HB

Code : 17PS1205

M.TECH. DEGREE EXAMINATION, OCTOBER 2018

M.Tech. II Semester

ADVANCED POWER SYSTEM PROTECTION
(Power Systems)

Time : 3 hours Max. Marks : 60

*Answer **FIVE** Questions, Choosing **ONE** Question from each section*
All Questions carry equal marks

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SECTION - I

1. (a) Explain Advantages of static relays.
   (b) Explain replica impedance, duality between amplitude and phase comparator.

2 Derive general equation for two input phase and amplitude comparators.

SECTION – II

3. Write short notes on
   (i) Circulating current type amplitude comparator
   (ii) Coincidence circuit type black spike comparator

4. Write short notes on
   (i) Opposed voltage type rectifier bridge comparator
   (ii) Integrating types phase comparator

SECTION - III

5. (a) Write short notes on instantaneous over current relays.
   (b) Explain definite time and inverse definite time over current relays.

6. Explain direct and instantaneous amplitude comparator.

SECTION – IV

7. Explain Duo bias transformer differential protection.

8. Explain harmonic restraint relay.

SECTION – V

9. Explain Hybrid comparator & switched distance schemes.

10. (a) With a neat diagram explain Microprocessor based over current relay.
    (b) Explain conic section characteristics.

Code : 17PS12E4

M.TECH. DEGREE EXAMINATION, OCTOBER 2018

M.Tech. II Semester

ADVANCED DIGITAL SIGNAL PROCESSING
(Power Systems)

Time : 3 hours Max. Marks: 60

*Answer **FIVE** Questions, Choosing **ONE** Question from each section*
All Questions carry equal marks

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SECTION - I

1. (a) What is the difference between DFT and DTFT
   (b) Explain any Two Properties of DTFT

2 (a) What are the Limitations Short Time Fourier Transform?
   (b) What are categories of filter bank explain briefly

SECTION – II

3. (a) What is meant by adaptive filters?
   (b) What are the applications of Adaptive Filters

4. (a) Discuss the similarities and differences between Steepest descent and Stochastic gradient approach
   (b) Explain the performance analysis of LMS algorithm

SECTION – III

5. (a) Compare Fourier Transform and Wavelets transform
   (b) Discuss briefly about Haar Daubechies Wavelets

6. (a) Define Wavelet transform.
   (b) Explain about continuous wavelet Transform

SECTION – IV

7. (a) Draw the architecture overview of TMS320C240 DSP controller and explain.
   (b) What are the different buses of 'C24x' controller and their functions

8. (a) Discus the overview of memory and I/O spaces of TMS320C240 DSP controller.
   (b) What are the elements consists of CPU 'C24x'

SECTION – V

9. (a) Discus about assembly langue instruction set summary.
   (b) Explain about arithmetic and logic instruction.

10. (a) Explain branch instructions with respective syntax, word length, description.
    (b) Explain branch instruction with respective syntax, word length

Code : 17PS1209

M.TECH. DEGREE EXAMINATION, OCTOBER 2018

M.Tech. II Semester

REACTIVE POWER CONTROL

(Power Systems)

Time : 3 hours Max. Marks : 60

*Answer **FIVE** Questions, Choosing **ONE** Question from each section*
All Questions carry equal marks

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SECTION – I

1 Write about the reactive power requirements of transformer.

2 Explain the performance and limitations of reactive capability of a synchronous generator.

SECTION – II

3 Define stability of power system and explain about dynamic voltage stability and transient stability.

4 Briefly explain the varieties of Static Var Controllers.

SECTION – III

5 Explain the economic justification of reactive power planning.

6 Write the technical considerations for optimization of capacitor at various voltage levels.

SECTION – IV

7 Give the reactive power requirements of lighting load in India.

8 Write short nodes on harmonics and other loads.

SECTION – V

9 Briefly explain the types of automatically controlled relays.

10 Explain the components of a filter on LT & HT networks.

Code : 17PS1208

M.TECH. DEGREE EXAMINATION, OCTOBER 2018

M.Tech. II Semester

VOLTAGE STABILITY
(Power Systems)

Time : 3 hours Max. Marks : 60

*Answer **FIVE** Questions, Choosing **ONE** Question from each section*
All Questions carry equal marks

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SECTION - I

1 (a). List out the voltage stability phenomena and time responses.
(b). Briefly discuss comparison between angle stability and voltage stability.

2 What is the significance of PV and QV curves with respect to voltage stability analysis?

SECTION - II

3 (a).Develop the generator capability curve with neat sketch.
(b). A company normally purchases generators with 0.95 power factor. Turbine rating is specified to match the real power at rated power factor. Keeping the turbine rating unchanged, calculate the generator rating if 0.8 power factor is specified. Calculate the additional reactive power capability at full load.

4 Explain the generator control techniques and Its protection schemes in detail.

SECTION - III

5 Explain the power flow analysis for Bonneville Power administration.

6 Interpret the use of automatic control of mechanically switched capacitors in power administration.

SECTION - IV

7 With neat sketch explain the characteristics of sub transmission and distribution network components.

8 Distinguish the following components
(a). LTC Transformers
(b). Distribution voltage regulators

SECTION - V

9 Formulate the relation between voltage and reactive power at a node in a power system.

10 Explain the basic principle of system voltage control.

Code : 17PS1206

M.TECH. DEGREE EXAMINATION, OCTOBER 2018

M.Tech. II Semester

POWER SYSTEM DYNAMICS & STABILITY
(Power Systems)

Time : 3 hours Max. Marks : 60

*Answer **FIVE** Questions, Choosing **ONE** Question from each section*
All Questions carry equal marks

* * *

SECTION - I

1 a) A synchronous generator of reactance 1.20 pu is connected to an infinite bus bar (|V| = 1.0 pr) through transformers and a line of total reactance of 0.60 pu. The generator no load voltage is 1.20 pu and its inertia constant is H = 4 MW-s/MVA. The resistance and machine damping may be assumed negligible. The system frequency is 50 Hz. Calculate the frequency of natural oscillations if the generator is loaded to

(i) 50%

(ii) 80% of its maximum power limit.

b) What are assumptions made for Calculation of transient stability?

2 a) A two-pole, 50 Hz, 11 kv turbo alternator has a rating of 100 Mw, power factor 0.85 lagging. The rotor has a moment of inertia of a 10,000 kg-m^2. Calculate Kinetic energy at rotor.

b) Prove the equal area criterion by using equation.

SECTION - II

3 Why park's transformation is required? Apply it to transform electrical and mechanical equations of synchronous machine.

4 What are the assumptions made in the derivation of basic equations for a synchronous machine? Derive electrical and mechanical equations of the machine.

SECTION - III

5 a) Why the excitation control is required for an alternator? Show the inclusion additional variables in the mathematical model of a synchronous machine and discuss about its final

state space model.

b) Explain briefly about the AC excitation system with neat diagram.

6 a) Derive the state equations of IEEE type1 excitation system with block diagram representation.

b) Explain briefly about the static excitation system.

SECTION - IV

7 A generator is connected to an infinite bus through an external impedance of jx_e. If $E_b=V_{to}=1.0pu$, $P_t=1.0pu$. Find the initial conditions. Assume $x_e=0.25pu$. The generator data $x_d=1.8$, $x_q=1.7$, $x_d'=0.17$, $x_q'=0.23$, $R_a=0.0$, $T_d'=0.4sec$, $T_q'=0.1sec$, $H=4sec$, $f_B=60Hz$.

8 Derive the model 1.1 to stator equivalent circuit

SECTION - V

9 a) Give complete block diagram model of SMIB System. Apply Routh-Hurwidz criterion for stability analysis.

b) Write notes on power system stabilizer

10 a) Write notes on small signal stability. Also show the nature of small disturbance response.

b) Draw the block diagram and explain the effect of excitation and AVR on small signal stability.

Code : 17PS1207

M.TECH. DEGREE EXAMINATION, OCTOBER 2018

M.Tech. II Semester

AI TECHNIQUES IN POWER SYSTEMS
(Power Systems)

Time : 3 hours Max. Marks : 60

*Answer **FIVE** Questions, Choosing **ONE** Question from each section*
All Questions carry equal marks

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SECTION - I

MARKS

1 a. Explain the organization of brain. Also explain with schematic structure, the functions of biological neuron.

b. Give the brief operation of biological neural network.

2 a. Explain how biological neural network is superior over a conventional computer system.

b. Draw and Explain Architecture of neural networks.

SECTION - II

3 a. What is meant by preceptron and Explain why a single layer perceptron cannot be used to solve linearly non-separable problems. Give two examples for linearly non-separable problems.

b. Briefly explain convergence algorithm and write the limitations and applications of Feed forward neural networks.

4 a. Distinguish between the feed forward and feedback neural networks by Comparing their input-output mapping

b. Explain algorithm for Radial basis Function (RBF)

SECTION - III

5 a. Illustrate encoding and fitness function in genetic algorithms.

b. Explain reproduction process by taking example.

6 a. Explain crossover and mutation.

b. Explain convergence of genetic algorithms by taking one example.

SECTION - IV

7 a. Determine the intersections and unions of the following fuzzy sets:

(i) $\tilde{A}$ = {(3,10, (4, 0.2), (5, 0.3), (6, 0.4), (7, 0.6), (8, 0.8), (10,1), (12, 0.8), (14,0.6)}.

(ii) $\tilde{B}$ = {(2,0.4), (3, 0.6), (4, 0.8), (5, 1.0), (6, 0.8), (7, 0.6), (8, 0.4)}

(iii) $\tilde{C}$ = {(2, 0.4), (4, 0.8), (5,1.0), (7,0.6)}

b. Discuss the reflexivity properties of the following fuzzy relation:

$\tilde{R}$

	x_1	x_2	x_3
x_1	1	.7	.3
x_2	.4	.5	.8
x_3	.7	.5	1

8 a. Explain different fuzzy set operations and write the properties of fuzzy sets.

b. Explain the various fuzzy relations.

SECTION - V

9 a. Explain the design procedure of a fuzzy logic controller. Illustrate it with an example.

b. Explain center of gravity of de fuzzyfication method.

10 By applying Artificial Intelligence techniques explain speed control of dc and ac motors

Code : 17EC1201

M.TECH. DEGREE EXAMINATION, OCTOBER 2018

M.Tech. II Semester

WIRELESS COMMUNICATIONS

(Digital Electronics & Communication Systems)

Time : 3 hours Max. Marks : 60

*Answer **FIVE** Questions, Choosing **ONE** Question from each section*
All Questions carry equal marks

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SECTION – I

1 Write a brief note on the Third generation (3G) Wireless networks.

2 Explain in detail about Bluetooth and Personal Area Networks

SECTION – II

3 a) Analyze the ground reflection model to obtain an expression for received power.

b) Discuss about the Small-Scale Multipath Measurements in mobile radio propagation

4 Explain in brief about Statistical Models for Multipath Fading Channels

SECTION – III

5 Discuss in detail about Receive Diversity in wireless communication

6 Explain the performance analysis for Rayleigh Fading channels

SECTION – IV

7 Explain about Spread Spectrum Multiple Access in mobile communication

8 a) How to obtain the Capacity of cellular CDMA networks.

b) Design the Rake Receiver with neat sketch.

SECTION – V

9 Explain the procedure about the Capacity of flat and frequency selective fading channels

10 Discuss about GSM specifications and Air Interface.

Code : 17EC1205

M.TECH. DEGREE EXAMINATION, OCTOBER 2018

M.Tech. II Semester

MICRO COMPUTER SYSTEMS DESIGN
(Digital Electronics & Communication Systems)

Time : 3 hours Max. Marks : 60

*Answer **FIVE** Questions, Choosing **ONE** Question from each section*
All Questions carry equal marks

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SECTION - I

1 a) Explain the internal hardware architecture of 8086 microprocessor with neat diagram?

b) Explain the various addressing modes of 8086 microprocessor with examples?

2 a) Explain register organization of 80286 and some addressing modes of 80286?

b) Explain instruction sets of 80286 with some examples.

SECTION - II

3 a) Explain architecture of 80386 with neat internal diagram

b) Explain in detail about virtual 8086 mode.

4 a) Briefly explain the pin description of 80386

b) With neat diagram, explain the memory management in 80386.

SECTION - III

5 a) Explain the memory system for the Pentium microprocessor.

b) Explain branch prediction logic and how it reduces the branching delay.

6 a) What is cache memory? Why do we use a separate cache for data and code?

b) Briefly explain about dual core processor and its architecture.

SECTION - IV

7 a) Explain about various modes of data access from/to IO devices.

b) Explain in detail about common procedure sharing?

8 a) What is DMA? Explain DMA interfacing technique?

b) Explain virtual memory concept of 80286 processor?

SECTION - V

9 a) Draw and explain internal architecture of 8087 arithmetic coprocessor.

b) Write short note on SIMD (Single Instruction Multiple Data).

10 Explain Data formats for the Arithmetic Coprocessor with suitable examples.

Code : 17EC12E1

M.TECH. DEGREE EXAMINATION, OCTOBER 2018

M.Tech. II Semester

DSP PROCESSORS & ARCHITECTURE
(Digital Electronics & Communication Systems)

Time : 3 hours Max. Marks : 60

*Answer **FIVE** Questions, Choosing **ONE** Question from each section*
All Questions carry equal marks

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SECTION - I

1 (a) Write a MATLAB program to illustrate the effect of down sampling in the frequency domain.

(b) Test whether the following systems are linear or nonlinear

(i) $y(n) = x(n^2)$ (ii) $y(n) = x(n) + \frac{1}{x(n-1)}$

2 (a) Discuss about windowing method of designing FIR filter

(b) Write a MATLAB program to find the frequency response of a second order IIR filter.

SECTION - II

3 Discuss the following types of sources of error.
(i) Input quantization error (ii) Product quantization error
(iii) Coefficient quantization error

4 Consider the transfer function $H(z) = H_1(z)H_2(z)$ where $H_1(z) = \frac{1}{1-a_1 z^{-1}}$ and $H_2(z) = \frac{1}{1-a_2 z^{-1}}$. Find the output round off noise power. Assume $a_1 = 0.5$ and $a_2 = 0.6$ and find the output round off noise power.

SECTION - III

5 Draw the functional diagram of the barrel shifter of the TMS320C54XX processor and explain.

6 Discuss about on-chip peripherals of TMS320C54XX processor.

SECTION - IV

7 Implement PID controller for a plant using TMS320C54XX processor.

8 Write a DSP program to implement an 8-point FFT using TMS320C54XX Processor

SECTION - V

9 Interface TLC 1150 (ADC) to TMS320C54XX processor and write a DSP program to convert an analog signal into digital.

10 Design a circuit to interface 64k words of the program memory space form 0FFFFFh to 0F0000h for the TMS320C54XX processor using 16kX16 memory chip.

Code : 17EC1204

M.TECH. DEGREE EXAMINATION, SEPTEMBER 2018

M.Tech. II Semester

ADAPTIVE SIGNAL PROCESSING

(Digital Electronics & Communication Systems)

Time : 3 hours Max. Marks : 60

*Answer **FIVE** Questions, Choosing **ONE** Question from each section*

All Questions carry equal marks

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SECTION - I

1 a Draw the block diagram of a generic adaptive filter and briefly state its aim.

b Discuss the properties of an adaptive system with one example.

2 a Explain about adaptive linear combiner in detail.

b Derive the Gradient and Mean Square Error for the single-input adaptive linear combiner with two weights.

SECTION - II

3 a State the orthogonality principle and derive the expression of Weiner-Hopf equation.

b Show that the gradient search algorithm is stable when $1 / \lambda > \mu > 0$ where λ is eigen value and is a parameter which gives stability and rate of convergence.

4 a Write about the methods and ideas of gradient search methods.

b Explain Stability, Rate of convergence and Learning Curves.

SECTION - III

5 a Write about gradient search by the method of Newton's method.

b Discuss about the convergence and stability of steepest descent algorithm.

6 a Write a short note on Eigen filters with an example.

b Find the Eigen values and vectors of the matrix

$$A = \begin{bmatrix} 5 & 4 & 2 \\ 4 & 5 & 2 \\ 2 & 2 & 2 \end{bmatrix}.$$

SECTION - IV

7 a Explain MSE behavior of LMS and its Mis-adjustment with appropriate expressions.

b Compare LMS algorithm with Steepest Descent algorithm.

8 a Explain LMS algorithm application to cancellation of echoes in long distance telephone circuits?

b Explain why T_{mse} and τ_{mse} are identical in the case of the LMS algorithm.

SECTION - V

9 Explain about the recursive least square algorithm and the application of RLS algorithm on adaptive Equalization.

10 a Briefly discuss about extended Kalman filtering.

b Explain how kalman gain vector is computed in LMS algorithm.

Code : 17EC1202

M.TECH. DEGREE EXAMINATION, OCTOBER 2018

M.Tech. II Semester

DIGITAL COMMUNICATION TECHNIQUES

(Digital Electronics & Communication Systems)

Time : 3 hours Max. Marks : 60

*Answer **FIVE** Questions, Choosing **ONE** Question from each section*
All Questions carry equal marks

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SECTION - I

1 Describe the binary PAM system with the help of block diagram. Draw the Waveforms wherever required.

2 What is matched filter? Derive an expression for the transfer function of the Matched filter under white noise.

SECTION – II

3 Summarize about the probability of error for envelope detection of M-array orthogonal signals

4 Explain about Karhunen Loeve expansion approach in communication over additive Gaussian noise channels

SECTION – III

5 Distinguish between narrow and wide band fading models in detail.

6 Interpret the characterization of fading multipath channels with explanation.

SECTION – IV

7 Express in detail about the optimum demodulation of Digital signals in the presence if ISI and AWGN. Also, explain the various equalization techniques.

8 Outline the ideal solution for ISI in communication over band limited channels

SECTION - V

9 Explain with neat block diagram, the coherent QPSK transmitter and receiver. For the given binary sequence of 01101000, draw the signal space representation and relevant QPSK wave forms.

10 With relevant diagram, explain the methods of carrier synchronization.

Code : 17EC1203

M.TECH. DEGREE EXAMINATION, OCTOBER 2018

M.Tech. II Semester

MODERN RADAR SYSTEMS

(Digital Electronics & Communication Systems)

Time : 3 hours Max. Marks : 60

*Answer **FIVE** Questions, Choosing **ONE** Question from each section*
All Questions carry equal marks

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SECTION - I

1 (a) Discuss about the factors that influence the prediction of Radar range.

(b) Obtain the expression for minimum detectable signal in terms of noise bandwidth, noise figure and other relevant parameters.

2 (a) Why most of the radar receivers are considered as envelop detectors while calculating the SNR?

(b) Define Jamming. Derive an expression for Radar range with active jamming.

SECTION - II

3 (a) Explain in detail about different types of integration of radar pulses.

(b) Explain the principle and characteristics of a Matched filter.

4 (a) Explain about coherent detection and give its merits and demerits comparing with other detection methods.

(b) Explain in detail about different types of integration of radar pulses.

SECTION - III

5 (a) Draw and explain block diagram of Conical-scan tracking radar.

(b) Why does tracking radar have poor accuracy at low elevation angles? Explain.

6 (a) Explain in detail about limitations to tracking accuracy.

(b) Explain about Doppler measurement.

SECTION - IV

7 Explain about Air Surveillance radar

8 Write short notes on Height Finder and 3D radar.

SECTION - V

9 (a) Write short notes on noise jamming of surveillance radar.

(b) Discuss about Objective of ECM

10 Explain in detail about ECCM provisions for surveillance radar

Code : 17MME201

M.TECH. DEGREE EXAMINATION, OCTOBER 2018

M.Tech. II Semester

QUALITY ENGINEERING IN MANUFACTURING
(Advanced Manufacturing Systems)

Time : 3 hours Max. Marks : 60

*Answer **FIVE** Questions, Choosing **ONE** Question from each section*
All Questions carry equal marks

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SECTION - I

1 (a) What is quality and what factors are to be considered in the design of products?
(b) Differentiate between system design and parameter design which affect the quality.

2 (a) Explain the importance of quality engineering in production design.
(b) Discuss various types of tolerances as a means to improve quality

SECTION - II

3 (a) How the tolerance design is made for L-type characteristic systems?
(b) How the tolerances and economics of production are inter-related?

4 (a) Write about Quality Evaluations and consequences of tightening tolerances
(b) Explain in detail about Parameter design strategy.

SECTION - III

5 (a) Describe two-way ANOVA is used in an analysis and Interpretation by ANOVA Technique
(b) How the Critique of F-test which are statistically significant?

6 Explain about NO-way ANOVA and its importance with an example.

SECTION - IV

7 (a) What are the test strategies used in orthogonal arrays?
(b) How number of experiments to be carried out will be eliminated by orthogonal arrays?

8 (a) Give the procedure adopted in conducting and analyzing the experiments orthogonal arrays.
(b) What are the various interpretation methods used in orthogonal arrays?

SECTION - V

9 (a) What are various services in Six sigma and small organizations?
(b) Explain the tools for process improvement which improves the quality

10 Write Short Notes on (a) Six –Sigma (b) DMAIC Methodology

Code : 17MME204

M.TECH. DEGREE EXAMINATION, OCTOBER 2018

M.Tech. II Semester

CUTTING TOOL TECHNOLOGY& TOOL DESIGN
(Advanced Manufacturing Systems)

Time : 3 hours Max. Marks : 60

*Answer **FIVE** Questions, Choosing **ONE** Question from each section*
All Questions carry equal marks

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SECTION - I

1 (a) Explain the process and application of
(i) Case hardening (ii) Annealing

(b) Explain the desired qualities of cutting tool material.

2 (a) What are the properties, advantages and limitations of the following tool materials?
(i) High speed steel (ii) Carbide tipped tools (iii) Ceramic tools

(b) What is Annealing, Tempering and Normalizing?

SECTION - II

3 (a) Discuss the design of various elements of a milling cutter.

(b) What is the influence of various angles in a single point cutting tool?

4 (a) Sketch and explain various elements of plain milling cutter.

(b) What are the important angles of twist drill?

SECTION - III

5 (a) With a neat sketch explain any two types of jigs used in drilling.

(b) Write short notes on (i) Grinding fixtures (ii) Milling fixtures

6 (a) Describe the principles of pin location. Explain radial location with suitable sketches.

(b) What are the difference between jig and fixture?

SECTION - IV

7 (a) Explain the advantages and disadvantages of compound dies over progressive dies.

(b) A washer with two holes is to be produced from the sheet metal as shown in Fig.1. Design two station die set for this purpose. Assume shear stress is 400MPa.

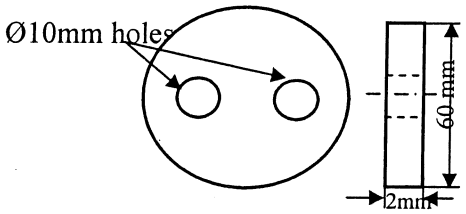

Fig. 1

8 (a) Discuss the effect of clearances in blanking and punching operations.

(b) How will you specify a press required for sheet-metal operations? Generally, the die opening is straight up to a certain length and tapered thereafter. Explain the reason for such a shape.

SECTION - V

9 Write short notes on
(a) Bend allowance (b) Drawing operation (c) Single and double action dies

10 (a) Explain about the methods of bending sheet metal.

(b) What are the various variables that affect metal flow during drawing?

Code : 17MME202

M.TECH. DEGREE EXAMINATION, OCTOBER 2018

M.Tech. II Semester

RAPID PROTOTYPING
(Advanced Manufacturing Systems)

Time : 3 hours Max. Marks : 60

*Answer **FIVE** Questions, Choosing **ONE** Question from each section*
All Questions carry equal marks

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SECTION - I

1	a	What is RP process chain?
	b	Distinguish between Traditional prototyping and Rapid prototyping.
2	a	What are the materials used in stereo lithography process?
	b	Explain process details and machine details of stereo lithography.

SECTION - II

3	a	What are the Limitations of LOM Laminated Object Manufacturing) and FDM (Fusion Decomposition Manufacturing) .Elaborate their applications
	b	Brief up FDM path generation.
4	a	Give machine details solid ground curing (SFC)along its working principle.
	b	Write few industrial applications of RPT process.

SECTION - III

5		Explain the Principle, Process parameters and applications of 3D Printing
6	a	Explain working principle of thermal jet printing along with limitations
	b	List the process parameters Laser sintering.

SECTION - IV

7	a	Explain in detail about the process details and machine details of LENS(**LASER ENGINEERING NET SHAPING**).
	b	List a few applications of LENS.
8	a	Distinguish between direct and indirect rapid tooling.
	b	Explain What is soft tooling and What is bridge tooling.

SECTION - V

9	a	Distinguish between Surface modeling and solid modeling
	b	Distinguish between digital prototyping and virtual prototyping.
10	a	Describe Rapid tolling application of Electronic industries.
	b	Give a few geometric modeling techniques.

Code : 17MME203

M.TECH. DEGREE EXAMINATION, OCTOBER 2018

M.Tech. II Semester

PRODUCTION AND OPERATIONS MANAGEMENT
(Advanced Manufacturing Systems)

Time : 3 hours

Max. Marks : 60

*Answer **FIVE** Questions, Choosing **ONE** Question from each section*
All Questions carry equal marks

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SECTION - I

1 Define operations management. Explain about various types of continuous type production systems. Also list the characteristics of each system.

2 What do you mean by Design for production? Explain in detail the production aspects of Product design.

SECTION - II

3 (a) "Value engineering prevents unnecessary cost build up into the product." Explain.

(b) Explain about FAST with respect to value engineering.

4 Consider the following assembly network relationships of a product. The number of shifts per day is 2 and the number working hours per shift is 8. The company aims to produce 80 units of the product per day. Group the activities into work stations using Ranked Positional Weight method and compute Balancing Efficiency.

Operation No.	1	2	3	4	5	6	7	8	9	10
Immediate Preceding tasks	–	1	1	1	2, 3	3, 4	5	5, 6	4, 6	7, 8, 9
Duration (Minutes)	7	2	2	5	8	3	4	7	9	8

SECTION - III

5 (a) Describe in detail about the inputs of MRP.

(b) What are the various lot sizes used for MRP? Explain.

6 (a) Describe about Manufacturing Resources Planning.

(b) A company manufactures Iron Box. The MPS of the final assembly is as shown below:

Month	1	2	3	4	5	6	7	8
Projected Requirement	–	3500	3000	4500	–	1000	4000	5500

The initial stock on hand is 150 units. The carrying cost is Rs. 2.5 per unit/month and the lead-time is one month. The ordering cost per order is Rs. 6000. Develop an EOQ solution.

P. T. O.

SECTION - IV

7 (a) What are the principle assumptions made for solving the sequencing problems?

Activity	Normal Time	Cost (Rs)	Crash Time (days	Cost (Rs)
1-2	9	8000	7	10000
1-3	5	5000	3	8000
2-3	7	7000	5	8600
2-4	8	6000	6	7000
3-4	6	9000	4	11400

(b) Find the sequence that minimizes the total elapsed time required to complete the following tasks. Each job is processed in the order ACB.

		Jobs						
		1	2	3	4	5	6	7
Time on Machine (Min)	A	12	6	5	11	5	7	6
	B	7	8	9	4	7	8	3
	C	3	4	1	5	2	3	4

8 Use graphical method to minimize the time needed to process the following jobs on the machines shown, ie., for each machine find the job which should be done first. Also, calculate the total time needed to complete both the jobs.

		Machines				
Job 1	Sequence	A	B	C	D	E
	Time	3	4	2	6	2
Job 2	Sequence	B	C	A	D	E
	Time	5	4	3	2	6

SECTION - V

9 (a) Distinguish between PERT and CPM.

(b) With the help of the following data:

(i) Draw the Network diagram and

(ii) Identify the critical path and its length.

Activity	1-2	1-3	2-4	3-4	4-5	5-6	3-5	5-7	6-7
Duration (in days)	6	8	7	12	3	5	7	9	10

10 Table given below furnish the information about the project network:

The overhead charges are Rs 1300 per day.
Determine: (i) The normal cost of the project
(ii) Optimum cost under crashing.

Code : 17MME2E3

M.TECH. DEGREE EXAMINATION, OCTOBER 2018

M.Tech. II Semester

METAL FORMING PROCESSES
(Advanced Manufacturing Systems)

Time : 3 hours Max. Marks : 60

*Answer **FIVE** Questions, Choosing **ONE** Question from each section*
All Questions carry equal marks

* * *

SECTION - I

1 Classify the forming processes? Describe the mechanism of metal forming, and explain the effect of temperature on metal working process?

2 Discuss the cold and hot working process and explain the effect of friction and lubrication in these methods?

SECTION - II

3 Explain the forces and geometrical relationship in rolling process? Describe the effect of rolling load and rolling variables?

4 Explain the theories of hot rolling? Describe how torque and power is calculated?

SECTION - III

5 Classify the forging processes? Discuss the process of forging of plate and of circular discs?

6 Describe the open and closed die forging and enumerate various defects in forging?

SECTION - IV

7 Explain the analysis of hot extrusion process and describe various defects and production of seamless pipes?

8 Describe the drawing process for the production of tubes, wires and rods?

SECTION - V

9 Describe the following
a. Bending and stretch forming b. Defects in formed parts c. Advanced Metal forming processes

10 Explain in detail in the following
a. Forming limit criteria b. HERF c. Electromagnetic forming

Code : 17MME205

M.TECH. DEGREE EXAMINATION, OCTOBER 2018

M.Tech. II Semester

SIMULATION MODELING OF MANUFACTURING SYSTEMS
(Advanced Manufacturing Systems)

Time : 3 hours Max. Marks : 60

*Answer **FIVE** Questions, Choosing **ONE** Question from each section*
All Questions carry equal marks

* * *

SECTION - I

1 (a) Define the terms 'System' and 'Model' with examples.
(b) Justify the need of simulating a manufacturing system.

2 (a) Discuss the sources of randomness for common simulation applications.
(b) What is meant by hypothesis? Describe the types of hypothesis.

SECTION - II

3 Illustrate the techniques for increasing model validity and credibility.

4 Discuss the statistical procedures for comparing real-world observations and simulation output data.

SECTION - III

5 Interpret the phrase ' generating a random variate' and explain any one approach to generate random variate .

6 (a) Elaborate the role of animation and dynamic graphics in simulation.
(b) Describe the features of a general purpose simulation packages.

SECTION - IV

7 Distinguish between terminating simulation and non terminating simulation with examples.

8 (a) Explain the significance of warm up period during simulation.
(b) Outline the Batch means method for output data analysis with its importance.

SECTION - V

9 Summarize the potential benefits from using simulation for manufacturing system.

10 Discuss the various issues that can be addressed by carrying out simulation studies on a flow shop system.

Code : 17CS1203

M.TECH. DEGREE EXAMINATION, OCTOBER 2018

M.Tech. II Semester

SOFTWARE ARCHITECTURE
(Computer Science & Engineering)

Time : 3 hours

Max. Marks : 60

*Answer **FIVE** Questions, Choosing **ONE** Question from each section*
All Questions carry equal marks

* * *

SECTION – I

1. (A) What is Software Architecture? What makes a good Architecture? (6M)
   (B) Discuss about the status of Software Architecture. (6M)

2. Explain in detail about how to build Architecture using Architecture Business Cycle.(12M)

SECTION – II

3. (A) Enlist the different Architectural Styles and discuss in brief Event-Based Implicit Invocation (7M)
   (B) Explain the Software Paradigm for Process Control (5M)

4. (A)Write a note on Heterogeneous Architecture. (6M)
   (B)Discuss the invariants, advantages and disadvantages of Pipes and Filters architecture style (6M)

SECTION – III

5. (A) Describe patterns for interactive systems.(6M)
   (B) What are the structural patterns? Define.(6M)

6. (A)Define user interface architecture and explain. (6M)
   (B)What are the advantages of user interface architecture? (6M)

SECTION – IV

7. Write the applications of ADL's in system development.(12M)

8. (A) Explain about Architectural Design Space (6M)
   (B) Explain about CORBA (6M)

SECTION – V

9. (A)How to achieving system architecture from architecture to system? (6M)
   (B)Write notes on organizational Implications of a product line. (6M0

10. Write short notes on the following:
    (a) Evaluation of a product line. (4M)
    (b) Component based systems. (4M)
    (c) Legacy systems. (4M)

Code : 17CS1201

M.TECH. DEGREE EXAMINATION, OCTOBER 2018

M.Tech. II Semester

ADVANCED COMPUTER NETWORKING
(Computer Science & Engineering)

Time : 3 hours Max. Marks : 60

*Answer **FIVE** Questions, Choosing **ONE** Question from each section*
All Questions carry equal marks

* * *

SECTION - I

1 Explain the functionalities of the various layers in OSI reference model.

2 a) Differentiate between connection-oriented service and connection less service.

b) Write short notes on different network topologies.

SECTION - II

3 Explain with examples, the various framing methods used in data link layer.

4 Explain stop and wait protocol and one bit sliding window protocol.

SECTION - III

5 Discuss in detail, transparent and source routing bridges.

6 Write short notes on IP addressing and RARP.

SECTION - IV

7 List and explain the design issues and transparencies for distributed systems.

8 Explain the interaction primitives for remote procedure call.

SECTION - V

9 Explain threat analysis, authentication, authorization and delegation.

10 Write short notes on access control lists and capabilities.

Code :17CS12E3

M.TECH. DEGREE EXAMINATION, OCTOBER 2018

M.Tech. II Semester

SOFTWARE QUALITY ASSURANCE & TESTING
(Computer Science & Engineering)

Time : 3 hours

Max. Marks : 60

*Answer **FIVE** Questions, Choosing **ONE** Question from each section*
All Questions carry equal marks

* * *

SECTION - I

1. (a) What is Software Quality Assurance? List out and explain its challenges and objectives.

   (b) Describe development and quality plans with example.

2. (a) Discuss Software Quality Assurance defect removal policies.

   (b) List and Explain Components of SQA.

SECTION – II

3. (a) What is software testing? Discuss the role of finite state models in requirements.

   (b) Explain how combinatorial designs are used to generate tests in requirements.

4. (a) Write about test generation from requirements.

   (b) Discuss briefly the prioritization for regression testing.

SECTION – III

5. (a) Explain white box and black box testing methods.

   (b) Describe how internationalization testing is useful for testing the product.

6. (a) Explain about Performance testing and Regression testing.

   (b) Write briefly about Usability Testing.

SECTION – IV

7. (a) Briefly explain software quality metric models.

   (b) List all the types of hierarchical models. Explain the effect of case tools

8. (a) Explain Software Configuration Management, its items and its management.

   (b) Discuss in detail about Software Quality Infrastructure.

SECTION – V

9. (a) Discuss various types of managements and supporting responsibilities with example.

   (b) Sketch the diagram and explain the ISO 9000-3 certification process with example.

10. (a) List and explain Components of Project Progress Control.

    (b) Discuss about implementation of project progress control regimes.

Code : 17CS1205

M.TECH. DEGREE EXAMINATION, OCTOBER 2018

M.Tech. II Semester

GRID COMPUTING

(Computer Science & Engineering)

Time : 3 hours Max. Marks : 60

*Answer **FIVE** Questions, Choosing **ONE** Question from each section*
All Questions carry equal marks

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SECTION - I

1 Discuss in detail about challenges and applications of grid computing.

2 Compare parallel and Distributed Computing.

SECTION - II

3 Explain in detail about Grid Monitoring Architecture.

4 Describe Service level Agreements in detail.

SECTION - III

5 Distinguish Gridway and Gridbus Broker.

6 How Grid Scheduling and Resource Management are useful? Explain.

SECTION - IV

7 Illustrate Data Management Challenges.

8 Explain briefly about generations of Grid Portals.

SECTION - V

9 What are the recent version of Globus Toolkit? Explain.

10 Justify features of next generation grid.

Code : 17CS1204

M.TECH. DEGREE EXAMINATION, OCTOBER 2018

M.Tech. II Semester

DATA MINING & DATA WAREHOUSING
(Computer Science & Engineering)

Time : 3 hours Max. Marks : 60

*Answer **FIVE** Questions, Choosing **ONE** Question from each section*
All Questions carry equal marks

* * *

SECTION - I

1 a) What is data mining? Explain the classification of data mining systems?

b) Describe the challenges of data mining regarding issues relating to diversity of data base types?

2 a) In real world missing values for attributes is common describe various methods for handling this problem.

b) Discuss the concept hierarchy for numerical data?

SECTION – II

3 a) List and describe the five primitives for specifying data mining task.

b) Explain in detail about implementation of data warehouse.

4 Describe why the data mining query language is important?

SECTION – III

5 Explain any method for data generalization and concept description?

6 Explain how the mining of class comparison can be performed?

SECTION – IV

7 a) What is Baye's theorem? Explain how it is used in data classification?

b) Briefly outline the major ideas of naive Bayesian classification.

8 a) Define regression. Briefly explain about linear, non-linear and multiple regressions.

b) Explain how the accuracy of a classified is evaluated?

SECTION – V

9 a) Explain different Partitioning Methods for clustering?

b) Briefly outline Outlier Analysis.

10 a) Explain the Mining of time series and sequence data.

b) Explain the Mining of text databases.

Code : 17CS1202

M.TECH. DEGREE EXAMINATION, OCTOBER 2018

M.Tech. II Semester

SERVICE ORIENTED ARCHITECTURE

(Computer Science & Engineering)

Time : 3 hours Max. Marks : 60

*Answer **FIVE** Questions, Choosing **ONE** Question from each section*
All Questions carry equal marks

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SECTION - I

1 a What is primitive SOA? Explain the types of IT Architectures.
b Discuss about enterprise wide SOA.

2 Explain briefly about SOA programming models with an example.

SECTION - II

3 a Discuss about the web-services framework.
b Explain about service integration with ESB.

4 a Show the WSDL document consisting of abstract and concrete parts that collectively describe a service endpoint.
b Explain the objectives of stakeholders.

SECTION - III

5 a Explain about strategy and governance.
b What is orchestration? How is it related to other parts of SOA? Explain with a neat diagram.

6 a Explain about advanced messaging in SOA.
b Discuss about best practices of SOA.

SECTION - IV

7 a Classify service model logic as service oriented candidates and service candidates with basic building block activities.
b Explain briefly about XML Signature.

8 a What is an XML? Explain how XML security will be used.
Describe about XML Encryption.

SECTION - V

9 a What is a Transaction processing? Explain
b Explain about transaction specification.

10 Explain in details about Protocols and coordination.