11N505

B.TECH. I SEM (NEW SCHEME) MAIN/BACK SESSION 2023-24

MANAGERIAL ECONOMICS AND FINANCIAL ACCOUNTING

1FY3–05 - All Branch

Time : 3 Hours]   [Max. Marks : 70

Instructions to Candidates:

Part–A : Short Answer Type Questions (up to **25** words) 10 × 2 marks = 20 marks. All 10 questions are compulsory.

Part–B : Analytical/Problem Solving questions 5 × 4 marks = 20 marks. Candidates have to answer 5 questions out of 7.

Part–C : Descriptive/Analytical/Problem Solving/Design questions 3 × 10 marks = 30 marks. Candidates have to answer 3 questions out of 5.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Use of the following supporting materials is permitted during examination. (Mentioned in form no. 205). Simple Calculator

1_____   2_____

Part–A   2×10=20

Note :- Attempt all questions.

1. Scope of managerial economics

2. Limitation of Managerial Economics

3. Define Demand

4. Types of Elasticity

5. Concept of production function

6. Cost volume profit analysis

7. Perfect competition

8. Define Oligopoly.

9. Discuss double entry system.

10. Elaborate gross profit ratio.

Part–B

4×5=20

Note :- Attempt any *five* questions.

1. Discuss the importance of managerial economics in present Scenario.

2. Describe concept of inflation in detail.

3. Explain demand curve with suitable example.

4. Discuss explicit and implicit costs in detail.

5. Discuss limitation of Break-even point.

6. Discuss phase of a business cycle.

7. The individual profit and loss statements of H Ltd. and S Ltd. are given below :

	H Ltd.	S Ltd.
Profit before tax	2,00,000	1,00.000
Investment income		
(Dividend receivable from S Ltd.)	8,000	
	2,08,000	1,00.000
Corporation tax	– 80,000	– 40,000
	1,28, 000	60,000
Less : Dividends proposed	15,000	10,000
	1,13,000	50,000

H Ltd. owns 80% of S Ltd. ordinary shares. Prepare a consolidated profit and loss account.

L-25

(2)

Note :- Attempt any *three* questions.

1. Show accounting equation on the basis of the following transactions :

    (a) Ganguly commenced business with   ₹ 1,00,000

    (b) Purchased machinery for   ₹ 30,000

    (c) Purchased goods for   ₹ 40,000

    (d) Sold all goods for cash   ₹ 60,000

2. Consider the following statements :

    (i) Double entry book-keeping mean that two sets of records are maintained.

    (ii) In double entry book-keeping we have a basic check on the accuracy of the entries as the total value of the debit are the statements true or false ?

	Statement (i)	Statement (ii)
(a)	True	True
(b)	True	False
(c)	False	True
(d)	False	False

3. Explain the following :

    (a) Economic problem

    (b) Law of supply

    (c) Economies of scale

    (d) Oligopoly

    (e) Partnership

4. Elucidate the pros and cons. of perfect competition in detail.

••••••••••••••

11N501

11N501

B.TECH. I SEM (NEW SCHEME) MAIN/BACK
ACADEMIC SESSION 2023-24
ENGINEERING MATHEMATICS–I
1FY1–01 - Common to All

Time : 3 Hours]   **[Max. Marks : 70**

Instructions to Candidates:

Part–A : Short Answer Questions (up to **25** words) 10 × 2 marks = 20 marks. All 10 questions are compulsory.

Part–B : Analytical/Problem Solving questions 5 × 4 marks = 20 marks. Candidates have to answer 5 questions out of 7.

Part–C : Descriptive/Analytical/Problem Solving/Design questions 3 × 10 marks = 30 marks. Candidates have to answer 3 questions out of 5.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Use of the following supporting materials is permitted during examination. (Mentioned in form no. 205).

1____NIL____   2____NIL____

Part–A   2×10=20

1. Define asymptotes of the curve.

2. Define homogeneous function.

3. Define point of inflexion.

4. Define order and degree of a differential equation.

5. Define complete integral of the partial differential equation.

L-21   (1)   **P.T.O.**

6. Solve :

$$(3D^2 - 4D - 4)y = 0$$

7. The one part of integral of the complimentary function in :

$$\left((1 - x^2)D^2 + xD - 1\right)y = 0, \quad D = \frac{d}{dx}$$

8. Define the tangent at the origin for tracing the Cartesian curve.

9. Define maxima and minima of two variables.

10. Define linear differential equation.

Part–B   4×5=20

1. Show that the asymptotes of the following curve cut in three points which lie on the straight line :

$$x - y + 1 = 0$$

$$x^3 - 2y^3 + 2x^2y - xy^2 + xy - y^2 + 1 = 0$$

2. Find the points where the function :

$$x^3 + y^3 - 3axy$$

has maximum or minimum value.

3. Solve :

$$(1 + y^2)dx = (\tan^{-1} y - x)dy$$

4. Solve :

$$(x^2D^2 - xD + 1)y = 2 \log x; \quad D = \frac{d}{dx}$$

5. Solve :

$$(mz - ny)p + (nx - lz)q = ly - mx$$

where $p = \dfrac{\partial z}{\partial x}$ and $q = \dfrac{\partial z}{\partial y}$.

L-21   (2)

6. If $u = e^{xyz}$, then prove :

$$\frac{\partial^3 u}{\partial x \partial y \partial z} = (1 + 3xyz + x^2 y^2 z^2) e^{xyz}$$

7. Find the radius of curvature of the curve $a(y^2 - x^2) = x^3$ at the origin.

<div align="center">Part–C   3×10=30</div>

1. Trace the curve :

$$y^2(a^2 + x^2) = x^2(a^2 - x^2)$$

2. Solve by the method of variation of parameters :

$$(1 - x)\frac{d^2 y}{dx^2} + x\frac{dy}{dx} - y = (1 - x)^2$$

3. Apply the Charpit's method to find the complete integral :

$$p^2 + q^2 - 2px \_ 2qy + 2xy = 0$$

4. Solve :

$$\frac{d^2 y}{dx^2} + (3\sin x - \cot x)\frac{dy}{dx} + 2\sin^2 x \cdot y = e^{-\cos x} \cdot \sin^2 x$$

5. Solve :

$$(D^2 - 4D + 4)y = 8x^2 \cdot e^{2x} \cdot \sin 2x$$

****

11N503

B.TECH. I SEM (NEW SCHEME) MAIN/BACK EXAMINATION 2023-24

ENGINEERING CHEMISTRY

1FY1–03 - Common to All

Time : 3 Hours]   **[Max. Marks : 70**

Instructions to Candidates:

Part–A : Short Answer Type Questions (up to **25** words) 10 × 2 marks = 20 marks. All 10 questions are compulsory.

Part–B : Analytical/Problem Solving questions 5 × 4 marks = 20 marks. Candidates have to answer 5 questions out of 7.

Part–C : Descriptive/Analytical/Problem Solving/Design questions 3 × 10 marks = 30 marks. Candidates have to answer 3 questions out of 5.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Use of the following supporting materials is permitted during examination. (Mentioned in form no. 205).

1_____ , 2_____

Part–A

2×10=20

1. What is a difference between the carbonate and non-carbonate hardness.

2. Give one method to prevent caustic embrittlement is boiler.

3. What is meant by alkalinity ? What are the ions which causes alkalinity to the water sample ?

4. Define gross and net-calorific value of fuel.

5. Give the percentage of carbon present in different varieties of coal.

6. What is meant by blending and doping in the gasoline ?

7. What is waterline corrosion ?

8. Name the various green solvents, which can be used in the chemical reactions ?

9. What are the microscopic constituents of portland cement ?

10. What is white cement ? Give its chemical compositions.

<div align="center">

Part–B 4×5=20

</div>

1. What is meant by knocking in a diseal engine ? How it can be controlled ?

2. With the help of chemical reactions, explain the demineralization of hard water and regeneration of ion-exchange resin. https://www.btubikaner.com

3. What is break point chlorination ? Give the significance of it.

4. What is Cracking ? Describe the working of fluid bed catalytic cracking process.

5. What are the different ways of formation of electrochemical corrosion ? Explain.

6. How the microwave and ultrasonication techniques are energy efficience process explain ?

7. What is Viscosity and viscosity index of lubricating oil ? Discuss their significance.

<div align="center">

Part–C 3×10=30

</div>

1. (a) A water sample contains following impurities :

$Mg(HCO_3)_2$ = 36.5 ppm, $CaCl_2$ = 55.5 ppm, $MgSO_4$ = 90 ppm, $MgCl_2$ = 142.5 ppm and NaCl = 90 ppm. Calculate :
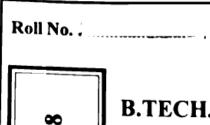
(i) Carbonate and non-carbonate hardness

(ii) Amount of lime and soda required to soften 3,00,000 liters of water using $FeSO_4.7H_2O$ as a coagulent at the rate of 69.5 ppm.

(b) What is carbonate conditioning ? Why the carbonate conditioning is not used in high pressure boiler ?

L-23 (2)

2. (a) What is proximate analysis of a coal ? How it is performed ? Give the significance of it in coal utilization, in a certain application.

   (b) What is Junker's calorimeter ? How it is used, for analysis of calorafic value of gaseous fuel ?

3. (a) Name the various corrosion control process. What does mean by cathodic protection ? Explain the different cathodic protection techniques.

   (b) How the use of renewable resource for manufacturing of products is a sustainable process ? Explain with examples.

4. (a) Write various chemical reactions taking place in the rotatory kiln.

   (b) What is setting and hardening of cement ? Discuss the various chemical reactions involved in it.

5. (a) Write an informative note on a 'Reverse Osmosis'.

   (b) A fuel oil contains 85% C and 15% H. Calculate the weight of air to be supplied for one kg of fuel oil, if the air supplied used to be 18% in excess.

****

11N508

B.TECH. I SEM (NEW SCHEME) MAIN/BACK EXAMINATION 2023-24

COMPUTER FUNDAMENTALS & PROGRAMMING

1FY2–08 - Common to All Branch

Time : 3 Hours]   **[Max. Marks : 70**

Instructions to Candidates:

Part–A : Short Answer Type Questions (up to **25** words) 10 × 2 marks = 20 marks. All 10 questions are compulsory.

Part–B : Analytical/Problem Solving questions 5 × 4 = 20 marks. Candidates have to answer 5 questions out of 7.

Part–C : Descriptive/Analytical/Problem Solving/Design questions 3 × 10 marks = 30 marks. Candidates have to answer 3 questions out of 5.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Use of the following supporting materials is permitted during examination. (Mentioned in form no. 205).

1_____   2_____

Part–A   2×10=20

1. Draw a flowchart to print the odd integers from 1 to 200.

2. Convert binary number 110101011000 to hexadecimal number.

3. The following code should print the values 1 to 10. Find the error in of the following code segments and explain how to correct it.

   n = 1

```
while (n < 10) {

printf ("%d ", n ++)"

}
```

4. Define data types in C with suitable example.

5. Define conditional operator with suitable example.

6. Write the output of the following code :

```
#include <stdio.h>

int main (void)

{

        int c;

        c = 100

        printf("%d\n", c)

        printf("%d\n", c ++)

        printf("%d\n\n", c)

}
```

7. Explain sizeof operator with suitable example.

8. What you mean by multidimensional array ? Write down the syntax to define multidimensional array.

9. Explain function in C with suitable example.

10. Write a statement that opens the file "oldmast.dat" for reading mode and assigns the returned file pointer to of Ptr.

Part–B   4×5=20

1. Convert the following :

   (a) $(4FEC)_{16} = (?)_8$

   (b) $(317)_8 = (?)_{10}$

L-28   (2)

(c) $(EFD_4)_{16} = (?)_{10}$

(d) find 1's compliment of $(100111101)_2 = (?)_2$

2. Write a C program to display the following patterns :

1 2 3 4

2 3 4

3 4

4

3. Explain the concept of simple for loop and nested for loop. Write a C program using for loop to print the "Power of 2" table for the power 0 to 5.

4. Explain the concept of Structure and Unions in C with suitable example.

5. Explain category of function with suitable example.

6. Fill in the blanks in each of the following :

(a) Function .... closes a file.

(b) The .... function reads data from a file in a manner similar to how scanf reads from stdin.

(c) Function .... reads a character from a specified file.

(d) Function .... reads a line from a specified file.

(e) Function .... opens a file.

7. Explain the concept of else if ladder with suitable example.

<div align="center">Part–C</div>   3×10=30

1. What you mean by operator precedency and associativity ? Explain mixed-mode arithmetic with suitable example.

2. Define one-dimensional array. Write a C program that uses a one-dimensional array x to read values and compute the sum of their squares as defined in the following expression :

$$Total = \sum_{i=1}^{10} x_i^2$$

3. What is recursion ? Write a C program to find the sum of N natural numbers using recursion.

4. Explain the concept of files in C programming. Write a program to read data from the keyboard, write it to a file called INPUT, again read the same data from the INPUT file, and display the output.

5. Explain the concept of High-level, Assembly and Low-level languages. Write the difference between primary memory and secondary memory.

****