ECONOMICS FOR ENGINEERS
(HMTS 3201)

Time Allotted : 2½ hrs   **Full Marks : 60**

Figures out of the right margin indicate full marks.

Candidates are required to answer Group A and
<u>any 4 (four)</u> from Group B to E, taking <u>one</u> from each group.

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

Group – A

1. Answer any twelve: **12 × 1 = 12**

    Choose the correct alternative for the following

    (i)   Debit what comes in and credit what goes out is the golden rule of
           (a) personal account   (b) real account
           (c) nominal account   (d) current account.

    (ii)   By performing open market operation transactions, RBI regulates which of these factors
           (a) borrowing power of the commercial banks
           (b) inflation
           (c) money supply in the economy
           (d) both (b) and (c).

    (iii) National income is measured in terms of
           (a) Gross Domestic Product
           (b) Gross National Product
           (c) Net National product at Factor Cost
           (d) Net National product at Market Price.

    (iv)   Machinery will come under which account?
           (a) Nominal   (b) Real   (c) Personal   (d) Impersonal.

    (v)   Which of the following is NOT a component of time value of money?
           (a) The amount of cash received
           (b) The time until the cash is received
           (c) The opportunity costs of alternative actions
           (d) The required rate of return.

    (vi)   The term 'NPA' in banking means
           (a) Agriculture sector loans
           (b) Loans not repaid within stipulated time
           (c) Government securities
           (d) Cash holding.

(vii) Current ratio is a
(a) Liquidity ratio   (b) Profitability ratio
(c) Solvency ratio   (d) Activity ratio.

(viii) Selling price is Rs.20/unit,VC is Rs.15/unit. Contribution is
(a) Rs.5/unit   (b) Rs.6/unit   (c) Rs.4/unit   (d) Rs.3/unit.

(ix) If the price elasticity of demand for a good is .75, the demand for the good is
(a) normal   (b) elastic   (c) unit elastic   (d) inelastic.

(x) Cost of an asset is Rs. 50,000 and it will have a residual value of Rs. 2000 at the end of its useful life of 10 years, calculate the amount of annual depreciation
(a) 4000   (b) 4800   (c) 5000   (d) 5200.

Fill in the blanks with the correct word

(xi) The Cash Reserve Ratio, Repo Rate and Reverse Repo Rate are decided by_____.

(xii) _____ is the interest rate at which the RBI lends money to commercial banks for the short term.

(xiii) Dividend paid is an example of cash flow from _____activities.

(xiv) _____of a project is the rate of discount at which NPV of the project is zero.

(xv) _____goods are luxury items for which demand increases as the price increases.

Group - B

2. (a) An increase in the price of petrol, causes a decrease in the demand for car. Why?
[(CO5)(Analyse/HOCQ)]
(b) What are the unfavourable impacts of inflation on an economy?
[(CO5)(Remember/LOCQ)]
(c) Define substitute goods. Give example.   *[(CO5)(Understand/LOCQ)]*
3 + 6 + 3 = 12

3. (a) Draw the demand curve from the following demand schedule for commodity X and comment on the slope of the curve.
Table 1: Demand Schedule for Commodity X

Price per Unit Rs. (Px)	Units Demanded (Dx)
1	18
2	16
3	14
4	12
5	10

[(CO5)(Apply/IOCQ)]
(b) An increase in the price of coffee causes an increase in the demand for tea. Give reason. *[(CO5)(Apply/IOCQ)]*
(c) Discuss demand pull inflation with diagram.   *[(CO5)(Analyse/HOCQ)]*
4 + 3 + 5 = 12

Group - C

4. (a) What are the characteristics of Joint Stock Company? *[(CO3)(Understand/LOCQ)]*
   (b) What do you mean by scheduled commercial bank? *[(CO4)(Remember/LOCQ)]*
   (c) Write short notes on following topics —
   (i) World Bank   (ii) Benefits of International Trade. *[(CO2)(Remember/LOCQ)]*

   4 + 2 + 6 = 12

5. (a) Compare BOP and BOT. *[(CO3)(Analyse/HOCQ)]*
   (b) Discuss any 2 methods of quantitative credit control of RBI. *[(CO4)(Remember/LOCQ)]*
   (c) Mention any 4 roles of commercial bank in economic development.
   [(CO2)(Remember/LOCQ)]

   4 + 4 + 4 = 12

Group - D

6. (a) Following details of a production shop is furnished. Find - (i) Material Price Variance (ii) Material Cost Variance and comment if they are favourable or not.

Input Material	Standard Usage		Actual Usage	
	Weight (Kgs)	Rate (Rs.)	Weight (Kgs)	Rate (Rs.)
RM₁	4000	2.10	3750	2.40
RM₂	1500	4.30	1650	4.60
RM₃	1000	6.60	1200	7.00

   [(CO3)(Analyse/HOCQ)]

   (b) A small firm incurs fixed expenses amounting to Rs. 12,000. Its variable cost of product X is Rs. 5 per unit. Its selling price is Rs. 8. Determine its break-even point (Quantity) and Margin of safety (MOS) for the sales of 5000 units.
   [(CO1)(Apply/IOCQ)]

   (c) With the following data for 60% capacity, prepare flexible budget for production at 80% and 100 % activity.
   Production at 60% activity 6000units.
   Material cost Rs.100/unit
   Labour cost Rs.40/unit
   Factory expense R.40,000 (40% fixed)
   Administrative expense Rs.30,000 (60% fixed)
   Fixed cost Rs.80,000. *[(CO1,CO2)(Apply/IOCQ)]*

   4 + 2 + 6 = 12

7. Journalise the following transactions of M/s.Bajaj & Co.
   (i)   On 1/1/2024, purchased stationeries worth Rs. 12,000 in Cash.
   (ii) On 5/1/2024, sold goods to Sania worth Rs. 40,000.
   (iii) On 6/1/2024, sold building worth Rs. 45, 00,000.
   (iv) On 12/1/2024, paid wages of Rs. 70,000.
   (a) Based on information given above calculate BEP in (i) rupees and (ii) in units, (iii) PV ratio, (iv) MOS for activity level of 1200 units
   Sales Rs. 25/unit, variable cost Rs.15/unit, fixed cost Rs. 30,000. *[(CO4)(Apply/IOCQ)]*

(b) From the following information find (i) Material price variance, (ii) Material cost variance and comment if they are favourable or not.
Standard quantity of material 4000 kg,
Actual quantity of material 3750 kg,
Standard price Rs. 2.10/kg
Actual price Rs. 2.40/kg. *[(CO4)(Apply/IOCQ)]*

4 + (4 + 4) = 12

Group – E

8. (a) The initial outlay of a project is Rs.110 lakhs .It will yield Rs.20 lakhs at the end of 1st year; Rs. 30 lakhs at the end of 2nd year; Rs. 30 lakhs at the end of 3rd year; Rs. 40 lakhs at the end of 4th year. The life time of the project is 4 years. Taking a discount rate of 10%, calculate Net Present Value (NPV) and Profitability Index (PI) and comment on viability of the project. *[(CO1,CO3)(Analyse/HOCQ)]*

(b) A company has purchased a machine for Rs. 9,60,000, installation charges Rs. 2,40,000,salvage value is 7,20,000,estimated useful life of the asset 4 years. Determine the amount of depreciation and book value after 3 years using straight line method(SLM)of depreciation. *[(CO6)(Apply/IOCQ)]*

8 + 4 = 12

9. (a) From the following information regarding capital structure of a company find Weighted Average Cost of capital.

Particulars	Amount(Rs)	After tax cost%
Debentures	11,00,000	5
Preference share capital	5,00,000	10
Equity share capital	7,00,000	15
Retained earning	15,00,000	12

[(CO2)(Analyse/HOCQ)]

(b) Give a comparative analysis of debt financing and equity financing.

[(CO4)(Remember/LOCQ)]

(c) A person invests 30,000 at the end of year 1 at 10% interest p.a. to be compounded annually. What total sum the person will get at the end of 3rd year?

[(CO2)(Apply/IOCQ)]

5 + 5 + 2 = 12

Cognition Level	LOCQ	IOCQ	HOCQ
Percentage distribution	29.16	34.38	36.46

Course Outcome (CO):

After the completion of the course students will be able to

1. Evaluate a project and estimate the total cost of the project
2. Apply financial analytical methodologies to prepare a report regarding the financial performance of an organization
3. Participate actively in an organization's capital budgeting process
4. Provide vital inputs regarding the pricing of a product
5. Apply the knowledge of the interplay of various economic variables and indicators in workplace
6. Provide insight about different accounting concepts and apply broader concepts like costs, revenues, assets, liabilities, capital, profit, investment and interest.

*LOCQ: Lower Order Cognitive Question; IOCQ: Intermediate Order Cognitive Question; HOCQ: Higher Order Cognitive Question.