

B.TECH /AEIE/BT /CE/ CHE/CSE/ECE/EE/ IT/ME /5<sup>TH</sup> SEM/ HMTS 3101/2017  
ECONOMICS FOR ENGINEERS  
(HMTS 3101)

Time Allotted : 3 hrs

Full Marks : 70

*Figures out of the right margin indicate full marks.*

*Candidates are required to answer Group A and any 5 (five) from Group B to E, taking at least one from each group.*

*Candidates are required to give answer in their own words as far as practicable.*

**Group - A**  
**(Multiple Choice Type Questions)**

1. Choose the correct alternative for the following: **10 × 1 = 10**
- (i) The airline industry in India is an example of \_\_\_\_\_ market.  
(a) monopoly (b) monopolistic (c) oligopoly (d) duopoly.
- (ii) Debtors are the example of \_\_\_\_\_  
(a) liabilities (b) assets (c) capital stock (d) none of these.
- (iii) Profitability index is calculated by  
(a) Present worth of benefits/Future worth of benefits  
(b) Present worth of benefits/Present worth of profits  
(c) Present worth of benefits/Future worth of profits  
(d) Present worth of benefits/Present worth of costs.
- (iv) The value of (F/A, 8%, 3) is equal to \_\_\_\_\_  
(a) 3.221 (b) 2.289 (c) 3.264 (d) 3.246.
- (v) Increase in price of goods due to increase in wages is an example of \_\_\_\_\_  
(a) cost-push inflation (b) demand-pull inflation  
(c) hoarding (d) deficit financing.
- (vi) Value added method of measuring national income is also known as  
(a) net asset method (b) net income method  
(c) net product method (d) net surplus method.
- (vii) If demand increases, all other factors remaining constant, the price of the commodity will \_\_\_\_\_  
(a) remain same (b) decrease (c) increase (d) none of above.

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- (viii) A private limited company  
(a) can be formed with a minimum of 5 members  
(b) can have infinite shareholders  
(c) must be listed on a stock exchange  
(d) cannot issue shares to public.
- (ix) Changes in the total level of utility for the consumption of one additional unit of a commodity is known as:  
(a) diminishing utility (b) surplus utility  
(c) changing utility (d) marginal utility.
- (x) The full form of ADB is \_\_\_\_\_  
(a) Arab Development Bank (b) Atlantic Development Bank  
(c) Asian Development Bank (d) African Development Bank.

**Group - B**

2. (a) What is the difference between Gross Domestic Product and Gross National Product?  
(b) Mention any 2 methods to control inflation.  
(c) Journalize the following transactions for the proprietary business of Mr. Dev (narration not required):
- 2017  
3<sup>rd</sup> April Purchased goods on credit from Mr. Chandan ₹ 20,000  
7<sup>th</sup> April Sold goods for cash ₹ 28,000  
12<sup>th</sup> April Bought machinery for ₹ 8,000  
25<sup>th</sup> April Withdrew for personal expenses ₹ 2,000  
29<sup>th</sup> April Paid ₹10,000 to Mr.Chandan towards part payment for goods purchased  
30<sup>th</sup> April Paid rent for office ₹ 1,000
- 4 + 2 + 6 = 12**
3. (a) Does the law of demand always hold true for a consumer? – justify your answer in brief.  
(b) How can we have different values of price elasticity of demand at different point of a straight line demand curve?

**6 + 6 = 12**

**Group - C**

4. (a) A Ltd. furnishes the following details for the product manufactured by it for the month of July 2017. You are required to prepare a Cost Sheet and find out the profit for the period.

Raw material consumed	₹ 15,000
Direct Labour	₹ 9,000
Factory OH	₹ 6,000
Administrative OH	20% of Works Cost
Selling & Distribution OH	₹ 0.50 per unit
Units produced and sold	18,000 units
Selling Price	₹ 3 per unit

(b) What is time value of money? Why is it important for financial decision making?

(c) What is the difference between equity and debt with respect to the capital structure of a company?

6 + 3 + 3 = 12

5. (a) Consider the following information.

Name of the material	Standard		Actual	
	Kg.	Rate (₹)	Kg.	Rate (₹)
P	8,000	1.05	7,500	1.20
Q	3,000	2.15	3,300	2.30
R	2,000	3.30	2,400	3.50

From the above data for March 2016 of a factory, calculate:

- Material cost variance.
- Material price variance.

(b) The Balance Sheet of XYZ Limited as on 31-12-2016 was as follows:

Particular	Amount (₹)	Particular	Amount (₹)
Equity Share Capital	40,000	Plant and Machinery	24,000
Capital Reserve	8,000	Land and Buildings	40,000
8% Loan on Mortgage	32,000	Furniture & Fixtures	16,000
Creditors	16,000	Stock	12,000
Bank overdraft	4,000	Debtors	12,000
		Investments (Short-term)	4,000
Taxation:		Cash in hand	12,000
Current	4,000		
Future	4,000		
Profit and Loss A/c	12,000		
	1,20,000		1,20,000

From the above, compute

- the Current Ratio,
- Quick Ratio,
- Debt-Equity Ratio, and
- Proprietary Ratio.

(2 + 2) + (2 + 2 + 2 + 2) = 12

**Group - D**

6. (a) Discuss any 2 important functions of commercial banks.

(b) Find out break even sales when fixed cost is ₹ 40,000, sales per unit is ₹ 20 and variable cost is ₹ 10 per unit. Calculate the sales to earn a profit of ₹ 10,000.

(c) A company has the following specific cost of capital along with the book value of weights. Calculate the weighted average cost of capital.

Types of Capital	Cost (%)	Book Value Weights (%)
Debt	5	30
Preference Shares	10	20
Equity Shares	12	40
Retained Earnings	12	10

4 + 4 + 4 = 12

7. (a) State any 4 characteristics of perfect competition.

(b) Calculate the Net Present Value of the following project assuming the initial investment is ₹ 16,00,000 and the discount rate is 10%.

The cash inflows are -

Year 1: ₹ 8,00,000; Year 2: ₹ 8,00,000;

Year 3: ₹ 4,00,000; Year 4: ₹ 2,00,000.

4 + 8 = 12

**Group - E**

8. (a) The expenses budgeted for production of 1,000 units in a factory are furnished below:

Particulars	Per unit price (₹)
Material Cost	700
Labour Cost	250
Variable Cost	200
Selling Cost (20% fixed)	130
Administrative expenses (₹ 2,00,000)	200
Total	1,480

Prepare a flexible budget for production of 600 units and 800 units assuming administrative expenses are fixed for all level of production.

- (b) A company is purchasing one of the following two computers the discount rate is 10%.

Year	Cash Flow	
	Computer A (₹)	Computer B (₹)
1	10,000	11,000
2	12,000	20,000
3	13,000	4,000
4	9,000	10,000
5	6,000	5,000
Cost of Computer	36,000	40,000

Calculate the net present value (NPV). Based on the NPV, which computer should be purchased?

$$6 + 6 = 12$$

9. (a) A company purchased a machine on 1<sup>st</sup> April, 2016 for ₹ 2, 60,000. Shipping charges are ₹ 10,000. Import duty ₹ 12,000; installation charges are ₹ 10,000. Depreciation is to be calculated by written down value method at 1<sup>st</sup> year - 10% p.a; 2<sup>nd</sup> year- 20% p.a, 3<sup>rd</sup> year-30% p.a. Calculate the amount of depreciation and book value of each year.

- (b) A company must decide whether to buy machine A or machine B.

	Machine A	Machine B
Initial cost (₹)	3,00,000	6,00,000
Useful life (years)	4	4
Salvage value (₹)	2,00,000	3,00,000
Annual maintenance	30,000	0

At 15% interest rate, which machine should be purchased?

$$(2 + 2 + 2) + 6 = 12$$