

FACULTY OF ENGINEERING**M.E. (Civil-SE, TE , ECE-ES, Mech.) II-Semester (AICTE) (Makeup) Examination, March 2021****Subject: Waste to Energy****Time : 2 Hours****Max. Marks: 70****Note: (i) First question is compulsory and answer any three questions from the remaining six questions.****(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.****(iii) Missing data, if any, may suitably be assume.****1 Answer any four questions from the following: (4x4=16 Marks)**

- (a) List eight advantages of Waste-to-Energy Conversion Technology.
 (b) What is pyrolysis and the different types?
 (c) Define the following terms with formula:
 (i) Fire power (ii) Cook stove efficiency
 (d) List the composition and properties of biogas.
 (e) What are the by-products of Waste-to-Energy conversion process?
 (f) What is refuse derived fuel (RDF) and its purpose?
 (g) What are the advantages and disadvantages of biomass energy?

- 2 (a) What are the activities of Waste Management? Categorize the various types of waste with examples. 8
 (b) Estimate the density of solid waste sample on as discarded basis. Take 1000Kg sample. 10

Component	% by Mass	Density (Kg/m ³)
Food Waste	20	300
Paper	40	100
Plastics	5	90
Garden trimmings	15	150
Wood	5	250
Tin Cans	5	100
Cardboard	10	80

- 3 (a) Explain in detail the various properties of the fuel suitable for efficient functioning of a gasifier. 6
 (b) Explain the functioning of updraft gasifier and downdraft gasifier with diagrams and list the difference between them. 12
- 4 (a) What is a biogas stove? What are the various types of stoves and the environmental impact of biogas stove? 9
 (b) Explain the construction and working of Fixed Bed Combustion system with a diagram. What are the various types of grate furnace? 9
- 5 (a) List the operating parameters and products of slow, fast and flash pyrolysis. 9
 (b) How are pyrolytic oils obtained, their application and advantages? 9
- 6 (a) What are the various types of biogas plants? Explain the construction and working of fixed-dome biogas plant with a diagram. 9
 (b) Explain the process of conversion of biomass to electrical energy with a block diagram. 9
- 7 (a) Explain the role of Government and Society in implementing Waste-To-Energy plants. 9
 (b) What are the site selection criteria to be considered for setting up a Waste-To-Energy plant in terms of 9
 (i) Availability of plant input (ii) Finance (iii) Environmental and (iv) electrical load

FACULTY OF ENGINEERING**M.E (Civil-SE, EEE, ECE – ES, ES & VLSI / ES VLSI Design)****M.Tech (CSE-CSE) II-Semester (Make-up) (AICTE) Examination, March 2021****Subject : Industrial Safety****Time : 2 Hours****Max. Marks: 70****Note: i) First Question is compulsory and answer any Three questions from the remaining six questions.****ii) Answers to each question must be written at one place only and in the same order as they occur in the question paper.****iii) Missing data, if any may suitably be assumed.****1. Answer any Four question from the following****(4 x 4 = 16 Marks)**

- a) Explain Preventive steps for Mechanical Hazards.
 - b) Define wick feed lubrication.
 - c) Write causes of accidents in Industries
 - d) With the help of live example co – relate why overhauling of machines are necessary?
 - e) Distinguish between accident and incident
 - f) Draw decision tree for problems in 'Electric Motor'.
 - g) Write sequence of fault finding activities.
2. a) Distinguish the services of maintenance department and safety department . 9
 - b) Define Corrosion and its prevention for machine components. 9
 3. a) What are the types and application of tools used for maintenance? 9
 - b) Describe the significance of industrial safety & discuss its positive and negative effects. 9
 4. a) Elaborate the reasons of plant failure with a case study. 9
 - b) Explain necessity of lubrication. Discuss different types of lubrication methods. 9
 5. a) Write short notes on Periodic and preventive maintenance for : 9
 - a) Air Compressor
 - b) Diesel Generating (DG) Sets.
 - b) Describe salient points of factories act for health and safety, wash rooms, drinking water layouts, cleanliness. 9
 6. a) Write Workmen's Compensation Act (1923). 9
 - b) Write the importance of emergency planning in fire accidents. 9
 7. a) Explain the advantages of 'Repair Cycle Concept and its importance. 9
 - b) Explain safety color codes, and cleaning of machine parts. 9

FACULTY OF ENIGNEERING

**M.E. (Civil-SE, ECE-DS) / M.Tech. (CSE-CSE) II-Semester (AICTE) (Makeup) Examination,
March 2021**

Subject: Research Methodology and IPR

Time : 2 Hours

Max. Marks: 70

Note: (i) First question is compulsory and answer any three questions from the remaining six questions.

(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.

(iii) Missing data, if any, may suitably be assume.

1 Answer any four questions from the following: (4x4=16 Marks)

- a) Illustrate the Significance of Research.
 - b) Interpret the criteria of a good research.
 - c) List the sources of information.
 - d) Illustrate the features of a good research design.
 - e) State the importance of ANOVA analysis.
 - f) Signify the importance of patent.
 - g) List the classification of IPR in India.
- 2 a) Compare the different research approaches. [12]
b) Appraise the benefits of the research to the society in general. [6]
 - 3 a) Explain the guidelines for research review. [9]
b) Explain the steps in writing in research proposal. [9]
 - 4 a) Explain the basic principles of experimental design. [9]
b) Illustrate the types of sample designs. [9]
 - 5 a) Compare parametric and non-parametric tests. [9]
b) Evaluate the conditions for the application of Chi-square. [9]
 - 6 a) Explain the stages involved from filing of the patent to the grant of patent. [9]
b) Discuss about patent licensing. [9]
 - 7 a) Explain the Research process. [9]
b) Discuss the steps in writing the research report. [9]

FACULTY OF ENGINEERING**M.E. (Civil-CEM) (AICTE) II-Semester (Makeup) Examination, March 2021****Subject: Construction Planning and Scheduling****Time : 2 Hours****Max. Marks: 70****Note: (i) First question is compulsory and answer any three questions from the remaining six questions.****(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.****(iii) Missing data, if any, may suitably be assume.****1 Answer any four questions from the following: (4x4=16 Marks)**

- What is planning and why planning is important in construction management?
- How the probability of completion time for a project can be determined? Discuss the steps involved in it.
- Explain in detail basic cost control system for a construction project.
- Differentiate direct cost and indirect cost of a project.
- What are the different logic used in precedence diagramming?
- What do you mean by PERT? What is its significance?
- What is the significance of critical path in CPM method of net working?

2 a) Explain work breakdown structure with suitable exam from construction industry. [10]

b) Differentiate between PERT and CPM. Write any six rules of drawing a network diagram. [8]

3 a) A project has the following activities and completion time. [9]

Activity	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Preceding activity	-	A	A	B	D	D	D	B	C,E	G	F,I,J	K	H,G	M
Expected completion time (days)	5	2	6	12	10	9	5	9	1	2	3	9	7	8

- Draw a PERT network for the project.
- Find critical paths as well as project duration.
- Prepare an activity schedule showing ES, EF, LS, LF, times and float for each activity.

b) The time estimates for the activity P, Q, R in a project are as follows: [9]

Activity	t_o	t_m	t_p
P	10	12	14
Q	6	4	12
R	5	10	12

- Determine the expected time and variance of each activity.
- Which activity has more reliable time estimates?

4 a) Explain about cost analysis in construction projects. [6]

b) The following table gives the data for the duration and cost of each activity of a project network. The indirect cost of the project is ₹ 3000 / week. Determine the optimum duration of the project and the corresponding minimum cost. Draw the scaled version of the project. [12]

Activity	Normal Duration (Week)	Normal Cost (₹)	Crash Duration	Crash Cost
1-2	6	7000	3	14500
1-3	8	4000	5	8500
2-3	4	6000	1	9000
2-4	5	8000	3	15000
3-4	5	5000	3	11000

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- 5 a) Explain the methods for exercising financial control in the execution of construction projects. [9]
 b) Explain cost oriented scheduling. [9]
- 6 a) How do you represent nodes in precedence diagrams? [6]
 b) Draw the PDM network and find ES,EF,,LS,LF and critical path. [12]

Activity	A	B	C	D	E	F	G	H
Predecessor	--	A(FS+4)	A	B	C(SS+2),B	A(SF+15)	D(FF+4)	E,F,G
Duration	5	7	6	7	10	13	3	8

- 7 a) Draw a network diagram. Find the critical path, total float, free float for the following by CPM. [9]

Activity	A	B	C	D	E	F	G	H	I	J
Immediate Predecessor	-	-	A,B	A,B	B	C	D	F,G	F,G	E,H
Duration In Months	4	3	2	5	6	4	3	7	4	2

- b) Draw a network diagram. Find the critical path, total float, free float for the following by CPM. [9]

Activity	A	B	C	D	E	F	G	H	I	J	K	L
Immediate Predecessor	-	A	B	A	D	C,E	D	D	H	H	F,H	G,J
Duration In Months	2	4	6	2	3	7	5	4	8	7	7	8

FACULTY OF ENIGNEERING**M.E. (ECE-DS, Mech-CAD/CAM) II-Semester (AICTE) (Makeup) Examination, March 2021****Subject: Business Analytics****Time : 2 Hours****Max. Marks: 70****Note: (i) First question is compulsory and answer any three questions from the remaining six questions.****(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.****(iii) Missing data, if any, may suitably be assume.****1 Answer any four questions from the following:****(4x4=16 Marks)**

- (a) Why analytics is important in today's business environment?
- (b) State the principles of statistical thinking.
- (c) List the common types of mathematical functions used in predictive modeling.
- (d) What is a moving Average model?
- (e) Recognize different types of constraints in problem statements.
- (f) State the properties that characterize linear optimization models.
- (g) Define Data mining and some common approaches used in data mining.
- 2 (a) Describe the four groups of data classification, categorical, ordinal, interval, and ratio and provide examples of each. 10
- (b) List the explain the steps in the problem solving process. 8
- 3 (a) Explain the difference between subjective and probabilities sampling. 9
- (b) Explain difference between t-distribution and the normal distribution. 9
- 4 (a) Explain Holt-Winters models for Forecasting Time Series with Seasonality and Trend. 9
- (b) Describe the various Error metrics for Forecasting Accuracy. 9
- 5 (a) Incorporate sample information in decision trees and apply Bayes' rule to compute conditional probabilities. 9
- (b) Define and use custom distribution in Monte Carlo simulations. 9
- 6 (a) What is a decision strategy? Explain the various decision strategies with outcome probabilities. 9
- (b) Explain Decision Strategies without Outcome Probabilities with an example. 9
- 7 (a) Explain the purpose of classification methods, how to measure classification performance and the use of training validation data. 9
- (b) Explain the difference between a discrete and a continuous random variable with an example. 9

FACULTY OF ENGINEERING
M.Tech. (CSE-CSE) (AICTE) II-Semester (Makeup) Examination, March 2021

Subject: Embedded System Design

Time : 2 Hours

Max. Marks: 70

Note: (i) First question is compulsory and answer any three questions from the remaining six questions.

(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.

(iii) Missing data, if any, may suitably be assume.

1 Answer any four questions from the following: (4x4=16 Marks)

- a) Define an embedded system and list out categories of embedded system.
 - b) List out the instruction types of PIC-18 with one example each
 - c) Write steps to program Timer 0 of PIC Micro controller in 16 bit mode for generating a square wave.
 - d) Differentiate between assembler and cross Assembler and compiler and cross- compiler.
 - e) Write important features and list differences of ARM7, ARM9 and ARM10.
 - f) What is pipeline hazard?
 - g) What are the two different modes of Logic analyzer?
- 2 a) Explain Briefly the Categories of an embedded system. [9]
 - b) Explain the Hardware Architecture of an Embedded System. [9]
- 3 a) Explain with a neat block diagram, explain the architecture of PIC 18FXXX Microcontroller. [9]
 - b) Explain Capture /Compare /PWM Modules of PIC-18 Microcontroller [9]
- 4 a) Compare and Contrast between the addressing modes of PIC-18 and 8051 with one example each. [12]
 - b) List out the challenges faced in an embedded system design. . [6]
- 5 a) Draw the ARM -3 stage pipeline organization and explain the problems encountered during pipelining. [9]
 - b) Explain and sketch the native tool chain. [9]
- 6 a) Explain the role of the following tools in the software development for an embedded system
 - i) Instruction set simulators.
 - ii) In -circuit Emulator [9]
 - b) Distinguish between Branch and Branch with link instruction of ARM with an example. [9]
- 7 a) Sketch a neat diagram of ARM programming model (Register set) and various modes of operation. [9]
 - b) With a neat block diagram, flow chart and algorithm, explain a microcontroller based embedded in the system area of automobile/communication/automation(ANY ONE).[9]

FACULTY OF ENIGNEERING**M.Tech. (CSE-CSE) II-Semester (AICTE) (Makeup) Examination, March 2021****Subject: Cost Management of Engineering Projects****Time : 2 Hours****Max. Marks: 70**

Note: (i) First question is compulsory and answer any three questions from the remaining six questions.

(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.

(iii) Missing data, if any, may suitably be assume.

- 1 Answer any four questions from the following: (4x4=16 Marks)**
- List out the various cost concepts used in Decision making.
 - Write a brief note on Differential Costs.
 - Categorize the various types of Projects.
 - Why is Project Management important?
 - What is Network Diagram? Give an example.
 - Define Simulation.
 - Write short notes on TQM.
- 2 Generalize the important objectives of cost accounting. [18]**
- 3**
- Describe the various stages of Project Execution with necessary diagrams. [9]
 - Discuss the various Reasons for Cost Overruns in Project Management. [9]
- 4**
- Tabulate the differences between Marginal Costing and Absorption Costing. [9]
 - What are the main characteristics of Service Sector? Explain in detail. [9]
- 5**
- Discuss importance of Benchmarking and its benefits in detail. [9]
 - What is Budgetary Control? List out its Advantages and Disadvantages. [9]
- 6**
- Discuss the Applications and Characteristics of Linear Programming. [9]
 - Explain about the Transportation Problems with necessary diagrams. [9]
- 7**
- Define Project Contract and explain the various types of it. [9]
 - State any 3 types of Learning Curve and Explain in detail. [9]
