M
b) Derive the mathematical model of a HVDC converter. 7M
5. Explain in detail various series and shunt connected controllers with the help of neat sketches. 14M
6. a) Explain the principle of operation of STATCOM. 7M
b) What are the various ways of controlling the output voltage of STATCOM? Explain them with necessary block-diagrams. 7M
7. a) Explain the operation of SSSC. 7M
b) Compare the performance of SSSC with that of fixed series capacitor compensation. 7M
8. a) Explain about UPFC. 7M
b) Explain independent real and reactive power flow controller. 7M

Code: 1G272*IV B.Tech. I Semester Regular & Supplementary Examinations Nov 2016***Switch Gear and Protection***(Electrical & Electronics Engineering)*

Max. Marks: 70

Time: 3 Hours

Answer any **five** questionsAll Questions carry equal marks (**14 Marks** each)

1. a) Explain the terms Recovery voltage and Restriking voltage with respect to circuit breaker. 6M
- b) What is resistance switching of circuit breaker? Derive the expression for critical resistance. 8M
2. a) Discuss the properties of SF₆ which make it suitable to be used in circuit breakers. Explain the operating principle of SF₆ circuit breaker. 8M
- b) Compare the performance and characteristics of minimum-oil circuit breaker and air-blast circuit breaker. 6M
3. a) Draw and explain the use of three reactance units used at a particular location for III zones of protection. 8M
- b) What is the principle of a differential relay? What are its drawback and how they are overcome? Explain. 6M
4. a) Explain the duality between phase and amplitude comparators. Describe the rectifier bridge type amplitude comparator. 8M
- b) Explain with block diagrams the following static relays: (i) Instantaneous over current relay and (ii) Definite-time over current relay. 6M
5. a) Describe protection scheme of an alternator against earth-fault and inter-turn fault. 8M
- b) What is a Buchholz relay? Explain how it can be employed for protection of a transformer. 6M
6. a) Describe the application of time-graded overcurrent protection of radial and parallel feeder systems. 6M
- b) With a schematic diagram explain the carrier-current transmission line protection. Mention the advantages of carrier-current protection. 8M
7. a) Explain solid and resistance grounding of neutral. 8M
- b) A 33kV, 3-phase, 50 Hz overhead line of 60 km long has a capacitance to ground of each line equal to 0.015 μ F per km. Determine the inductance and KVA rating of the Peterson coil. 6M
8. a) Explain lightning phenomenon and its effects on transmission lines. 6M
- b) Why is insulation coordination required in a large power system? What is meant by BIL of an equipment? 8M

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Code : 1G275

IV B.Tech. I Semester Regular & Supplementary Examinations Nov 2016

Renewable Energy Sources

(Electrical & Electronics Engineering)

Max. Marks: 70

Time: 03 Hours

Answer any **five** questions

All Questions carry equal marks (**14 Marks** each)

1. a) Explain about the sun`s declination and hour angle 8M
b) List out the important difference between renewable and non renewable sources 6M

2. a) Describe the classifications of solar energy collectors 6M
b) What is flat plate collector? Explain its operation 8M

3. a) What are the applications of solar ponds 6M
b) Explain in detail solar distillation and drying 8M

4. a) Express and Explain about the wind power equation 8M
b) What are the advantages of wind power? 6M

5. a) Explain about dry and wet fermentation process 6M
b) List out the difference between Bio mass and biogas 8M

6. a) Explain how electrical energy can be generated from geothermal energy 6M
b) With the help of neat diagram, explain the working of geo thermal-preheat hybrid 8M

7. a) Explain OTEC closed (Anderson)cycle 6M
b) Draw and explain the schematic layout of a tidal powerhouse 8M

8. a) What are MHD generators? Explain its principal and working 8M
b) Explain about various fuel cells and its applications 6M

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R-11/R13

Code: 1G47C

IV B.Tech. I Semester Regular & Supplementary Examinations Nov 2016

Soft Computing Techniques
(Electrical & Electronics Engineering)

Max. Marks: 70

Time: 3 Hours

Answer any **five** questions
All Questions carry equal marks (14 Marks each)

1. a) Explain different types of neuron activation functions? 8M
 b) What is the importance of delta learning rule? Delta learning is called as error correction rule. Justify? 6M
2. a) Explain the algorithm used for training the perceptron net? 8M
 b) What are the limitations of perceptron model? 6M
3. a) State the training and application algorithm of the adaline net? 6M
 b) With architecture, Explain the MRI and MRII training algorithms? 8M
4. a) What is an auto associative net? With an architecture explain the training algorithm used in auto associative net? 8M
 b) Write short notes on interactive auto associative memory networks? 6M
5. a) What are the operations that can be performed on fuzzy relations? 7M
 b) State the features of membership functions? 7M
6. a) Explain the method of generating membership function values using angular fuzzy set with an example? 7M
 b) List some of the methods to perform defuzzification process? 7M
7. Describe briefly simple genetic algorithm with flow chart and discuss issues and benefits in GA? 14M
8. Discuss how ANN can be used to solve Load flow problem? 14M
