

SL.NO:2259

SUBJECT CODE:41421C01

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
M.E./ M.TECH DEGREE EXAMINATIONS- APRIL -2022
CONSTRUCTION ENGINEERING AND MANAGEMENT
FIRST SEMESTER
CONSTRUCTION MATERIALS AND CONCRETE DESIGN
(Candidates admitted under 2021 Regulations-SCBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions
Part-A (10 x 2 =20 Marks)

- 1 What is mean by curing?
- 2 Write the types of concrete
- 3 Write the types of composite material
- 4 Differentiate between Thermoplastic and thermosetting plastic.
- 5 What is mean by Water proofing?
- 6 Write short notes on timber flooring.
- 7 What is smart structures?
- 8 What is smart composites?
- 9 What are the type of mixes available for Mix design?
- 10 Mention the Maximum Size of aggregate to be used in mix design as per ACI.

Answer **Any FIVE** questions
Part-B (5 x10 =50 Marks)

- 11 a. Simplify the Design Procedure for M25 Grade Concrete.
OR
b. Explain in detail types of compaction
- 12 a. Explain the flexure test
OR
b. Compare high strength and high performance concrete
- 13 a. Explain the constituents of plastics and properties of plastics.
OR
b. Explain the uses and application of Composites.
- 14 a. Explain the role of Composite in Construction.

(P.T.O)

OR

- b. Explain briefly
- (i) silicon based water repellent materials
 - (ii) Protective and decorative coatings
 - (iii) Acrylic based polymer coatings

15 a. List out the paints commonly used in buildings? Explain.

OR

- b. Explain in brief the factors that affect the section of floor finish.

16 a. Explain briefly

- (i) Water proofing adhesives
- (ii) Mineral based polymer coatings
- (iii) Joint sealants

OR

- b. Explain any two types of strain rosettes in detail

17 a. Briefly on the following:

- (i) LVOT sensing system and
- (ii) Piezo electric strain measurement

OR

- b. Explain the Concept of Mix Design?

18 a. What are the Factors affecting the proportioning of concrete mix?

OR

- b. How will you calculate cement content and aggregate content for Mix Design?

Answer ALL questions

PART-C (2 x 15 = 30)

19 a. What is FRP. What are the various forms of FRP used in Construction.

OR

- b. Explain in detail about the weathering action in Building Construction.

20 a. Explain in detail about smart city planning in India.

OR

(P.T.O)

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- b. Calculate the Concrete Mix Design (Grade M 20)
- (a) Design stipulations
 - (i) Characteristic compressive strength required in the field at 28 days. 20 MPa
 - (ii) Maximum size of aggregate 20 mm (angular)
 - (iii) Degree of workability 0.90 compacting factor
 - (iv) Degree of quality control Good
 - (v) Type of Exposure Mild
 - (b) Test data for Materials
 - (i) Specific gravity of cement 3.15
 - (ii) Compressive strength of cement at 7 days Satisfies the requirement of IS: 269–1989
 - (iii) Specific gravity of coarse aggregates 2.60
 - (iv) Specific gravity of fine aggregates 2.60
 - (v) Water absorption:
 - Coarse aggregate 0.50%
 - Fine aggregate 1.0%
 - (v) Free (surface) moisture:
 - Coarse aggregate Nil
 - Fine aggregate 2.0%
- Sieve Analysis Coarse Aggregate – Conforming to table 02 of IS 383
Fine Aggregate – Conforming to Zone III as per IS 383

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SUBJECT CODE:41421C02

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
M.E./ M.TECH DEGREE EXAMINATIONS- APRIL -2022
CONSTRUCTION ENGINEERING AND MANAGEMENT
FIRST SEMESTER
MODERNISTIC APPROACHES IN CONSTRUCTION

(candidates admitted under 2021 Regulations)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions
Part-A (10 x 2 =20 Marks)

- 1 What are the uses of copper?
- 2 What are the advantages of fibre reinforced concrete?
- 3 What is mean by hydration of cement?
- 4 Write about the uses of polymers.
- 5 What is mean by weathering?
- 6 Write short notes on acrylic based polymer coating
- 7 Summarize the advantages and disadvantages of prefabricated structures.
- 8 Write the types and grades of reinforcing bars.
- 9 Draw the stress – strain curve of plastics.
- 10 What is joint flexibility?

Answer **Any FIVE** questions
Part-B (5 x10 =50 Marks)

- 11 a. State the uses , properties of alloy steel and important reasons for alloy addition
OR
b. Explain the flexure test
- 12 a. Explain in detail factors affecting workability
OR
b. Explain the fabrication commercial articles from plastics.
- 13 a. Explain the polymer matrix.
OR
b. Explain types of steel

(P.T.O)

14 a. Explain with flow diagram for extraction of Aluminum.

OR

b. What are the different methods of casting? State their advantages & Disadvantages.

15 a. Explain the Effect of temperature on mechanical properties of plastic.

OR

b. Explain the uses and application of Composites.

16 a. Explain briefly the use of bitumen & tar as construction materials in civil engineering work

OR

b. Explain the various types of flooring

17 a. Explain Water proofing materials. Non-weathering materials

OR

b. Write in detail about connections and joints for wall panels

18 a. Describe the manufacturing process of wall panels.

OR

b. With a neat sketch, briefly explain the type of wall joints.

Answer ALL questions

PART-C (2 x 15 = 30)

19 a. Explain in detail about the pattern of load transfer from floor to wall panel in

i) Axially load transfer (8 Marks)

ii) Eccentrically load transfer

OR

b. Describe the hydration reaction of important Bogue compounds indicating the product of hydration.

20 a. Summarize the process of epoxy injection. Also explain routing and sealing with sketches.

OR

b. Explain in detail the light propagation in an optical fibre and also state its advantages.

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SUBJECT CODE:41421C04

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
M.E./ M.TECH DEGREE EXAMINATIONS- APRIL -2022
CONSTRUCTION ENGINEERING AND MANAGEMENT
FIRST SEMESTER
PROJECT FORMULATION AND APPRAISAL
(Candidates admitted under 2021 Regulations-SCBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions
Part-A (10 x 2 =20 Marks)

- 1 What is feasibility analysis?
- 2 What do you mean by sales revenue?
- 3 Define capital.
- 4 What are the demands of project?
- 5 What is project indication?
- 6 Expand VAT.
- 7 What do you mean by foreign collaboration?
- 8 Mention any two clearance process.
- 9 What do you mean by Value of project?
- 10 What is transfer?

Answer **Any FIVE** questions
Part-B (5 x10 =50 Marks)

- 11 a. A project without a project manager-Discus in detail.
OR
b. Discus in detail the Cash Flows and Depreciation: Always a Problem.
- 12 a. How do you prepare a projected cash flow statement?
OR
b. Ways of Improving Net Cash flow-Discus in detail.
- 13 a. Discus in detail the alternative capital budgeting methods.

OR

(P.T.O)

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b. Explain in detail the various concepts of projects.

14 a. What are the economical activities involved in project?

OR

b. How do you prepare effective project report?

15 a. Write short notes on: (a.) Cash flows (b). Time value

OR

b. What are the Problems with using internal rate of return?

16 a. Allocation of project fund-Explain in detail.

OR

b. Discuss in detail the Key financial indicators and ratios.

17 a. Write short notes on: (a) Development financing (b) Equity investor

OR

b. Explain in detail the private and government sector in infrastructure development.

18 a. Discuss in detail the foreign technology collaborations in India.

OR

b. Explain in detail the industrial research and technology transfer in infrastructure.

Answer ALL questions

PART-C (2 x 15 = 30)

19 a. Discuss in detail the details of a project with a project manager.

OR

b. Describe in detail the Cash Flows and Maintenance costs: A perennial source of contention.

20 a. Explain in detail how the project funds were allocated.

OR

b. Describe exactly the roles played by the private and public sectors in infrastructure development.

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SL.NO:2286

SUBJECT CODE:41421C05

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
M.E./ M.TECH DEGREE EXAMINATIONS- APRIL -2022
CONSTRUCTION ENGINEERING AND MANAGEMENT
FIRST SEMESTER
QUANTITATIVE TECHNIQUES IN CONSTRUCTION MANAGEMENT

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions
Part-A (10 x 2 =20 Marks)

- 1 Differentiate feasible & infeasible solution
- 2 Explain the concept of degeneracy in simple method.
- 3 Define CPM
- 4 What is present value formula
- 5 Write compound interest formula
- 6 Define margin of safety
- 7 Explain the fundamental concepts of managerial economics
- 8 write the importance of adequate working capital
- 9 Explain discounted cash flow
- 10 Explain graphic method

Answer **Any FIVE** questions
Part-B (5 x10 =50 Marks)

- 11 a. Calculate the annual rate of compound interest that will allow a principal sum, to double in value after five years.

OR

- b. A random variable L describes the possible losses on an investment of 1 million pounds. It is suggested that as long as the expected loss is less than 120,000 pounds, the investment is safe. Is this a reasonable risk management decision?

- 12 a. Explain the advantages and disadvantages of operations research

OR

- b. Explain the step by step procedure for solving the LPP by the simplex method

- 13 a. Explain transportation problem. Is this a linear programming problem?

OR

(P.T.O)

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b. Detail explain the Quality control techniques

14 a. Explain Different types of Budget

OR

b. Write details about the importance of capital budgeting

15 a. Explain analyse the tree and make informed decisions

OR

b. What cost concepts are mainly used for management decision making? Illustrate

16 a. Write the objectives of pricing strategy

OR

b. What is meant by feasible solution of on LP problem?

17 a. Explain the difference of PERT & CPM

OR

b. Explain the advantages & disadvantages of internal rate of return

18 a. Explain the modelling of sequence of decisions using decision trees

OR

b. Diverse relationship between primal and its dual

Answer ALL questions

PART-C (2 x 15 = 30)

19 a. Maximize $Z = 3x_1 + 2x_2$

OR

b. Briefly explain capital investment proposal

20 a. Explain PERT and CPM project planning

OR

b. Apply the laplace, wald, maximax and maximin criteria to uncertain decision- making problems.

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SL.NO:2279

SUBJECT CODE:41421P01

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
M.E./ M.TECH DEGREE EXAMINATIONS- APRIL -2022
CONSTRUCTION ENGINEERING AND MANAGEMENT
FIRST SEMESTER
ELECTIVE - CONSTRUCTION PERSONNEL MANAGEMENT
(Candidates admitted under 2021 Regulations-SCBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions
Part-A (10 x 2 =20 Marks)

- 1 What are the important processes in Man power planning ?
- 2 What is Under-staffing ?
- 3 What is Selection ?
- 4 What are the objectives of Induction ?
- 5 What is task significance ?
- 6 What is Occupational health and safety at the construction site?
- 7 What are the Difference between GPF, PPF and EPF?
- 8 Define brief about Employee welfare.
- 9 What are the Objectives of Performance Appraisal ?
- 10 What are the benefits of designing an organizational structure?

Answer **Any FIVE** questions
Part-B (5 x10 =50 Marks)

- 11 a. What are the Factors to be Considered for Working Out the Manpower Planning?
OR
b. Explain about the basic elements .
- 12 a. Explain the Assessment of the Manpower Situation
OR
b. Explain about the Development and Operation of human resources.
- 13 a. Explain about the Objectives of Induction.
OR
b. Explain the content of the application blank.
- 14 a. Discuss about the placement.
OR
b. Write about the Job Design Practices and Performance Management.

(P.T.O)

15 a. Explain the Behavioural Aspects of Decision-Making.

OR

b. Define The Importance of a Comprehensive Communication Strategy.

16 a. What is General Provident Fund (GPF)? Explain its calculations

OR

b. Differentiate between GPF, PPF and EPF.

17 a. Write about the Group Insurance in detail.

OR

b. What are Employee Benefits?

18 a. Explain the Human Resource Management Challenges.

OR

b. Explain the HR Policies and Procedures Manual and Employee Handbook.

Answer ALL questions

PART-C (2 x 15 = 30)

19 a. Describe the Factors to be Considered for Working Out the Manpower Planning

OR

b. Explain the following in detail:

a)Recruitment.

b)Selection.

c)Placement.

20 a. Explain the Employee welfare and its features in detail.

OR

b. Explain about the Group Insurance and its objectives in detail.
