



Subject Code: R16CC2201

II B.Tech II Semester Regular Examinations, April - 2018
BUSINESS MANAGEMENT CONCEPTS FOR ENGINEERS
(EEE & ME)

Time: 3 hours

Max Marks: 60

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B
All questions carry equal marks of 12.

PART-A

1. (a) Write Exceptions of Law of Demand
- (b) Define Production Function
- (c) Define Accounting
- (d) Define Management
- (e) Definition of ABC analysis
- (f) Write any three functions of financial Management

[2+2+2+2+2+2]

PART-B

4 X 12 = 48

2. (a) Define Managerial Economics
- (b) Explain briefly Nature and Scope of Managerial Economics
3. (a) Discuss the economies of Scale that accrue to a firm.
- (b) Explain the features of Perfect Competition
4. (a) Define Financial Accounting
- (b) What are Generally Accepted Accounting Principles (GAAP) ?
5. Explain Douglas McGregor Theory X and Y
6. (a) Define Production Management
- (b) Explain different methods of production used in production
7. (a) Explain various functions of Financial Management
- (b) Explain the differences between PERT and CPM



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Subject Code: R16EE2202

II B.Tech II Semester Regular Examinations, April - 2018

DIGITAL ELECTRONICS

(EEE)

Time: 3 hours

Max Marks: 60

Question Paper Consists of Part-A and Part-B.

Answering the question in Part-A is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

PART-A

1. (a) Explain universal logic gates with truth tables?
- (b) What is the difference between POS and SOP?
- (c) Draw the 4x1 Mux?
- (d) What is the difference between PAL & PLA?
- (e) Write short notes on RS Flip Flop.
- (f) Explain register and its applications?

[2+2+2+2+2+2]

PART-B

4 X 12 = 48

2. (a) Convert the following numbers into to Decimal numbers
(i) $(125F)_{16}$ (ii) $(10111111)_2$
- (b) Implement the following functions using AND and OR gates. 6M+6M
i) $F1 = A(B+C D) + (B C)^1$ ii) $F2 = w x^1 + x^1 y (z + w)$
3. Minimize the criterion the following using K-map.
(i) $F(A,B,C,D) = \Pi M(0,1,2,3,5,6,7,8,9,10,11,13)$
(ii) $F(A,B,C,D) = \Sigma m(0,2,3,8,9,12,13,15)$ 6M+6M
4. (a) Design a 1:8 demultiplexer using two 1:4 demultiplexer
(b) Design and draw a full adder which will use two half adders. 6M+6M
5. (a) Discuss how PROM, EPROM and EEPROM technologies differ from each other.
(b) Design a combinational circuit using PAL for the following function
 $y(A,B,C,D) = \Sigma(0,2,3,4,5,6,7,8,10,11,15)$ 4M+8M
6. (a) Draw the logic diagram of a JK flip-flop and using excitation table explain its operation.
(b) Convert D flip-flop into JK flip-flop. 6M+6M
7. (a) Draw the circuit diagram of MOD-10 Counter and explain the operation
(b) What are the different types of registers? Explain the Serial Input Parallel Output shift register. 6M+6M



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Subject Code: R16EE2203

II B.Tech II Semester Regular/Supply Examinations, February 2018

CONTROL SYSTEMS

(EEE)

Time: 3 hours

Max Marks: 60

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

PART-A

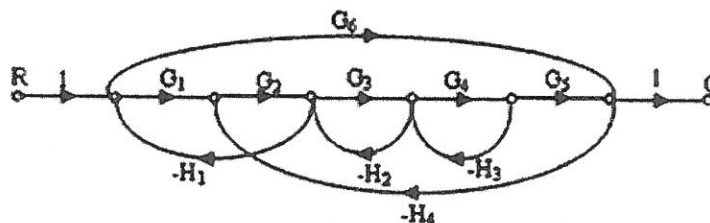
- (a) What are the advantages and disadvantages of closed loop control system?
(b) Define the terms Rise time, peak time.
(c) Define the term Angle of arrival?
(d) What are frequency domain specifications?
(e) Write the differences between lead and lag compensator.
(f) Explain Advantages of State variable method over conventional method.

[2+2+2+2+2+2]

PART-B

- Find the transfer function using mason's gain formula of the given system

[12]



- (a) A unit step applied to the unity feedback system for which open loop Transfer function $G(S) = \frac{16}{S(S+8)}$. Determine (i) its closed loop Transfer function (ii) Natural frequency of oscillation (iii) Damping Ratio (iv) Damped Frequency of oscillation.

[6]

- (b) Explain the significance of generalized error series.

[6]

- (a) Comment on the stability, for a given characteristic equation by R-H Criterion

$$S^6 + 3S^5 + 4S^4 + 6S^3 + 5S^2 + 3S + 2 = 0.$$

[6]

- (b) For $G(S)H(S) = \frac{K}{S(S+5)(S+10)}$, determine the co-ordinates of valid breakaway points.

[6]

5. Explain the steps to Sketch the Bode plot in detail. [12]
6. What is lead compensator? Obtain its transfer function and sketch its pole-zero plots. [12]
7. (a) Define the term state variable. What are the advantages of state space representation? [6]
- (b) Obtain the transfer function for linear time invariant system .And also draw the state model.[6]



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Subject Code: R16EE2204

II B.Tech II Semester Regular Examinations, April-2018.

POWER GENERATION AND ECONOMIC ASPECTS

(EEE)

Time: 3 hours

Max Marks: 60

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

PART-A

1. (a) What is the need of condenser in thermal plants
- (b) What is the difference between fissile and fertile material?
- (c) What are the differences between base and peak load plants?
- (d) What are the advantages of gas insulated substations?
- (e) What is the need of grading of cables?
- (f) What are the advantages of transmitting power at high voltages?

[2+2+2+2+2+2]

PART-B

4 X 12 = 48

2. (a) What is the need of Boilers in Thermal Power Station? Discuss various types of boilers
- (b) Explain briefly about ash handling mechanism in a thermal plant.
3. (a) What is nuclear radiation? Discuss the radiation hazards and shielding in nuclear power plant.
- (b) Explain the working of fast breeder reactor with neat diagram.
4. (a) Explain the following with respect to the economic aspects power generation:
(i) Load duration curve (ii) Diversity factor (iii) Plant Capacity factor.
- (b) A consumer has a maximum demand of 200kW, maintain 1 load factor of 40%. The tariff rates are Rs 100 per kW of maximum demand plus 10 paise per kWh, Find
(i) Total energy consumed per annum (ii) The annual electricity bill.
5. (a) What are the various types of bus bar arrangements in the substations? Explain sectionalized single bus bar arrangement with suitable diagrams
- (b) Explain the merits and demerits of indoor substations over outdoor substations.
6. (a) Derive the expression for electrostatic stress in a single core cable. Where does maximum stress occur and where is it minimum and why?
- (b) Show that in a 3-core (belted type) cable the neutral capacitance of each conductor C_n is equal to $C_s + 3C_c$, where C_s and C_c are the capacitances of each conductor to sheath and to each other respectively. And further explain how these capacitances can be measured experimentally.
7. (a) Explain about the comparisons between comparison of DC and AC distribution.
- (b) A DC 2 wire distribution AB 300 meters long is fed from both ends and supplies a uniformly distributed load of 0.15 A per meter length together with the following concentrated loads: 50 A at C, 60 A at D and 40 A at E, distance AC, CD and DE being 75m, 100 m and 50 m respectively. If the supply voltage at A and B is 205V and 200V respectively and resistance of each conductor is 0.00015 ohm per meter, calculate the current supplied at each end the point of minimum potential.

Subject Code: R16EE2205**II B.Tech II Semester Regular Examinations, April-2018.****ELECTRICAL MACHINES-II****(EEE)****Time: 3 hours****Max Marks: 60**Question Paper Consists of **Part-A** and **Part-B**.Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

PART-A

1. (a) Why are rotor core losses negligible in three phase induction motor?
- (b) What can be the cause of crawling in an induction motor?
- (c) Why are salient pole alternators more suitable for low speed and non-salient pole alternators for high speed operation?
- (d) Why synchronous impedance method does have poor voltage regulation?
- (e) What are the applications of synchronous condenser?
- (f) Write the applications of split phase induction motor.

[2+2+2+2+2+2]**PART-B****4 X 12 = 48**

2. (a) Explain how the equivalent circuit parameters of a poly-phase induction motor can be determined from no-load and blocked-rotor tests and per phase stator winding d.c resistance.
- (b) The power input to rotor of a 400 V, 50 Hz, 6-pole, three-phase induction motor is 90 kW. The rotor e.m.f is observed to make 150 cycles per minute. Calculate (i) slip, (ii) rotor speed, (iii) mechanical power developed (iv) speed of rotor field with respect to rotor (v) speed of stator field with respect to rotor.
3. (a) Explain the principle Operation of induction generator.
- (b) Three phase squirrel cage induction motor has a short-circuit current of 5 times the full-load current. Its full-load slip is 5%. Calculate the starting torque as a percentage of full-load torque if the motor is started by
 - i) DOL starter
 - ii) Star Delta Starter.
4. (a) What is armature reaction? Explain the effect of armature reaction on the terminal voltage of an alternator at Unity power factor load. Draw the relevant phasor diagrams.
- (b) The stator of a 3-phase, 8-pole, 750 r.p.m. alternator has 72 slots, each of which contains 10 conductors. Calculate the r.m.s. value of the e.m.f. per phase if the flux per pole is 0.1Wb sinusoidally distributed. Assume full pitch coils and a winding distribution factor of 0.9.
5. (a) Derive the expression for finding regulation of salient pole alternator using Two Reaction Theory. Draw its phasor diagram.

- (b) A 6600V, 1200kVA, 3-phase alternator is delivering full load at 0.8 power factor lagging. Its reactance is 25% and resistance negligible. By changing the excitation, the e.m.f. is increased by 30% at this load. Calculate the new values of current and power factor. The machine is connected to infinite bus bars.
6. (a) Derive an expression for the power developed per phase of a synchronous motor.
(b) A 75kW, 400V, 4-pole, 3-phase, star connected synchronous motor has a resistance and reactance per phase of 0.04ohm and 0.4ohm respectively. Compute for full load 0.8pf lead the open circuit emf per phase and gross mechanical power developed. Assume an efficiency of 92.5%.
7. (a) Explain why a single phase Induction motor is not self starting. Discuss its operation based on double field revolving theory?
(b) Explain the construction and working of a shaded pole induction motor.



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Subject Code: R16EE2206

II B.Tech II Semester Regular Examinations, April-2018.
ANALOG ELECTRONICS

(EEE)

Time: 3 hours

Max Marks: 60

Question Paper Consists of Part-A and Part-B.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B.
All questions carry equal marks of 12.

PART-A

1. (a) Write advantages of negative feedback in amplifier?
- (b) Define slew rate.
- (c) List out any two AC and DC characteristics of operational amplifiers.
- (d) Draw a pin configuration for 555 IC Timer.
- (e) What is the significance of All pass filter?
- (f) Give the differences between ADC & DAC.

[2+2+2+2+2+2]

PART-B

4 X 12 = 48

2. (a) What are the different types of feedback amplifiers? Give their equivalent circuits.
- (b) Draw the circuit diagram of current shunt feedback and derive expressions for input and output resistance.
3. (a) Prove that a low pass circuit acts as an integrator. Derive an expression for the output voltage levels under steady state conditions of a low pass circuit excited by a ramp input.
- (b) Draw the output waveform of an RC high-pass circuit with a square wave input under different time constants.
4. (a) Write about different stages of operational amplifier.
- (b) Explain V to I & I to V converters.
5. (a) Draw the block diagram of Astable operations using IC 555 and derive its time Constant
- (b) Explain the monostable operation of 555 IC timer with neat sketch.
6. (a) Design the 2nd order HPF and explain its operation in detail.
- (b) Draw the circuit diagram of All pass filters and derive its output response
7. (a) Describe the operation of the dual slope ADC.
- (b) Explain the operation of R-2R ladder 4 bit DAC.
