

II B. Tech II Semester Supplementary Examinations, Nov/Dec-2016
MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS
 (Com. to CE, EIE)

Time: 3 hours

Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
 2. Answer **ALL** the questions in **Part-A**
 3. Answer any **THREE** Questions from **Part-B**

PART – A

1. a) Explain the types of demand.
- b) Explain Explicit Costs Vs. Implicit Costs.
- c) Explain the salient features of oligopoly.
- d) Describe the salient features of sole trader.
- e) Explain the importance of accounting and financial analysis.
- f) Explain the meaning of capital budgeting. (3M+4M+4M+4M+4M+3M)

PART – B

2. a) Define Managerial Economics and explain its scope.
- b) What is Elasticity of demand? And explain its types and measurement of Price elasticity of demand. (7M+9M)
3. a) What is Production function? Explain the Cobb-Douglas Production function.
- b) Explain the salient features of Break-even analysis. (8M+8M)
4. a) Explain different market structures and salient features of perfect completion.
- b) Describe the limit pricing and market skimming pricing. (8M+8M)
5. a) What is business? And explain the salient features of partnership.
- b) Explain the meaning and salient features of business cycles. (8M+8M)
6. a) Briefly explain the different techniques of capital budgeting.
- b) Explain any two methods of traditional capital budgeting. (8M+8M)



7. a) Explain the importance of ratio analysis.
 b) Given are the Balance Sheets of ABC Limited. You are required to prepare a Funds Flow Statement.

	As on 31 st March, 2013 (Rs)	As on 31 st March, 2014 (Rs)
Fixed assets at cost	7,00,000	8,70,000
Less: depreciation	2,56,000	3,60,000
Net fixed assets (A)	4,50,000	5,10,000
<i>Current assets</i>		
Investments (temporary)	1,00,000	1,50,000
Closing inventory	18,15,000	19,00,000
Sundry debtors	13,15,000	13,87,000
Total of current assets (B)	32,30,000	34,37,000
<i>Less: Current liabilities</i>		
Bank overdraft	11,60,000	5,50,000
Trade creditors and provision	9,98,000	11,92,000
Proposed dividend	1,60,000	2,40,000
Total current liabilities (C)	23,18,000	19,82,000
Working capital (D) = (B) – (C)	9,12,000	14,55,000
Net fixed assets + Net Working Capital (A) + (D)	13,62,000	19,65,000
<i>Represented by</i>		
Ordinary share capital	7,56,000	10,00,000
General Reserve	2,60,000	3,80,000
Profit and Loss Account	3,52,000	4,85,000
8 % Debentures	---	1,00,000
	13,62,000	19,65,000

(4M+12M)



II B. Tech II Semester Supplementary Examinations, Nov/Dec-2016
PULSE AND DIGITAL CIRCUITS
 (Com. to EEE and ECC)

Time: 3 hours

Max. Marks: 70

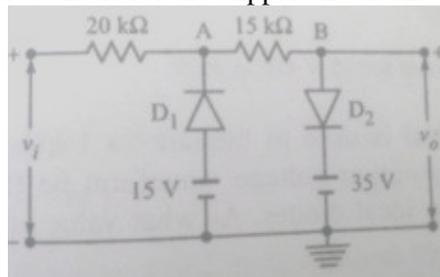
- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
 2. Answer **ALL** the questions in **Part-A**
 3. Answer any **THREE** Questions from **Part-B**

PART -A

1. a) Define rise time. (3M)
- b) Design a clamping circuit using diode to restore the positive peaks of 2kHz signal to 3V. Assume $R_f = 100\Omega$, $R_r = 200k\Omega$, drop across diode is 0.6V. (5M)
- c) Discuss stable and quasi-stable states of a binary. Mention how many stable and quasi stable states are there in bitable, astable and constable multi vibrators. (4M)
- d) Write the advantages of MOS families over bipolar families. (4M)
- e) What is the difference between a voltage time base generator and a current time base generator? Mention an application of time base generators. (3M)
- f) What is a relaxation device? Give few examples of them. (3M)

PART -B

2. a) Using relevant diagrams and wave forms explain the response of a low pass RC circuit to sinusoidal input. Obtain the expression for its output voltage. (10M)
- b) Discuss in detail about diode reverse recovery time. (6M)
3. a) Obtain the transfer characteristic for the clipper circuit shown in figure below. (10M)



- b) Explain the operation of an emitter coupled clipper using relevant circuit diagram. (6M)
4. Explain the operation of a Schmitt trigger circuit using relevant diagram and derive the expression for UTP and LTP. (16M)
5. a) Explain the operation of a 2 input NMOS NOR gate. (8M)
- b) Explain the operation of a CMOS inverter. (8M)
6. a) Explain the working of a UJT relaxation oscillator. (8M)
- b) Define and derive the relation between e_s , e_t and e_d ? (8M)
7. a) Explain the operating principle of a basic sampling gate. (8M)
- b) Explain frequency division in the sweep circuit. (8M)



II B. Tech II Semester Supplementary Examinations, Nov/Dec-2016
PRODUCTION TECHNOLOGY
 (Common to ME and AME)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
 2. Answer **ALL** the questions in **Part-A**
 3. Answer any **THREE** Questions from **Part-B**
- ~~~~~

PART -A

1. a) Write about the various applications of casting process? (3M)
- b) Write about the types of risers? (4M)
- c) What are the similarities between consumable – and non consumable electrode arc welding process? (4M)
- d) Explain the advantages of brazing? (4M)
- e) Explain about the plastic deformation in metals? (4M)
- f) Explain about power requirements in piercing operation? (3M)

PART -B

2. a) What are the elements involved in the gating system with the help of suitable sketches and explain? (8M)
- b) List and explain the considerations for selecting pattern materials? (8M)
3. a) What is Investment casting? What is the main material used for making an Investment Pattern? What are the methods of applying the Investment material to the pattern? (10M)
- b) Explain about the design considerations for casting process? (6M)
4. a) Write the different types of flames and their uses? (8M)
- b) Explain about manual metal arc welding in detail? (8M)
5. a) Explain about thermit welding and plasma welding with neat sketches? (10M)
- b) Write about design of welded joints? (6M)
6. a) Explain about drop Forging and Rotary forging in detail? (8M)
- b) Write about strain hardening and annealing operations? (8M)
7. a) Explain the importance of stretch forming with neat diagram? (8M)
- b) With the help of a neat sketch explain injection moulding process? (8M)



II B. Tech II Semester Supplementary Examinations, Nov/Dec-2016
ANALOG COMMUNICATIONS
 (Electronics and communication Engineering)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
 2. Answer **ALL** the questions in **Part-A**
 3. Answer any **THREE** Questions from **Part-B**

PART -A

1. a) What is the need for modulation? Explain the main advantages of modulation? (4M)
- b) State the applications of different AM Systems. (4M)
- c) Write down the expressions for WBFM, NBFM and PM? (3M)
- d) Define Detection gain and write down the expression for it. (4M)
- e) List out the drawbacks of pulse amplitude modulated signal? (4M)
- f) Classify radio transmitters based on the type of modulation and Service involved. (3M)

PART -B

2. a) Draw the Envelope detector and illustrate the process of detection of AM wave? (8M)
- b) An amplitude modulated signal represented in time domain as $4\cos(1800\pi t) + 10\cos(2000\pi t) + 4\cos(2200\pi t)$. Sketch the spectrum and calculate the band width and total power? (8M)
3. a) What is DSB-SC modulator? Explain how the ring modulator for generation of DSB-SC wave act as a demodulator? (8M)
- b) A DSB signal is to be generated with a carrier frequency of 1MHz using a non-linear device with input and output characteristics $v_0 = a v_i + b v_i^3$. The output of the non-linear device can be filtered by an appropriate BPF and $v_i = m(t) + \cos(2\pi f_1 t)$. Find the value of f_1 . (8M)
4. a) What is the difference between direct and indirect methods of FM generation? Explain the working of a balanced frequency discriminator with the help of circuit diagram. (8M)
- b) An FM signal is represented in time domain as $s(t) = 10 \cos(2\pi \cdot 10^6 t + 5 \sin 8\pi \cdot 10^3 t)$. Calculate the frequency deviation, modulation index, power and band width. (8M)
5. a) What is FM threshold effect? How to achieve threshold reduction in FM system? (8M)
- b) Discuss the noise performance of AM system using envelop detection? (8M)
6. a) Explain the methods for demodulation of PAM signals? (8M)
- b) Write the comparisons among PAM, PWM and PPM? (8M)
7. a) With the aid of the block diagram explain TRF receiver. Also explain the basic super heterodyne principle. (8M)
- b) List out the advantages and disadvantages of TRF receiver. (8M)



II B. Tech II Semester Supplementary Examinations, Nov/Dec-2016
ADVANCED DATA STRUCTURES
 (Com. to CSE, IT)

Time: 3 hours

Max. Marks: 70

-
- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
 2. Answer **ALL** the question in **Part-A**
 3. Answer any **THREE** Questions from **Part-B**
-

PART-A

1. a) Differentiate between double Hashing and Rehashing?
 b) What is LR imbalance? How LR imbalance is corrected illustrate with an example?
 c) Create a min-heap and max-heap for the following list (5; 8; 3; 9; 2; 10; 1; 40)
 d) Compare the time complexity of Prim's and Kruskal's algorithm?
 e) Discuss about time complexity of heap sort?
 f) What are the different ways of writing into a file? (4M+4M+4M+4M+3M+3M)

PART-B

2. Following elements are inserted into an empty hash table with hash function $f(x) = x \% 17$ and quadratic probing
20,10,5,30,40,57,35,25,18,22,21. (16M)
3. a) Draw the hash table for each insertion.
 b) What is the load factor after last insertion?
 c) What is the maximum number of buckets examined in an unsuccessful search? (8M+4M+4M)
4. a) What is a 2-3 tree?
 b) Show the result of inserting **13,11,4,16,19,12,5,7,3,8** into an initially empty 2-3 tree?
 Show the result after each insertion? Also show the result after deletion of the root? (8M+8M)
5. a) Explain binomial queue operations?
 b) Explain about lazy binomial queue? (8M+8M)
6. a) Write and explain: Dijkstra's Algorithm?
 b) Sort the following elements using radix sorting? Discuss its time complexity
20,10,5,30,40,57,3,2,4,35,25,18,22,21. (8M+8M)
7. a) Discuss in brief about KMP algorithm with an example?
 b) Explain about record organization? (8M+8M)



II B. Tech II Semester Supplementary Examinations, Nov/Dec - 2016
MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS
 (Com. to CE, MM)

Time: 3 hours

Max. Marks: 75

Answer any **FIVE** Questions
 All Questions carry **Equal** Marks

1. What is managerial economics? Briefly explain the role of managerial economist in business decision making. (15M)
2. What is demand forecasting? Explain various factors involved in demand forecasting for new products. (15M)
3. A manufacturer sells his product at Rs. 5 each. Variable costs are Rs.2 per unit and the fixed costs amount to Rs. 60,000. (15M)
 - i) Calculate the break-even point.
 - ii) What would be the profit if the firm sells 30,000 units?
 - iii) What would be the BEP if the firm spends Rs.3, 000 on advertising?
 - iv) How much should be the manufacturer sell to make a profit of Rs.30, 000 after spending Rs.3,000 for advertisement?
4. What do you understand by pricing? What are the factors that affect pricing? Also explain the price-output determination in perfect competition market. (15M)
- 5 a) Differentiate among partnership, sole-proprietorship and company form of organization. (8M)
- b) Write short notes on different types of Public Enterprises. (7M)
6. Give a brief account on the important records of Accounting under Double entry system and discuss briefly the scope of each. (15M)
7. Explain in detail how the following ratios are calculated and also the purpose of their computation. (15M)
 - a) Current ratios b) Turnover ratios
 - c) Solvency ratios d) Profitability ratios
8. Examine the following proposals and evaluate them based on: (15M)
 - a) PBP method b) ARR method(ARR on original investment)
 Initial investment is Rs.12, 00,000/- each for all the two projects.

Year	Cash inflows(Rs.)	
	Project A	Project B
1	6,00,000	5,00,000
2	5,00,000	3,00,000
3	2,00,000	2,00,000
4	-	3,00,000



II B. Tech II Semester Supplementary Examinations, Nov/Dec - 2016
THERMAL ENGINEERING - I
(Com. to ME, AME)

Time: 3 hours

Max. Marks: 75

Answer any **FIVE** Questions
All Questions carry **Equal** Marks

~~~~~

1. a) What are the differences between air standard cycle and fuel air cycle analysis?  
Explain the significance of fuel-air cycle.  
b) Discuss briefly about exhaust blowdown loss and loss due to gas exchange process.
  
2. a) Explain valve timing diagram of a 4 stroke CI engine.  
b) Explain about injection systems with pump and nozzle arrangements used in CI engine.
  
3. a) Explain briefly the stages of combustion in SI engines. Indicate the pressure variation with respect to crank angle in a plot indicating the stages of combustion.  
b) Explain the effect of engine variables on knock in SI engines.
  
4. a) Bring out clearly the process of combustion in CI engines and also explain various stages of combustion.  
b) Explain the phenomenon of knock in CI engines.



5. a) List the various methods available for finding frictional power of an engine. Explain Willan's line method to evaluate frictional power.
- b) In a test with a four cylinder four stroke petrol engine, the following results are obtained for a particular setting and speed
- BP with all cylinders working = 24.0 kW  
BP with No.1 cylinder cutoff = 16.1 kW  
BP with No.2 cylinder cutoff = 16.8 kW  
BP with No.3 cylinder cutoff = 16.7 kW  
BP with No.4 cylinder cutoff = 17.4 kW
- Estimate the IP of the engine and its mechanical efficiency.
6. a) Discuss how the clearance affects the performance of multistage compressors.
- b) Determine the size of the cylinder for a double acting air compressor of 45 kW indicated power, in which air is drawn at 1 bar and  $16^{\circ}\text{C}$  and compressed according to the law  $PV^{1.2} = \text{constant}$  to 6 bar. The compressor runs at 100 rpm with average piston speed of 152.5 m/min. Neglect clearance.
7. a) Explain the working of vane type compressor and derive the expression for work done.
- b) Air at 1 bar and  $15^{\circ}\text{C}$  is to be compressed at rate of  $5.6 \text{ m}^3/\text{min}$  to 12 bar. Two machines are considered a sliding vane rotary compressor. Calculate the power required, assuming for the vane type that internal compression takes place through 75% of the pressure rise before delivery takes place.
8. a) Plot and discuss the characteristics of centrifugal and axial flow compressors.
- b) An axial flow compressor having six stages with 50% reaction, compresses air in the pressure ratio of 4:1. The air enters the compressor at  $21^{\circ}\text{C}$  and flows through it with a constant speed of 100 m/s. The rotating blades of compressor rotate with a mean speed of 180 m/s, isentropic efficiency of the compressor is 85%. Determine i) work done, ii) blade angles

\*\*\*\*\*

