Hall Ticket Number:

14ME 506A

III/IV B.Tech (Regular\Supplementary) DEGREE EXAMINATION

November, 2019 — **Mechanical Engineering**

Fifth Semester — **Engineering Economics And Accountancy**

Time: Three Hours — **Maximum** : 60 Marks

Answer Question No.1 compulsorily. (1X12 = 12 Marks)

Answer ONE question from each unit. (4X12=48 Marks)

1 Answer all questions (1X12=12 Marks)

a) Define wealth
b) What is demand?
c) Define price elasticity of demand
d) Write any two features of public limited company.
e) Define business
f) What is costing?
g) Write any two assumptions of break even analysis.
h) What is depreciation?
i) Write the causes of depreciation.
j) Define accounting
k) What is trial balance?
l) Write the purpose of profit & loss account.

UNIT I

2 Explain in detail about utility and value with examples 12M

(OR)

3 a) What is law of demand? Explain it. 6M
b) Describe the different types of price elasticity of demand. 6M

UNIT II

4 Explain the features of single trader and partnership firm. 12M

(OR)

5 a) What are the elements of cost? Explain them briefly. 6M
b) Explain about job costing and process costing. 6M

UNIT III

6 a) What is breakeven point? Explain its advantages. 6M
b) Describe the applications and assumptions of break even analysis. 6M

(OR)

7 a) Write the causes of depreciation. 6M
b) A company purchased a machinery for Rs.2,00,000 on 1st January 2014 and spent Rs.20,000 on its installation. You are required to draw machinery account for two years under diminishing balance method. The rate of depreciation being 10%. 6M

UNIT IV

8 a) What is ledger? Explain it with an example. 6M
b) What is journal? Explain it with an example. 6M

P.T.O.

(OR)

9 The following trial balance has been taken out from the books of XYZ as on 31st December, 2005. 12M

	Debit (Rs.)	Credit (Rs.)
Plant and Machinery	100,000	
Opening stock	60,000	
Purchases	160,000	
Building	170,000	
Carriage inward	3,400	
Carriage outward	5,000	
Wages	32,000	
Sundry debtors	100,000	
Salaries	24,000	
Furniture	36,000	
Trade expense	12,000	
Discount on sales	1,900	
Advertisement	5,000	
Bad debts	1,800	
Drawings	10,000	
Bills receivable	50,000	
Insurance	4,400	
Bank balances	20,000	
Sales		480,000
Interest received		2,000
Sundry creditors		40,000
Bank loan		100,000
Discount on purchases		2,000
Capital		171,500
Total	**795,500**	**795,500**

Closing stock is valued at Rs.90,000

Prepare the trading and profit and loss account of the business for the year ended 31.12.2005 and a balance sheet as at that date.

III/IV B.Tech (Mech. Engg.) –Fifth sem, Regular Exam, Nov 2019

Sub: **ENGINEERING ECONOMICS AND ACCOUNTANCY [14ME506/A]**

Scheme of valuation cum Solution set

1 **1 X 12 = 12 M**

a) **Wealth** has been defined as *"stock of goods existing at a given time that have money value".*

b) **Demand** means the willingness and capacity to pay.

c) **Price Elasticity of demand**:
It may be defined as "Percentage Change in Quantity demanded over percentage change in price"

d) The **features of the Public Limited company** are:
(**Any two** out of the following may be considered)
1. Artificial person:
2. Separate legal existence
3. Voluntary association of persons
4. Limited Liability
5. Capital is divided into shares
6. Transferability of shares
7. Common Seal
8. Perpetual succession
9. Ownership and Management separated
10. Winding up
11. The name of the company ends with 'limited':

e) A **business** is an organization where people work together to make and sell products or services in order to earn profit.

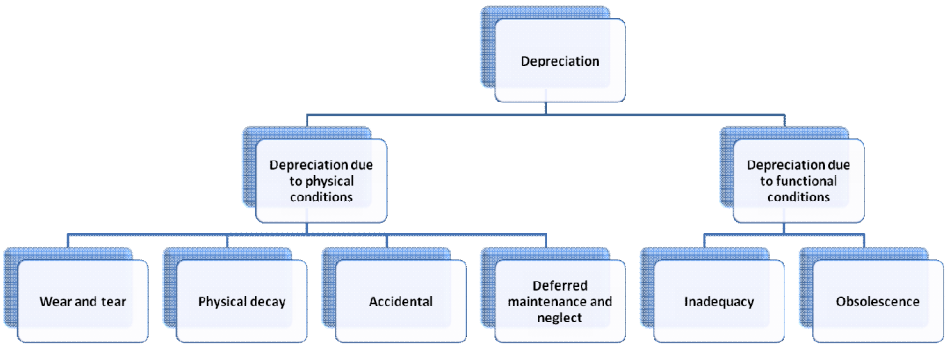
f) **Costing** relates to the determination of cost of a product manufactured or service rendered.

g) The **break-even analysis** is based on certain **assumptions.**
They are: (**Any two** out of the following may be considered)
(i) All costs can be separated into fixed and variable components,
(ii) Fixed costs will remain constant at all volumes of output,
(iii) Variable costs will fluctuate in direct proportion to volume of output,
(iv) Selling price will remain constant,
(v) Product-mix will remain unchanged,
(vi) The number of units of sales will coincide with the units produced so that there is no opening or closing stock,
(vii) Productivity per worker will remain unchanged,
(viii) There will be no change in the general price level.

h) **Depreciation** is "the permanent and continuing diminution in the quality, quantity or value of an asset".

i) **Causes of Depreciation**

(**Any two** out of the following may be considered)



j) **Accounting** is an art of identifying, recording, summarizing and interpreting business transactions of financial nature.

k) A list of balances of the ledger accounts at a point of time is called **trial balance**.

l) The **purpose of preparing profit and loss accounts** is to know whether the business has resulted in profit or loss of the business and to determine the net profit or loss at a given time.

UNIT-I

2.

Utility: **(6M)**

- In Economics, utility is defined as the power of a commodity or a service to satisfy a human want.
- Utility is a subjective or psychological concept. The same commodity or service gives different utilities to different people.
  Example:

  For a vegetarian, mutton has no utility. Warm clothes have little utility for the people in hot countries.

- So utility depends on the consumer and his need for the commodity.
- Total Utility refers to the sum of utilities of all units of a commodity consumed.
  For example, if a consumer consumes ten biscuits, then the total utility is the sum of satisfaction of consuming all the ten biscuits.

Value: **(6M)**

The term "value" refers to the exchange qualities of a good.

- According to Marshall, "the term value, is relative and expresses the relation between two things at a particular place and time".
- Value is of two kinds

(1) value–in–use and
(2) value–in–exchange.

- For a good to have value– in–exchange, it must possess utility, it must be scarce in relation to demand and it must be possible for us to exchange it. Value is often referred to as "willingness to pay."
- Value of a commodity refers to the goods that can be obtained in exchange for it.
- We cannot exchange fresh air for anything; Its value in economic sense is, therefore, zero even though it is otherwise so valuable—nay, indispensable.
- A pencil, on the other hand, has value because it can be exchanged for something; we may be able to get some ink or piece of paper in exchange for it.
- The value of a commodity, thus, means the commodities or services that we can get in return for it; it is, in short, its purchasing power in terms of other commodities and services; it is its power of commanding other things in exchange for itself.

➢ In dealing with consumption, we study about the nature of wants, the classification of wants and some of the laws dealing with consumption

3. (a)

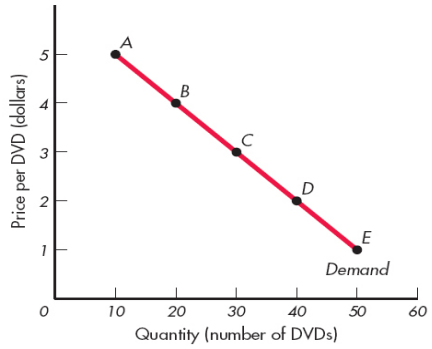
Law of demand – there is an inverse relationship between price and quantity demanded.

A schedule showing how much of a good or service people will purchase at any price during a specified time period, other things being constant.

- Quantity demanded rises as price falls, other things constant.
- Quantity demanded falls as prices rise, other things constant. **3M**

FIGURE 3 Bob's Demand Schedule and Demand Curve for DVDs

Combination	Price per DVD (constant-quality units)	Quantity Demanded per Week (constant-quality units)
A	$5	10
B	$4	20
C	$3	30
D	$2	40
E	$1	50



The number of DVDs that Bob is willing and able to rent at each price during the week is listed in the table, or demand schedule. The demand curve is derived from the combinations given in the demand schedule. The price-quantity combination of $5 per DVD and 10 DVDs is point *A*. The combination of $4 per DVD and 20 DVDs is point *B*. Each combination is plotted, and the points are connected to form the demand curve.

The demand curve is downward sloping for the following reasons:

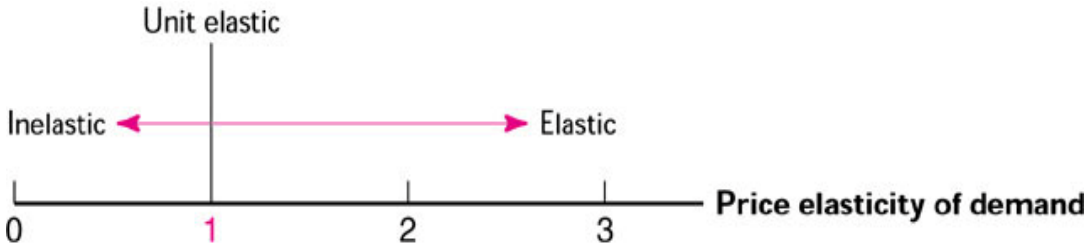
- At lower prices, existing demanders buy more.

- At lower prices, new demanders enter the market.
- Quantity demanded is inversely related to price, holding other factors constant. (**3M)**

3. (b)

<u>Types of Price Elasticity of demand</u>

- Elastic Demand or more than 1 – When quantity demanded responds greatly to price changes
- Inelastic Demand or less than 1 – When quantity demanded responds little to price changes.
- Unitary Elastic – When quantity demanded responds equally to the price changes.
- Perfectly inelastic or 0 elastic demand
- Perfectly elastic or infinite elastic demand



UNIT-II

4.

Single Trader: **6M**

It is a one-man form of organization wherein the trader assumes all the risk of ownership carrying out the business with his own capital, skill and intelligence.

He is the boss for himself. He has total operational freedom. He is the owner, Manager and controller. He has total freedom and flexibility.

Full control lies with him. He can take his own decisions. He can choose or drop a particular product or business based on its merits. He need not discuss this with anybody. He is responsible for himself.

Examples: Restaurants, Supermarkets, pan shops, medical shops, hosiery shops etc.

For business where capital required is small and risk involvement is not heavy, this type of firm is suitable.

It is also considered suitable for the production of goods which involve manual skill e.g. handicrafts, filigree works, jewellery, tailoring, etc.

Partnership: **6M**

Partnership is an improved form of sole trader in certain aspects.

Where there are like-minded persons with resources, they can come together to do the business and share the profits/losses of the business in an agreed ratio.

Persons who have entered into such an agreement are individually called 'partners' and collectively called 'firm'. The relationship among partners is called a partnership.

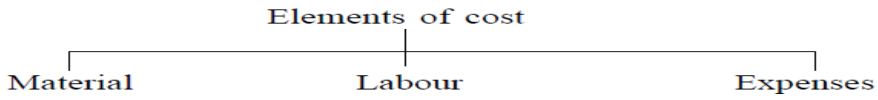
Such firms are most suitable for comparatively small business such as

- retail and wholesale trade,
- professional services,
- medium sized mercantile houses and
- small manufacturing units.

5.(a)

Elements of cost

The elements of cost are divided into three groups : Material, Labour and Expenses.



Material: **2M**

- To produce or manufacture, material is required. For example to manufacture shirts, cloth is required and to produce flour, wheat is required.
- All material which becomes an integral part of finished product and which can be conveniently assigned to specific physical unit is termed as "Direct Material". It is also described as raw material, process material, prime material, production material, stores material, etc.
- The substance from which the product is made is known as material. It may be in a raw or manufactured state.
- Material is classified into two categories:
  - Direct Material

- Indirect Material

Labour : **2M**

- Labour is the main factor of production. For conversion of raw material into finished goods, human resource is needed, and such human resource is termed as labour.
- Labour cost is the main element of cost in a product or service.
- Labour can be classified into two categories:
  - Direct Labour, and
  - Indirect labour

Expenses : **2M**

All cost incurred in the production of finished goods other than material cost and labour cost are termed as expenses.

Expenses are classified into two categories:

- Direct expenses, and
- Indirect expenses (An item of overheads)

5 (b)

JOB COSTING: **3M**

Job costing is suitable where work is undertaken to customer's special requirement and each order is of comparatively short duration.

Job costing relates to the process of tracking the operating cost that has received during a job against the income produced by that job.

It is an important tool for those who are pairing a relatively high rupee volume per customer with a relatively low number of Customers.

Examples of Job Costing:

- Machine-tool manufacturing
- Foundries
- Printing
- Furniture-makers
- Repair-shops
- Garages

Process Costing: **3M**

- Process Costing method is applicable where goods result from a sequence of continuous or repetitive operation or process to which costs are charged before being averaged over the units produced during the period.
- It is best suitable for organizations where the work cannot be stopped and is continuously performed throughout the year (I.e.24 hours a day and 7 days a week) except for stoppage for maintenance work.

Process costing is used in the following types of industries:

Mining industries-

e.g., Coal, Oil, etc.

Public utility services-

e.g., Generation of Electricity, Gas, Water Supply, etc.

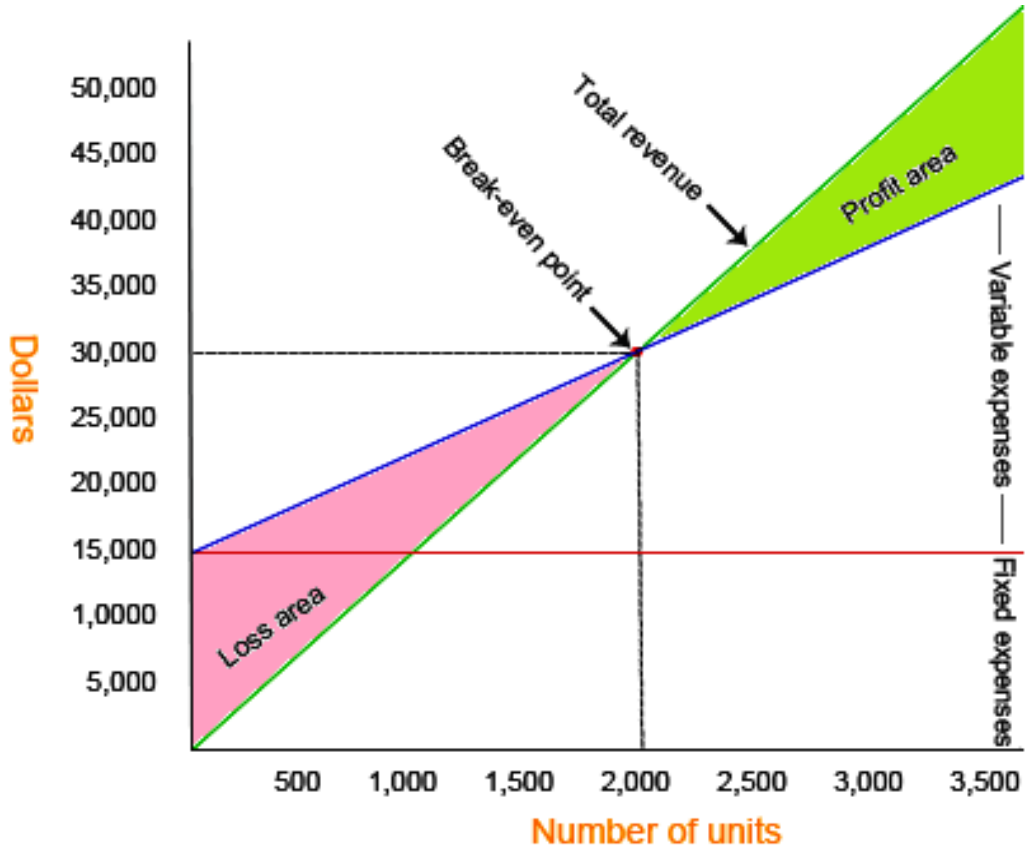
Food processes industries-

e.g., flour mills, milk diary, confectionaries, fruits and vegetables processing, biscuit manufacturing etc.

UNIT-III

6.(a) Break-Even point: 3M

- "Break even point (BEP) is the point at which cost or expenses and revenue are equal"
- There is no net loss or gain at this point.
- Break-even point represents that volume of production where total costs equal to total sales revenue resulting into a no-profit no-loss situation.
- If output of any product falls below that point there is loss; and if output exceeds that point there is profit.
- Thus, it is the minimum point of production where total costs are recovered.



Advantages of Break-Even Analysis: **3M**

(i) It helps in the determination of selling price which will give the desired profits.

(ii) It helps in the fixation of sales volume to cover a given return on capital employed.

(iii) It helps in forecasting costs and profit as a result of change in volume.

(iv) It gives suggestions for shift in sales mix.

(v) It helps in making inter-firm comparison of profitability.

(vi) It helps in determination of costs and revenue at various levels of output.

(vii) It is an aid in management decision-making (e.g., make or buy, introducing a product etc.), forecasting, long-term planning and maintaining profitability.

(viii) It reveals business strength and profit earning capacity of a concern without much difficulty and effort.

6 (b)

Applications of Break-Even Analysis: **3M**

Starting a new business: If you wish to start a new business, a break-even analysis is a must. Not only it helps you in deciding, whether the idea of starting a new is viable, but it will force you to be realistic about the costs, as well as guide you about the pricing strategy.
Creating a new product: In the case of an existing business, you should still do a break-even analysis before launching a new product—particularly if such a product is going to add a significant expenditure.
Changing the business model: If you are about to the change your business model, like, switching from wholesale business to retail business, you should do a break-even analysis. The costs could change considerably and this will help you to figure out the selling prices need to change too.

Assumptions in break-even analysis: **3M**

(i) All costs can be separated into fixed and variable components,

(ii) Fixed costs will remain constant at all volumes of output,

(iii) Variable costs will fluctuate in direct proportion to volume of output,

(iv) Selling price will remain constant,

(v) Product-mix will remain unchanged,

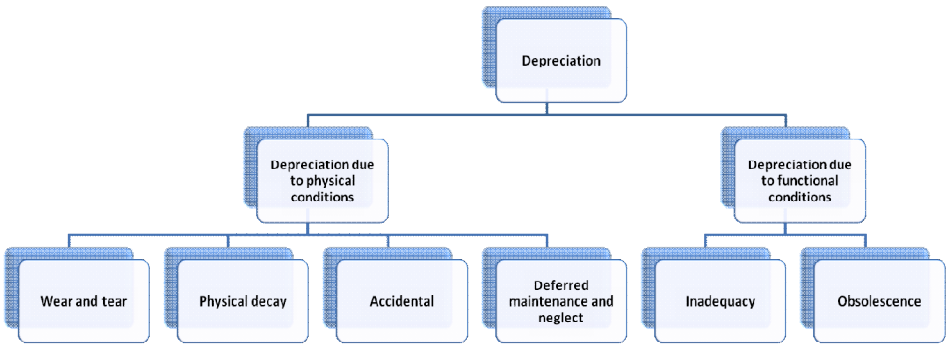
(vi) The number of units of sales will coincide with the units produced so that there is no opening or closing stock,

(vii) Productivity per worker will remain unchanged,

(viii) There will be no change in the general price level.

7 (a)

Causes of Depreciation



Explanation of these 6M

7 (b)

Initial cost = 2,00,000 + 20,000 = Rs 2,20,000/-

Depreciation rate = 10 %

Year end	Depreciation (Rs)	Book value (Rs)
0	0	220000
1	22000	198000
2	19800	178200

3 x 2 =6M

UNIT-IV

8. (a)

Ledger: **3M**

- It is a summary statement of all the transactions relating to a person, asset, expense or income which have taken place during a given period of time and shows their net effect.
- An *accounting ledger* refers to a book that consists of all accounts used by the company, the debits and credits under each account, and the resulting balances.
- While the *journal* is referred to as Books of Original Entry, the *ledger* is known as Books of Final Entry.

Example: **3M**

Ledger

Cash Account

Dr.							*Cr.*
Date	***Particulars***	***F***	***Amount***	***Date***	***Particulars***	***F***	***Amount***
2010	To Capital *A/c*		₹	2010			
Jan. 1			20,000	Jan. 3	By Bank *A/c*		5,000
Jan. 11	"Sales *A/c*		8,000	Jan. 6	"Purchase *A/c*		7,000
				Jan. 25	"Drawings *A/c*		500
				Jan. 31	"Salaries *A/c*		800
				Jan. 31	"Balance C *fd*		14,700
			28,000				28,000
2010	To Balance *b/d*		14,700				
Feb. 1							

8 (b)

JOURNAL:

The word Journal is derived from the Latin word 'journ' which means a day. Therefore, journal means a 'day Book' in which day-to-day business transactions are recorded in chronological order.

Journal is treated as the book of original entry or first entry or prime entry. The journal is a complete and chronological (in order of dates) record of business transactions. It is recorded in a systematic manner.

The process of recording a transaction in the journal is called "JOURNALISING". The entries made in the book are called "Journal Entries".

JOURNAL FORMAT

Date	Particulars	L.F.	Dr. ()	Cr. ()
xx-xx-xxxx	Name of the a/c Dr. To Name of the a/c (being -----_____)		xxxx	xxxx

9

Trading Account for the year ended Dec 31, 2005 **4M**

Profit &Loss Account for the year ended Dec 31, 2005 **4M**

Balance sheet for the year ended Dec 31, 2005 **4M**

4M+4M = 8M

XYZ
Trading and Profit and Loss Account
For the year ended 31st, December 2005

Opening stock		60,000	Sales	480,000	
Purchases	160,000		Less discount	1,900	478,100
Less discount	2,000	158,000			
			Closing stock		90,000
Carriage inward		3,400			
Wages		32,000			
Gross profit (transferred to P&L)		314,700			
		568,100			568,000
Carriage outward		5,000	Gross profit (transferred to P&L)		314,700
Salaries		24,000	Interest received		2,000
Trade expenses		12,000			
Advertisement		5,000			
Bad debts		1,800			
Insurance		4,400			
Net profit (transferred to capital)		264,500			
		316,700			316,700

XYZ
Balance Sheet
For the year ended 31st, December 2005 **4M**

Assets		₹	**Liabilities**		₹
Current Assets:			**Current Liabilities:**		
Bank balance		20,000	Sundry creditors		40,000
Bills receivable		50,000	Bank loan		100,000
Sundry debtors		100,000	**Fixed and Long Term:**		
Closing stock		90,000	Capital	171,500	
Fixed Assets:			+Net profit	264,500	
Furniture		36,000			
Plant and Machinery		100,000	-Drawings	10,000	426,000
Building		170,000			
		566,000			566,000

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