

FACULTY OF ENGINEERING**M.E.(Civil-SE) II Semester (AICTE) (Main & Re-Registered Students)****Examination, October 2021****Subject: Design of Prestressed Concrete Structures****Time: 2 Hours****Max. Marks: 70****Note: i) First Question is compulsory. 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 assumed.****1 Answer any four questions from the following. (4x4 =16 M)**

- (a) What is the necessity of using high strength concrete and high tensile steel in prestressed concrete?
- (b) What is the effect of torsion on prestressed concrete sections?
- (c) Discuss the effect of prestressing in indeterminate structures.
- (d) Explain with sketches the different types of prestressed concrete pipes.
- (e) What are grid or coffered floors? What is the advantage of prestressing such floors?
- (f) What is pressure line? Explain its significance.
- (g) State the factors influencing the deflections of pre stressed concrete members.

2 (a) Explain the loss of prestress due to friction of concrete. (8)

- (b) A post-tensioned concrete beam, 120 mm wide and 350 mm deep, spanning over 12m is stressed by successive tensioning and anchoring of three Cables, 1,2 and 3 respectively. The cross-sectional area of each cable is 220 mm² and the initial stress in the cable is 1250 N/mm², modular ratio $\alpha_e = 6$. The first cable is parabolic with an eccentricity of 60 mm below the centroidal axis at the centre of span and 60 mm above the centroidal axis at the support sections. The second cable is parabolic with zero eccentricity at the supports and an eccentricity of 60 mm above the centroidal axis at the centre of the span. The third cable is straight with a uniform eccentricity of 60 mm below the centroidal axis. Estimate the percentage loss of stress in each of the cables, if they are successively tensioned and anchored. (10)

3 (a) Distinguish between web-shear, flexural shear and flexure-shear cracks in concrete beams with sketches. (8)

- (b) A post-tensioned roof girder spanning over 33 m has an unsymmetrical I-section with a second moment of area of section of (72890×10^6) mm⁴ and an overall depth of 1350 mm. The effective eccentricity of the group of parabolic cables at the centre of span is 585 mm towards the soffit and 180 mm towards the top of beam at supports. The cables carry an initial prestressing force of 3200 kN. The self-weight of the girder is 11.2 kN/m and the live load on the girder is 9 kN/m. the modulus of elasticity of concrete is 34 kN/mm². If the creep coefficient is 1.6, and the total loss of prestress is 13 per cent, estimate the deflections at the following stages and

compare them with the permissible values according to the Indian Standard Code (IS:1343-2012) limits: (10)

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- (a) Instantaneous deflection due to (prestess + self-weight) (b) Resultant maximum long-term deflection allowing for loss of prestress and creep of concrete.
- 4 (a) Draw and explain the typical stress distribution in the end block of a post tensioned beam. (8)
- (b) The end block of a post-tensioned prestressed member is 560 mm wide and 560 mm deep. Four cables, each made up of seven wires of 12 mm-diameter strands and carrying a force of 1100kN, are anchored by plate anchorages, 160 mm by 160 mm, located with their centres at 130 mm from the edges of the end block. The cable duct is of 50 mm diameter. The 28-days cube strength of concrete f_{cu} is 48 N/mm². The cube strength of concrete at transfer f_{ci} is 26 N/mm². Permissible bearing stresses behind anchorages should conform with IS: 1343. The characteristic yield stress in mild steel anchorage reinforcement is 260 N/mm². Compute the bursting force and design suitable reinforcement according to the Indian standard code IS: 1343 provisions. (10)
- 5 (a) Briefly outline the salient design features of cylinder and non-cylinder pipes. (8)
- (b) What is the effect of circumferential wire winding on longitudinal stresses? How do you compute these stresses and design longitudinal prestressing in circular pipes? (10)
- 6 (a) What are the salient design features of prestressed concrete one-way and two way slab panels? (9)
- (b) What are the advantages of prestressing flat slab floor panels? Sketch the cross section of a simple flat slab showing the typical cable profile. (9)
- 7 (a) What is meant by immediate and time dependent losses? Explain in detail the various losses under these headings. (8)
- (b) A two-span continuous concrete beam ABC (AB = BC = 12 m) has a rectangular section, 300 mm wide and 800 mm deep. The beam is prestressed by a cable carrying an effective force of 700 kN. The cable has a linear profile in the span AB and parabolic profile in span BC. The eccentricities of the cable are +50 mm at A, -100 mm at a distance of 7 m from A and +200 at support B and -200 mm at mid span of BC (-below and +above centroidal axis).
- (a) Evaluate the resultant moment developed at B due to the prestressing force.
- (b) Sketch the line of thrust in the beam if it supports, a uniformly distributed load of 5 kN/m which includes the self-weight of the beam.
- (c) Find the resultant stress distribution at the mid-support section for condition. (10)

FACULTY OF ENGINEERING

**M.E.(Civil-SE) II-Semester (Main& Re-Registered Students) (AICTE)
Examinations, October 2021**

Subject: Retrofitting and Rehabilitation of Structures

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=16M)

- (a) Distinguish between repair and rehabilitation?
- (b) What are the common defects in concrete structures and their causes?
- (c) What are the operations in quality assurance system?
- (d) List out the various causes of faults in construction of various structures
- (e) Discuss about the environmental effects which leads to deterioration of concrete structures?
- (f) Write a short note on Pre Placed Aggregate concrete?
- (g) Which sensor is used for monitoring the structural health of buildings and bridges?

2 With the help of a flow chart explain the procedure for assessing the damages of a distressed structure? 18

- 3 (a) Explain the process of corrosion and its effects on concrete structures? 9
- (b) Elaborate on the design and construction errors of a structure? 9

- 4 (a) Discuss the various methods of corrosion protection in concrete structures? 9
- (b) What are the various techniques used for repairing of a crack in a structure? Explain in detail any five techniques? 9

5 What are the different methods adopted for strengthening of columns and beam elements in structure? Explain with the help of a case study. 18

- 6(a) Explain the role of different types of sensors in health monitoring of structures? 6
- (b) What is Integrated Structural Health Monitoring System? Explain the Monitoring Strategies in Structural Health Monitoring? 12

7 Write a short notes on the following:

- (a) Special Elements for accelerated strength gain (4)
- (b) Guniting and Shortcreting (7)
- (c) Repairs in underwater structures (7)

FACULTY OF ENGINEERING**M.E. (Civil-SE) II-Semester (AICTE) (Main & Re - Registered Students)****Examination, October 2021****Subject : Advanced Concrete Technology****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.**
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1. Answer any Four Questions from the following (4 X 4 = 16Marks)

- a) How Bouge's compounds are formed in cement during manufacturing?
 - b) Explain the method of determining soundness of aggregates?
 - c) Differentiate between segregation and bleeding of concrete?
 - d) State the limitations of water cement ratio law? Further explain the modification over the same law?
 - e) Explain the importance of maturity concept of concrete?
 - f) How strength and durability of concrete are related to each other?
 - g) List out various factors influencing choice of mix proportions?
2. a) Give the complete classification of cement as per IS code? Further explain the role of blended cements on strength and durability aspects of concrete? 9
- b) What is alkali aggregate reaction? State different factors promoting the same? Further, explain different remedial measures? 9
3. a) Define workability of concrete? Explain the process of measuring workability of different types of concrete mixture? 9
- b) What are the different tests covered under mechanical properties of concrete? Explain the experimental method of determining these properties, giving suitable code reference? 9
4. a) Classify different types of shrinkage? Explain the features of each type of shrinkage? Further, describe various factors influencing the same? 9
- b) What is sulphate attack on concrete? Explain the effect of this on properties of concrete? Give a complete discussion on tests of sulphate resistance? 9

5. a) Design a concrete mix having below particulars using IS: 10262-2019 for a concrete work. 9
- a. Design strength – 30 MPa.
 - b. Max, size of aggregate = 20 mm
 - c. Grade of cement = 53 Grade
 - d. Degree of workability = 95mm. slump
 - e. Degree of quality control = Good
 - f. Type of Exposure = Moderate
 - g. Sp. Gravity of Cement = 3.12
 - h. Sp. Gravity of F.A = 2.61
 - i. SP. Gravity of C.A = 2.63
 - j. Sand confirming to zone II
 - k. Minimum cement content=300 kg/m³
 - l. Maximum cement content = 450 kg/m³
 - m. Mineral Admixture=Fly Ash
 - n. Chemical Admixture = Super Plasticizer @ 0.2%
 - o. Water absorption of FA=0.1%
 - p. Shape of aggregates = Angular aggregate
 - q. Compressive strength of cement at 7 days = satisfies the requirement of IS = 269-1989
- Assume any required data suitably
- b) Compare between American Concrete Institute code and British Standard code in terms of various factors? 9
6. a) Classify different type of mineral admixtures? Explain the role of these admixtures on fresh and hardened concrete properties? 9
- b) Differentiate between light weight concrete and heavy density concrete? Further explain various materials used in the preparation of these concrete along with applications? 9
7. a) Explain about various studies showing relation between compressive strength and flexural strength of concrete? 9
- b) Air entraining agents are added as additives and admixture? Justify statement with proper reasoning? Further explain the role of these materials on properties of concrete? 9

FACULTY OF ENGINEERING**M.E. (Civil-SE) II-Semester (AICTE) (Main & Re-Registered students)****Examinations, October 2021****Subject: EARTHQUAKE RESISTANCE DESIGN OF STRUCTURES****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=16M)

- (a) What is meant by 'Fling effect'?
- (b) What is meant by weak storey?
- (c) Explain the behaviour of infill wall under seismic excitation.
- (d) What do you mean by 5.6 in Richter Magnitude of an earth quake?
- (e) Differentiate between shear walls and flexural walls.
- (f) Why do not 'S' waves propagate through fluids?
- (g) Explain the importance of under-damping system.
- 2 (a) Explain briefly about plate boundaries. 8M
- (b) Derive an expression for damped frequency in case of single degree damped free vibration system. 10M
- 3 (a) Explain the design philosophy of earthquake resistant structures. 8M
- (b) Discuss the contribution of irregularity in strength and stiffness to structural damage in structures during strong earthquakes. 10M
- 4 (a) Explain the main Code-based procedures for seismic analysis. 10M
- (b) Discuss the effect of infill masonry walls on frames. Explain any two methods of modelling masonry infill wall. 8M
- 5 (a) Explain the significance of ductility on the behavior of structures during an earthquake. 9M
- (b) Draw the ductile detailing provisions of a beams and columns in reinforced concrete buildings. 9M
- 6 (a) Identify the damages and non damages in masonry structures. 8M
- (b) Briefly explain the procedure of Lateral Load analysis of masonry buildings with a focus on lateral load determination. 10M

- 7 (a) Differentiate normal wall, infill wall and a shear wall. 8M
- (b) On what basis minimum width of gap is provided between adjoining structures to ensure proper separation? Show by a sketch, from what level the separation is essential to ensure prevention of knocking. 10M

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FACULTY OF ENGINEERING
M.E.(Civil – TE) II Semester, (AICTE) (Main & Re-Registered Students)
Examination, October 2021

Subject: Rural Roads

Time: 2 Hours

Max. Marks: 70

- Note: i) First Question is compulsory. 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 assumed.

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- 1 Answer any four questions from the following. (4 x 4 = 16 Marks)**
- (a) What are the requirements of Ideal alignment?
 - (b) Explain the difference between sub-base and base.
 - (c) List out various factors to be considered for highway alignment.
 - (d) Discuss water bound macadam and Wet Mix Macadam base of roads.
 - (e) List out various characteristics of lime fly ash bound Macadam.
 - (f) Write short notes on Earth and Granular layers.
 - (g) List out the various defects in rigid and flexible pavements.
- 2**
- (a) Enumerate various engineering surveys in road alignment. Discuss the scope of aerial survey for the purpose. (9)
 - (b) Explain the concept of network planning. (9)
- 3**
- (a) Briefly explain the construction steps for WBM road along with the specifications of materials required. (9)
 - (b) Explain 'Flexible and Rigid' pavements and bring out the points of difference. (9)
- 4**
- (a) Explain the Marshal method of bitumen mix design with appropriate sequence of the steps involved. (9)
 - (b) Discuss various equipments required for construction of special pavements. (9)
- 5**
- (a) What are the various tests for judging the suitability of aggregates for pavement construction? Discuss the objects of carrying out each of these tests. (9)
 - (b) Write the design procedure of Fly ash embankments. (9)
- 6**
- (a) List out various types of drainages. Discuss the general criteria for road drainage. (9)
 - (b) Describe the significance of pavement evaluation for better maintenance of pavement facilities. (9)
- 7**
- (a) Describe the organizational setup of quality control in construction and maintenance. (9)
 - (b) Briefly explain the quality control specifications and code of practice. (9)

FACULTY OF ENGINEERING
M.E.(Civil-CM) II Semester (AICTE) (Main & Re-Registered students)
Examination, October 2021

Subject: TQM Techniques in Construction

Time: 2 Hours

Max. Marks: 70

- Note: i) First Question is compulsory. 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 assumed.**

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- 1 Answer any four questions from the following. (4 x 4 = 16 Marks)**
- (a) Define "Total Quality Management".
- (b) Define "Quality Assurance".
- (c) Give the hierarchy structure of a quality program.
- (d) Give the ISO 9000 Series of Standards.
- (e) Write a short note on Quality Management System.
- (f) List the characteristics of a quality leader.
- (g) List out the benefits of implementing TQM.
- 2 (a) Distinguish between traditional management and TQM. (10)**
- (b) Explain various constraints of TQM while implementing in the construction process. (8)**
- 3 (a) Discuss how quality plays an important role in improving the productivity of an organization. (10)**
- (b) How does employee education and training contribute towards strengthening quality? (8)**
- 4 (a) Define quality system and explain the evaluation of ISO 9000. (10)**
- (b) Briefly describe the various benefits of ISO registration. (8)**
- 5 (a) Explain the benefits of implementing lean production in construction industry. (10)**
- (b) Discuss the importance of inspection in construction. (8)**
- 6 (a) Explain the steps involved in plan formulation and implementation of TQM. (10)**
- (b) Explain briefly why TQM applies to the construction process. (8)**
- 7 (a) Discuss various types of wastes and their elimination process in the construction projects. (10)**
- (b) Discuss briefly about any quality management tools in construction management. (8)**

FACULTY OF ENGINEERING
M.E. (EEE-PE/PES) II Semester (AICTE) (Main & Re-Registered Students)
Examination, October 2021

Subject: Machine Modelling and Analysis

Time: 2 Hours

Max. Marks: 70

- Note: i) First Question is compulsory. 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 assumed.

- 1 Answer any four questions from the following. (4 x 4 = 16 Marks)**
- (a) Explain briefly about the D.C. Compound Motor in state variable form.
 - (b) Derive the Stator Voltage equations in Arbitrary Reference Frame Variables.
 - (c) State Linearized machine equations of Induction machines.
 - (d) Explain the state-space model of induction machine in 'd-q- variables.
 - (e) Derive the expression for armature mutual inductances of a salient pole synchronous machine.
 - (f) Write the Small displacement Stability of an Induction motor.
 - (g) Write a 3 phase fault at the machine terminals of induction machine.
- 2**
- (a) Explain the concept of Basic Two pole DC Machine. (9)
 - (b) Describe the Mathematical model of separately excited DC Motor (9)
- 3**
- (a) Explain the methods employed for two phase to three phase transformation. (9)
 - (b) Describe the Voltage and torque equations in arbitrary reference frame variables. (9)
- 4**
- (a) Explain briefly about the Balanced steady state equations. (9)
 - (b) Obtain the state space model of a 3- ϕ induction motor with
 (i) Stator reference frame (ii) Rotor reference frame. (9)
- 5**
- (a) Discuss the Dynamic Performance of an Induction motor. (9)
 - (b) Explain Park's transformation for a synchronous machine and develop a Mathematical model based on it. (9)
- 6**
- (a) Derive the expression for armature mutual inductances of a salient pole synchronous machine from a consideration of its basic parameters. (9)
 - (b) Explain the Analysis of steady state operation of synchronous machine. (9)
- 7**
- (a) Derive the Linearized machine equations of synchronous machines. (9)
 - (b) Explain the concept of Eigen values of typical Induction machines. (9)

FACULTY OF ENGINEERING

M.E.(ECE-DS) II-Semester (AICTE) (Main & Re-Registered Students)

Examination, October 2021

Subject: Wireless Channel Coding Techniques

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=16M)

- (a) List the elements of $GIF(16)$ as power of α and the corresponding minimal polynomials.
- (b) Define Hamming distance and Hamming weight of linear block codes.
- (c) Compare block codes and convolutional codes.
- (d) Construct an equivalent RSC encoder from non systematic convolutional encoder having the generator sequence $g(1)=1011$ and $g(2) = 1101$.
- (e) Define constraint length, coding gain and code rate.
- (f) Differentiate MIMO-SU and MIMO-MU
- (g) What are LDPC Codes?
- 2(a) Define coding gain and explain the performance of a coded communication system. (9M)
- (b) Describe the construction of Galois Field. (9M)
- 3(a) The generator polynomial of a (15,5) cyclic code is $g(x)=1+x+x^2+x^4+x^5+x^8+x^{10}$. (11M)
- (i) Find the code vector $c(x)$ in systematic form for the message polynomial $m(x)=1+x^2+x^4$ and draw the encoder.
- (ii) Assume that the third bit of the code vector $c(x)$ found in part(i) suffers transmission error, find the syndrome.
- (b) What are linear cyclic codes? Mention the properties of linear cyclic codes. (7M)
- 4(a) Explain with neat diagram about the general cyclic code decoder. (9M)
- (b) Explain the syndrome computation of the cyclic code. (9M)
- 5(a) Give any two structural properties of convolutional code. (9M)
- (b) Explain in detail BCJR algorithm. (9M)
- 6(a) Explain the design of turbo codes. (9M)
- (b) Explain the Tanner graphs for linear block codes. (9M)

7 Write a short note on the following

- (a) Interleaved codes (7M)
- (b) Space time modulation and coding (7M)
- (c) Binary BCH codes. (4M)

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FACULTY OF ENGINEERING**M.E. (ECE-DS) II-Semester (AICTE) (Main & Re-Registered Students)****Examination, October 2021****Subject: Image and Video Processing****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: (4 x4 = 16 M)

- (a) Define saturation and contrast of an image.
- (b) Define Discrete Wavelet Transform and Inverse DWT.
- (c) What is Unsharp masking and High Boost filtering?
- (d) What is Bit plane slicing?
- (e) Define Entropy of an image and write its formula.
- (f) Represent an analog video signal.
- (g) What is optical flow in motion estimation?

2(a) Explain the Image formation model. 9M

(b) Describe two properties of 2D-discrete Fourier Transform. 9M

3(a) Explain the mechanics of Linear spatial filtering with an example. 9M

(b) Explain the gradient operator. Give the required 3X3 masks for Roberts, Sobel, and Prewitts operator. 9M

4(a) Explain Coding, spatial and Temporal redundancy 9M

(b) Obtain the Huffman coding for the following symbols with probabilities given.

$(a_1, a_2, a_3, a_4, a_5, a_6) = (0.1, 0.4, 0.06, 0.1, 0.04, 0.3)$ 9M

5(a) Explain Photometric Image formation. 9M

(b) Explain the filtering operations in cameras and display devices. 9M

6(a) Explain Block matching algorithm. 9M

(b) Explain Multi-Resolution Motion Estimation. 9M

7 Write short notes on the following:

(a) Image sharpening 7M

(b) Histogram Equalization 7M

(c) Run Length coding. 4M

FACULTY OF ENGINEERING**M.E. (ECE-DS) II-Semester (AICTE) (Main &Re-Registered Students)****Examination, October 2021****Subject: Optical Fiber Communication Systems****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.**

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- 1 **Answer any four questions from the following: (4x4=16M)**
- Compare step index and graded index fibers.
 - Calculate the acceptance angle of a fiber having 1.48 as core refractive index and 1.46 as cladding refractive index.
 - Write the desirable properties of an optical source.
 - Mention few noises that affect the system performance.
 - Name the passive components used in optical communication and briefly explain any one.
 - Mention the applications of SONET.
 - What are the tunable sources used in multi channel transmission?
- 2 (a) Define Numerical Aperture and obtain an expression for numerical aperture of a step index fiber. 9M
- (b) Explain the different mechanisms responsible for absorption loss in a fiber. 9M
- 3 (a) Explain the operation of surface emitting LED as an optical source. 9M
- (b) Describe the operation of Avalanche photodiode with necessary diagram. 9M
- 4 Draw a neat block diagram of point to point fiber link and explain link budget and rise time budget. 18M
- 5 (a) Discuss the concept of WDM with neat block diagram and mention its applications. 9M
- (b) Write a note on optical amplifier. 9M
- 6 (a) Explain about Erbium Doped Fiber Amplifier(EDFA). 9M
- (b) Explain the operation of broadcast and select WDM networks. 9M
- 7 (a) What are pre-amplifiers? Describe the different types of pre-amplifiers. 9M
- (b) Discuss the operation of ultra high capacity network. 9M

FACULTY OF ENGINEERING**M.E.(ECE-ES) II-Semester (AICTE) (Main & Re-Registered Students)****Examination, October 2021****Subject: Wireless Access Technologies****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=16M)**

- (a) Write the advantages of Radio for fixed Network access
- (b) What are the applications of Fixed Wireless Access for Public Telecom Services
- (c) What are the criteria for frequency band allocations
- (d) Discuss about the UWB Wireless access Network
- (e) What is the importance of Network Services
- (f) What is the Link capacity
- (g) Discuss about service providers

2(a) Discuss about the Public Switched Telephone Network Interfaces. (9M)

(b) Describe the coverage offered by the Wireless Access Networks. (9M)

3(a) Discuss about the Economics of Fixed Wireless Networks. (9M)

(b) Describe the Point to Multipoint Radio systems. (9M)

4(a) Explain the Bluetooth technology. (9M)

(b) Compare the IEEE 802.11 with HIPER LANs (9M)

5(a) Write about the Local Multipoint Distribution Services. (9M)

(b) Describe the Services types based on Carrier frequency and Bandwidth (9M)

6(a) Explain the Carrier to Interference ratio in Network Planning. (9M)

(b) Discuss about the Base Station and Access point equipment. (9M)

7(a) Write about the Link quality control in Wireless access networks. (9M)

(b) Describe the WDASP and the role on public telecom service market. (9M)

FACULTY OF ENGINEERING**M.E. (ECE-ES) II-Semester (AICTE) (Main &Re-Registered Students)****Examination, October 2021****Subject: Energy Harvesting Technology and Power Management
for IoT Devices****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=16M)**

- (a) What is seebeck effect? On what factors does the seebeck coefficient depends.
- (b) Why Electromagnetic conversion is not preferred among Energy harvesting techniques.
- (c) Explain how a dielectric material is effecting the voltage generated in Electrostatic conversion.
- (d) What is Energy neutrality explain?
- (e) Mention any three standards to be followed for WSN in automotive applications.
- (f) Mention materials used in PZT.
- (g) How does wireless network is useful for localization or study of animals.
- 2(a) Explain how third generation PV cells dominate energy conversion as compared to other generations of PV cells. (9M)
- (b) Explain the operation of PEC. (9M)
- 3(a) Explain the operation of Full wave rectifier for RF electromagnetic energy what changes you will suggest to improve the circuit as a field to voltage convertor. (9M)
- (b) Explain the operation of standard Energy harvesting circuit in a Piezo electric energy conversion circuit. (9M)
- 4(a) Explain Scaling of Electromagnetic Vibration Generators. (9M)
- (b) Explain the properties of wire-wound coil properties. (9M)
- 5(a) Explain the coupled distributed Parameter Base Excitation Model of PZT harvester (9M)
- (b) Explain how to Maximize Power from an EM generator. (9M)
- 6 Explain Optimal Energy Harvesting from a Vibration Source using a Piezoelectric Stack (18M)
- 7(a) Explain the methods of powering WSN for SHM. (12M)
- (b) What are the power generating points in a human body? (6M)

FACULTY OF ENGINEERING
M.E (ECE-ES&VLSI) II-Semester (AICTE) (Main&re-Registered Students)
Examinations, October 2021

Subject: VLSI Physical 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=16M)

- (a) What is die yield? Give the equations for die yield on wafer for VLSI Circuits.
- (b) Briefly explain about Contacts& active contacts.
- (c) What are scalable design rules? Briefly explain their significance.
- (d) Draw stick diagram for the function $z=w(x+y)$.
- (e) Discuss briefly about design rule checkers.
- (f) List some examples for CAD tools & EDA tools.
- (g) Discuss briefly about pad rings.

2(a) What is Latch up in CMOS Circuits? Explain its various prevention techniques. 9M

(b) Draw the flowchart of VLSI Design flow and explain each step in detail. 9M

3(a) Draw and explain the typical structures of BJT & FET in physical design. 9M

(b) Explain the significance of common centroid techniques in analog circuits. 9M

4(a) Draw the circuit diagram & stick diagram for a 3 input NOR gate. 9M

(b) Explain the significance of common centroid techniques in analog circuits. 9M

5(a) Draw the circuit diagram & layout for half subtractor circuit. 9M

(b) Explain Elmore delay technique to estimate the delay of interconnect. 9M

6(a) Explain hierarchical circuit extraction with the help of an example. 9M

(b) What is interconnect? How to model m-rung ladder circuit? Find the delay expression for that. 9M

7 Write short notes on :

a) Automatic Layout Tools 5M

b) Fabrication Error and Mis alignment 5M

c) Routing in Physical Design 8M

FACULTY OF ENGINEERING

M.E. (ECE-ES&VLSI Design) II-Semester (AICTE) (Main & Re-Registered Students) Examination, October 2021

Subject: Advanced Digital Design with Verilog HDL

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=16M)

- Distinguish between continuous and procedural assignment statements
- What is the difference between a gate instantiation and a module instantiation
- What is race condition? How to avoid a race condition?
- What are the two major stages of physical synthesis?
- Distinguish between design and verification
- Generate a clock waveform with an off period of 5ns and an on period of 10 ns.
- Write the differences between n-bit Kogge-stone and Brent-kung adder?

2(a) Write a Verilog code for a 4-bit adder using structural model using 1-bit full adder (9M)

(b) Explain inertial delay and transport delay with an example? (9M)

3(a) What are the four types of loop statements provided in Verilog HDL? Explain with them with an example? (8M)

(b) Write a Verilog code for behavioral description of the 1010 sequence detector using Mealy model? (10M)

4(a) Describe physical synthesis flow with a flowchart? (10M)

(b) Explain zero slack algorithm? (8M)

5(a) Distinguish the differences between STA and DTA? (8M)

(b) Describe guidelines for clocks and resets (10M)

6(a) Describe the logic diagram of an 8-bit barrel logical left shifter with a neat logic diagram? (10M)

(b) Write a Verilog code for 4-bit CLA using assign statements (8M)

7(a) Describe and write a Verilog code for Multiphase clock generators. (10M)

(b) Compare and contrast between tasks and functions. (8M)

FACULTY OF ENGINEERING
M.E. (Mech-Cad/Cam) (CAD/CAM) II-Semester AICTE
(Main & Re-registered students) Examination, October 2021
Subject: Advanced Materials Technology

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=16M)

- (a) Define fatigue strength.
 - (b) What is corrosion?
 - (c) List out the applications of non metallic materials.
 - (d) Write short notes on shape memory alloys.
 - (e) What is material selection chart?
 - (f) What is HSLA steel?
 - (g) How polymeric fibers are produced?
- 2(a) Distinguish low and high cycle fatigue testing for engineering materials. (9M)
 (b) Discuss the effects of surface condition on fatigue failure. (9M)
- 3(a) Discuss the process of failure analysis. (9M)
 (b) Discuss the use of Larsen miller parameter in the assessment of creep life (9M)
- 4(a) What are the factors considered in selection of materials based on the design process? (9M)
 (b) Discuss the favorable characteristics of materials for nuclear applications. (9M)
- 5(a) Draw and explain the creep and high temperature deformation map. (9M)
 (b) What are the typical materials meant for high wear resistance? Explain with suitable charts. (9M)
- 6(a) Describe the different material selection procedures to find the suitable materials for high performance application. (9M)
 (b) What are the special characteristics of ceramics? Explain in detail with examples. (9M)
- 7(a) Write the properties and applications of following materials and discuss about any one fabrication methods of nonmetallic materials. (9M)
 (b) Write short notes on
 (i) Fibers (ii) Composites (iii) Plastics (iv) Ceramics. (9M)

FACULTY OF ENGINEERING**M.E. (Mech-CAD/CAM) II -Semester (AICTE) (Main & Re - Registered Students)****Examination, October – 2021****Subject: OPTIMISATION TECHNIQUES****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 Questions from the following**(4 X 4 = 16Marks)**

- a) What is random variate? Discuss its role in simulation.
 - b) List out methods which are used for decision making under uncertainty.
 - c) What is the effect of the 'integer' restriction of all variables on the feasible space of integer linear programming problem?
 - d) What is Bellman's principle of optimality?
 - e) Write "Kuhn-Tucker" Conditions
 - f) What are expected Monetary value (EMV) and Expected opportunity loss (EOL)?
 - g) What are the types of Integer programming problems?
2. a) A dentist schedules all her patients for 30 minutes appointments. Some of the patients take more or less than 30 minutes depending on the type of dental work to be done. The following summary shows the various categories of work, their probabilities and the time needed to complete the work.

Category	Time required (minutes)	Probability of category
Filling	45	0.40
Crown	60	0.15
Cleaning	15	0.15
Extraction	45	0.10
Checkup	15	0.20

Simulate the dentist's clinic for four hours and determine the average waiting time for the patients as well as the idleness of the doctor. Assume that all patients show up at the clinic at exactly their scheduled arrival times, starting at 8 A.M. Use the following random numbers for handling the above problem: 40, 82, 11, 34, 25, 66, 17 and 79.

- b) List out the applications of simulation? 6
3. A steel manufacturing company is concerned with the possibility of a strike. It will cost an extra Rs. 20,000 to acquire an adequate stockpile. If there is a strike and the company has not stockpiled, management estimates an additional expense of Rs. 60,000 on account of lost sales should the company stockpile or not if it is to use (i) Optimistic criterion (ii) Wald criterion (iii) Savage criterion (iv) Hurwicz criterion for $\alpha = 0.4$ (v) Laplace criterion. 18
4. Solve the following integer programming problem using cutting plane method.
Max. $Z = x_1 + 2x_2$, Subjected to $2x_2 \leq 7$, $x_1 + x_2 \leq 7$, $2x_1 \leq 11$, $x_1 \geq 0$, $x_2 \geq 0$ and x_1, x_2 are integers. 18
5. a) What are the important features of dynamic programming which distinguish it from other quantitative techniques of decision-making? 8
b) Use the dynamic programming to solve the following linear programming problem. Maximize $z = 3x_1 + 5x_2$, subject to the constraints $x_1 \leq 4$, $x_2 \leq 6$, $3x_1 + 2x_2 \leq 18$, and $x_1 \geq 0$, $x_2 \geq 0$. 10
6. a) Use the method of Lagrangean multipliers to solve the following NLPP. Does The solution Maximize or Minimize the objective function? 12
Optimize $Z = 2x_1^2 + x_2^2 + 3x_3^2 + 10x_1 + 8x_2 + 6x_3 - 100$
Subject to $x_1 + x_2 + x_3 = 20$,
 $x_1, x_2, x_3 \geq 0$.
- b) What is a bordered Hessian matrix? 6
7. a) Raman industries Ltd., has a new product which they expect has great potential. At the moment they have two courses of action open to them: $S_1 =$ to test the market, $S_2 =$ to drop the product. If they test it, it will cost Rs. 50,000 and the response could be positive or negative with probabilities of 0.70 and 0.30 respectively. If it is positive, they could either market it with full scale or drop the product. If they market with full scale, then the result might be low, medium, or high demand, and the respective net pay-offs would be Rs. 1,00,000, Rs. 1,00,000 or Rs. 5,00,000. These outcomes have probabilities of 0.25, 0.55 and 0.20 respectively. If the result of the test marketing is negative, they have decided to drop the product. If, at any point, they drop the product there is a net gain of Rs. 25,000 from the sale of scrap. All financial values have been discounted to the present.

Draw the Decision tree for the problem and indicate the most preferred decision. 10

b) Explain simulation technique with respect to a waiting line problem. 8

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FACULTY OF ENGINEERING

M.E.(Mech-Cad/Cam) II-Semester (AICTE)(Main &Re-registered students)

Examination, October 2021

Subject: Robotic Engineering

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=16M)

- (a) Explain the terms resolution and repeatability with reference to robots
- (b) Explain how Voronoi graph is used in mobile robots.
- (c) State the application of Euler angles in robotic.
- (d) Distinguish between forward and inverse kinematics.
- (e) Explain the difference between dexterous and reachable workspace of a manipulator.
- (f) List few position sensors used in industrial robotics.
- (g) What is mobility of a manipulator?

2(a) Explain the cylindrical and SCARA configurations of a robotic arm. Draw their work space and work envelope. (9M)

(b) Explain the Material handling applications of industrial robots with suitable examples. (9M)

3 For the 3-DOF(RRP) manipulator shown in below Fig:1, Obtain the joint variables and derive the direct kinematic model using Denavit-Hartenberg notation. (18M)

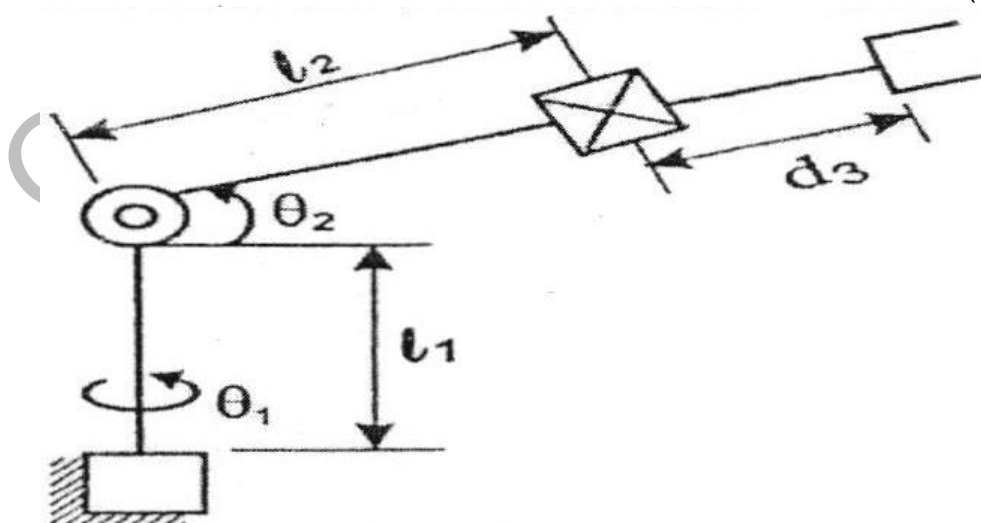


Fig 1

- 4(a) Perform the inverse kinematic analysis of 2-Dof RP planar manipulator. (9M)
- (b) Distinguish between Path planning and Trajectory planning. (9M)
- 5 Derive the Dynamic model for a 2-DOF, RR Robot arm using LaGrange-Euler formulation. (18M)
- 6(a) Explain (i) Proximity (ii) Range and (iii) Tactile sensors. (9M)
- (b) Explain the application of the terms related to robot vision threshold, edge detection. (9M)
- 7(a) Explain image processing, acquisition and segmentation for robots applications. (9M)
- (b) Write the various factors to be considered for a manipulator gripper selection and design. (9M)

FACULTY OF ENGINEERING**M.E. (Mech-HVAC) II-Semester (Main & Re-registered students)(AICTE)****Examination, October 2021****Subject: Cold Storage Technology & Systems****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=16M)**
- Differentiate between Sharp-Freezing and Quick-Freezing methods.
 - Describe Freezing methods.
 - How has the Vacuum cooling process been done?
 - What is Quick chilling?
 - Explain the grading of fruit juice.
 - Explain the jacket system.
 - List some of the advantages of Automated warehouse.
- 2**
- Compare and Contrast the Vacuum Cooling method with forced air cooling method with a neat sketch. (9M)
 - Define briefly about (i) Coil Spray Defrost (ii) Hot gas Defrost (iii) saltwater icing. (9M)
- 3**
- Why Plate Freezing is done for fishery products? Show the freezing time of fish fillets and fish stick in Plate Freezing (9M)
 - What are the types of concentration methods? Explain Low-Temperature Evaporation method for juice concentration. (9M)
- 4 Comment on the following (6+6+6)**
- Air freezing
 - Indirect contact freezing
 - Immersion freezing
- 5**
- Discuss in brief about Refrigeration systems for carcass chilling and holding. (9M)
 - What is the condition to consider for designing a cold storage plant? (9M)
- 6**
- What are the Factors affecting Building configuration and size of a cold-storage facilities? (9M)
 - Explain briefly the Controlled-Atmosphere Storage Rooms (9M)
- 7**
- Explain the type of refrigeration system used in large trucks. Sketch multiple temperature refrigeration system used for trucks and trailers. (9M)
 - How to protect from spoilage during transport through Air circulation? (9M)

FACULTY OF ENGINEERING**M.Tech. (CSE-CSE) II -Semester (AICTE) (Main & Re - Registered Students)****Examination, October 2021****Subject: Machine Learning & Techniques****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 Questions from the following (4 X 4 = 16Marks)

- a) What is Reinforcement learning?
 - b) Give some applications of sequence modeling.
 - c) State Bayes theorem.
 - d) What is overfitting in machine learning?
 - e) List out ways of evaluating a machine learning model's performance.
 - f) Define information gain and Gini index.
 - g) Explain why dimensionality reduction is useful in machine learning.
2. a) Elaborate about bias-variance tradeoff. 9
 - b) Differentiate agglomerative and divisive hierarchical clustering. 9
3. a) Using naïve Bayes algorithm classify a particular spice if its features are (slowly, rarely, No) for the following training data set. 9

Swim	Fly	Crawl	Class
Fast	No	No	Fish
Fast	No	Yes	Animal
Slow	No	No	Animal
Fast	No	No	Animal
No	Short	No	Bird
No	Short	No	Bird
No	Rarely	No	Animal
Slow	No	Yes	Animal
Slow	No	No	Fish
Slow	No	Yes	Fish
No	Long	No	Bird
Fast	No	No	Bird

- b) Explain cross validation. Explain the different types of cross validations. 9

4. a) Explain about Linear regression with examples. 9
 b) What is ensemble learning and explain various ensemble techniques in machine learning. 9
5. a) Explain K-nearest neighbor learning algorithm with example. 12
 b) Write brief notes on Q learning. 6
6. a) Describe CART. Explain with an example. 9
 b) Explain variable elimination algorithm with suitable example. 9
7. a) What is meant by Kernel trick and how is it used to find a SVM classifier? 9
 b) Find two clusters for the following data using k-means algorithm. 9

	1	2	3	4	5	6	7
X1	1.0	1.5	3.0	5.0	3.5	4.5	3.5
X2	1.0	2.0	4.0	7.0	5.0	5.0	4.5

FACULTY OF ENGINEERING
M.Tech. (CSE-CSE) II Semester (AICTE) (Main & Re-Registered Students)
Examination, October 2021

Subject: Distributed Databases

Time: 2 Hours

Max. Marks: 70

- Note:** i) **First Question is compulsory. 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 assumed.**

1 Answer any four questions from the following. (4 x 4 = 16 Marks)

- (a) Define Distributed Database. Give a real example of DDBMS.
 - (b) What are the components of DDBMS?
 - (c) What are the three kinds of distributed dbms architecture?
 - (d) What do you mean by DBMS standardization?
 - (e) What is meant by query Decomposition?
 - (f) What are the classifications of concurrency control?
 - (g) What are the objectives of parallel database?
- 2 (a) What are the design issues in distributed databases? Explain with examples. (9)
 (b) Explain View management in centralized as well as distributed DBMS with examples. (9)
 - 3 (a) Explain briefly the need for query decomposition & data localization. (9)
 (b) Explain briefly about timestamp-based concurrency algorithms. (9)
 - 4 (a) Explain about layers in query processing in distributed database. (9)
 (b) What are "locking based" concurrency control algorithms? Give examples. (9)
 - 5 (a) Explain briefly about problems related to object storage management. (9)
 (b) Explain briefly about transaction management in object DBMS through examples. (9)
 - 6 (a) What are the design issues in ensuring interoperability in databases? Explain With examples. (9)
 (b) Explain about mechanisms for improving performance in databases. (9)
 - 7 (a) Write short notes on Vertical class partitioning. (9)
 (b) Write short notes on Interquery and Intraquery parallelism. (9)

FACULTY OF ENGINEERING**M.Tech(CSE-CSE) II-Semester (Main&Re-Registered Students) AICTE****Examination, October 2021****Subject: Network Security****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=16M)**
- (a) List methods used for virus detection?
 - (b) What is man in the middle attack?
 - (c) What is the purpose of S-boxes in DES?
 - (d) What characteristics are needed in secure hash function?
 - (e) Explain attacks on smart cards?
 - (f) Discuss realm in Kerberos?
 - (g) What are web security threats?
- 2 (a) What is computer virus? Discuss about the detection and computer measures used to protect system from virus? 9M
- (b) List and discuss about the types of attacks? 9M
- 3 (a) Explain DES encryption method with a neat figure? 9M
- (b) Write RSA algorithm with numerical example? 9M
- 4 (a) Explain the MD-5algorithm with necessary block diagram? 9M
- (b) Explain the basic uses of Hashing functions with neat diagram? 9M
- 5 (a) What is PKI? Discuss the key elements of PKIX and management functions? 9M
- (b) Explain system security using VPN? 9M
- 6 (a) Explain IP security architecture & applications of IPSecurity? 9M
- (b) Explain the use of zero knowledge protocol in smart cards? 9M
- 7 (a) What is SSL? What are the different message types and parameters of SSL handshake protocol? 9M
- (b) List and explain the key features of SET? 9M

FACULTY OF ENGINEERING**M.Tech (CSE-CSE) II-Semester (AICTE)(Main &Re-Registered Students)****Examination, October 2021****Subject: Software Project Management****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=16M)

- (a) What are the five components of software cost models?
- (b) Distinguish between iteration and increment
- (c) Write short notes on "Distinct Process in ISO-12207?"
- (d) What is work breakdown structure?
- (e) What are the uses of periodic status assessment?
- (f) Enlist the basic characteristics of a good metric?
- (g) Explain stakeholders Environment

2(a) How do we improve team effectiveness? 9M

(b) What is the process of evolutionary work breakdown structures? 9M

3(a) List and briefly explain the five top level workflows of a process. Name any two artifacts related to each work flow. 9M

(b) Discuss the principles of modern software management. 9M

4(a) What is leadership and how can you measure leadership styles? 9M

(b) What are the responsibilities of software management team explain in detail?9M

5(a) Explain the process of artifact evaluation over the life cycle? 9M

(b) Illustrate how the team's center of gravity shifts over the life cycle? 9M

6(a) What are maturity levels of CMM and how they can help organizations improve their process? 9M

(b) What is Importance of "Tailoring the Process". 9M

7(a) Discuss the quality indicators? 9M

(b) Discuss the management indicators? 9M

FACULTY OF ENGINEERING**M.Tech (CSE-CSE) II-Semester AICTE (Main &Re-Registered Students)****Examinations, October 2021****Subject: Object Oriented Software Engineering****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=16M)**

- (a) Define User Involvement and Methodological Approach.
- (b) Explain about Object Interaction and Collaboration.
- (c) List and brief about Development Standards.
- (d) Define Logical and Physical Design.
- (e) Brief about Designing Interaction with Sequence Diagrams.
- (f) Define System Development Methodologies.
- (g) Discuss how OOSE differs from SE.

2 What is an information system? Discuss the various types of information systems in short and explain the strategy and planning employed for developing an information system. 18M

3 (a) Explain in detail about Requirements Capture and Modelling. 9M

(b) Brief about Software Development patterns. 9M

4 (a) Explain about the role of Operation Specifications. 9M

(b) How do objects provide services to each other? 9M

5 (a) Analyze and design your view for "Online passport Seva" project through formal models. 9M

(b) Write in detail about the various metaphors for HCI. 9M

6 What is reusable component, needs of it also explain its merits & de-merits and mechanisms for designing them. 18M

7 Write short note on (Any two): (9+9=18M)

- (i) The issues/problems in OOSE
- (ii) Qualities and Objectives of Analysis and Design
- (iii) Criteria for Good Design

FACULTY OF ENGINEERING

**M.Tech. (CSE-CSE) II-Semester (AICTE) (Main & Re - Registered Students)
Examination, October 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) 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 Questions from the following (4 X 4 = 16Marks)

- a) Mention the applications of Embedded Systems.
 - b) Classify ARM Thumb Instruction Group?
 - c) Draw and explain CPSR of ARM
 - d) What are the key features of ARM Assembler?
 - e) What is Linker and Locator?
 - f) What are the categories of Embedded System?
 - g) Write any 4 Instructions from Load, Store Instruction Group?
2. a) Describe Embedded System design cycle. 9
 - b) Classify Instruction set of PIC 18 9
 3. a) Explain PWM modules of PIC 18 9
 - b) Explain the Addressing modes of ARM? 9
 4. a) Write the Conditional Instructions of ARM 9
 - b) Draw and Explain Timer – 0 16-bit block diagram of PIC18 9
 5. a) Explain about software Interrupt Instructions of ARM Thumb Instructions 9
 - b) Critique on other branch Instructions of ARM Thumb Instructions. 9
 6. a) Write short notes on (i) SP (ii) LR (iii) PC (iv) SPSR 9
 - b) Write on PSR Instructions of ARM 9
 7. a) Explain Host and Target Machine of Embedded System 9
 - b) Write an Assembly Language Program to produce delay of 10ms. 9
- *****

FACULTY OF ENGINEERING**M.Tech (CSE-CSE) II-Semester (AICTE) (Main &Re-Registered Students)****Examinations, October 2021****Subject: Object Oriented Software Engineering****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: (4 x 4 = 16M)**
- Define User Involvement and Methodological Approach.
 - Explain about Object Interaction and Collaboration.
 - List and brief about Development Standards.
 - Define Logical and Physical Design.
 - Brief about Designing Interaction with Sequence Diagrams.
 - Define System Development Methodologies.
 - Discuss how OOSE differs from SE.
- 2** What is an information system? Discuss the various types of information systems in short and explain the strategy and planning employed for developing an information system. 18M
- 3** (a) Explain in detail about Requirements Capture and Modelling. 9M
 (b) Brief about Software Development patterns. 9M
- 4** (a) Explain about the role of Operation Specifications. 9M
 (b) How do objects provide services to each other? 9M
- 5** (a) Analyze and design your view for "Online passport Seva" project through formal models. 9M
 (b) Write in detail about the various metaphors for HCI. 9M
- 6** What is reusable component, needs of it also explain its merits&de-merits and mechaisms for designing them. 18M
- 7** Write short note on (Any two): (9+9=18M)
- The issues/problems in OOSE
 - Qualities and Objectives of Analysis and Design
 - Criteria for Good Design
