

**FACULTY OF ENGINEERING**  
**B.E. 4/4 (Civil) I-Semester (Old) Examination, July 2014**

**Subject : Elements of Earthquake Engineering**  
**(Electives - I)**

**Time : 3 Hours**

**Max. Marks: 75**

**Note: Answer all questions of Part - A and answer any five questions from Part-B.**

**PART – A (25 Marks)**

- 1 Distinguish between magnitude and intensity of earthquake. (3)
- 2 Distinguish between body waves and surface waves. (3)
- 3 What is resonance and when does it occur? (2)
- 4 Explain the term "Ductility " as applied to a structure. (3)
- 5 What is an "Engineered" building? (2)
- 6 Describe seismic performance of steel buildings. (3)
- 7 Explain the term "reanalysis". (2)
- 8 List past five major earthquakes that have occurred in India. (2)
- 9 What is soft storey collapse? (3)
- 10 List the assumptions made in IS:1893 - 2002. (2)

**PART – B (50 Marks)**

- 11 Derive the equation of motion for free vibration of mass-spring-dashpot system.
- 12 Illustrate the damage patterns and performance of non-engineered building during earthquake.
- 13 Describe Response-Spectrum Analysis of multi-storeyed buildings subjected to earthquakes.
- 14 What is "liquefaction"? Describe the damages caused by liquefaction and other soil effects on buildings during past earthquakes.
- 15 What do you understand by "seismic retrofitting"? With the help of neat sketches illustrate the same for an RC beam and column.
- 16 With the help of neat sketches, explain bad geometry of buildings in earthquake engineering.
- 17 Write short notes on the following:
  - (a) Over strength
  - (b) Characteristics of strong motion earthquake
  - (c) Seismic coefficient method

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**FACULTY OF ENGINEERING****B.E. 4/4 (Civil) I- Semester (New) (Suppl.) Examination, July 2014****Subject : Elements of Earthquake Engineering  
(Elective-I)****Time : 3 Hours****Max. Marks: 75****Note: Answer all questions of Part - A and answer any five questions from Part-B.****PART – A (25 Marks)**

- 1 Explain the characteristics of various types of seismic waves. (3)
- 2 What is the importance of moment magnitude? (2)
- 3 Define the DoF and possible number of modes for a single bay, four storeyed RC frame. (3)
- 4 Differentiate between short and long period structures. (2)
- 5 Define the Response reduction factors for OMRF, SMRF and Ductile resistant shear wall frames. (3)
- 6 What are the advantages of use of vertical reinforcing bars in a masonry building? (2)
- 7 Explain the primary causes for 'X', vertical and diagonal cracks in walls during earthquakes. (3)
- 8 What are Non-Engineering buildings? (2)
- 9 What are the advantages of Base Isolation? (3)
- 10 Differentiate between 'strength' and 'upgradation' in the context of seismic retrofitting. (2)

**PART – B (50 Marks)**

- 11 Describe the characteristics of strong earthquakes, their prediction and effects on structures, with appropriate examples. (10)
- 12 Define various types of magnitudes. Hence, discuss the need for homogenization of these magnitudes and of having one standard magnitude for measuring earthquakes. (10)
- 13 Starting from the fundamentals, develop the equation of motion for a simple multi-degree of freedom system taking the example of a two storey shear frame. Further, determine the period and modes of vibration for this MDOF system. (10)
- 14 (a) What is a combined spectrum? Explain how the various spectral parameters are read from it. (4)  
(b) Explain the step-wise procedure for the 'Response spectrum' analysis of a multi-storied building. (6)
- 15 Explain the principles of seismic detailing in an RC frame building and a steel building. (10)
- 16 With the help of a case study of a severe earthquake occurred in India in the past, discuss in detail the damage patterns of rural buildings and the retrofitting measures adopted. (10)
- 17 Write short notes on :  
(a) Base Isolation (3)  
(b) Energy Dissipation devices (3)  
(c) Seismic Retrofitting (4)

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**FACULTY OF ENGINEERING**  
**B.E. 4/4 (Civil) I- Semester (Old) Examination, July 2014**

**Subject : Surface and Ground Water Management**  
**(Elective-I)**

Time : 3 Hours

Max. Marks: 75

*Note: Answer all questions of Part - A and answer any five questions from Part-B.*

**PART – A (2.5x10=25 Marks)**

- 1 What is surplus variable?
- 2 How do you arrive financial analysis for a project?
- 3 Define water logging.
- 4 What is perennial yield?
- 5 Why do we go for artificial recharge for a basin?
- 6 What is induced recharge?
- 7 What do you understand by Analog model?
- 8 What type of flow exist in a Viscous fluid model?
- 9 What is ohm's law? Compare it with Darcy's law.
- 10 Wastewater may be used to recharge ground water, comment on it.

**PART – B (50 Marks)**

- 11 (a) Explain various factors in planning a Water Resources Project. (5)  
 (b) Explain various steps involved in planning a Water Resource development project. (5)
- 12 Maximize  $F = x_1 + 2x_2 + x_3$  Subject to  $2x_1 + x_2 - x_3 \leq 2$   
 $-2x_1 + x_2 - 5x_3 \geq -6$   
 $4x_1 + x_2 + x_3 \leq 6$   
 $x_1, x_2, x_3 \geq 0$  (10)
- 13 (a) Explain viscous flow model with a neat sketch. (5)  
 (b) Explain how a linear program is applicable to water resources projects. (5)
- 14 (a) What are the various studies to be conducted in arriving groundwater basin yield and management? (5)  
 (b) Explain the equation of hydrologic equilibrium. (5)
- 15 Explain various methods used to recharge groundwater basin. (10)
- 16 (a) Explain the importance of simulation in water Resource project. (5)  
 (b) Explain Lagrange multipliers. (5)
- 17 Write short notes on the following:  
 (a) Recharge mounds (3)  
 (b) Data collection and field work (4)  
 (c) Sand tank model (3)

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**FACULTY OF ENGINEERING****B.E. 4/4 (Civil) I- Semester (New) (Suppl.) Examination, July 2014****Subject : Surface and Ground Water Management (Elective-I)****Time : 3 Hours****Max. Marks: 75****Note: Answer all questions of Part - A and answer any five questions from Part-B.****PART – A (25 Marks)**

- 1 Explain the concept of system. (3)
- 2 What do you mean by Recursive Equations? (2)
- 3 Define Simulation (2)
- 4 Mention the analysis stages in Water Resources Planning. (3)
- 5 Briefly explain the concept of Basin Management. (3)
- 6 Mention uses of blotting paper models. (2)
- 7 Explain about general approach to linear programming. (2)
- 8 What do you mean by Induced Recharge? (3)
- 9 What do you understand by Analog Models? (3)
- 10 Write various applications of Linear Programming to Water resource problems. (2)

**PART – B (50 Marks)**

- 11 Define System Engineering. Explain the concept of systems analysis and its applications in Water Resource Systems. (10)
- 12 Solve by the simplex method (10)
 

Minimize  $Z = 3x_1 + 2x_2 + 5x_3$   
 Subject to :  $x_1 + 2x_2 + x_3 \leq 430$   
 $3x_1 + 2x_3 \leq 460$   
 $x_1 + 4x_2 \leq 420$   
 $x_1, x_2, x_3 \geq 0$
- 13 (a) Explain about Salinity and Water logging problems in groundwater. (4)  
 (b) Explain the data collection which is required in management of Ground water and data related to field work. (6)
- 14 (a) Explain the concept of Artificial Recharge and need for Artificial Recharge. (6)  
 (b) Explain factors governing feasibility of Artificially Recharging groundwater. (4)
- 15 (a) Explain how the dynamic programming is applicable to reservoir operation. (4)  
 (b) Explain in detail about viscous fluid models and membrane models with the help of sketches. (6)
- 16 (a) Find the graphical interpretation and solution for following Linear Programming problem. (6)
 

Minimize  $Z = 1.5x_1 - 2.5x_2$   
 Subject to  $x_1 + 3x_2 \geq 3$   
 $x_1 + x_2 \geq 2$   
 $x_1, x_2 \geq 0$

 (b) Explain about slack and surplus variables in detail. (4)
- 17 Write short notes on : (3 + 3 + 4)
 

(a) Wastewater recharge for reuse (b) Lagrange Multipliers (c) Sand tank model

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**FACULTY OF ENGINEERING**  
**B.E. 4/4 (Civil) I- Semester (Old) Examination, July 2014**

**Subject : Pre-Stressed Concrete (Elective - I)**

**Time : 3 Hours**

**Max. Marks: 75**

**Note: Answer all questions of Part - A and answer any five questions from Part - B.**

**PART – A (25 Marks)**

- 1 Explain the concept of prestressing in prestressed concrete member. (3)
- 2 Define 'loss ratio'. (2)
- 3 What is meant by tendon? Sketch the profile of any two tendons. (3)
- 4 What is the importance of circular prestressing? (3)
- 5 What is the necessity of shear design for pre stressed concrete members? (3)
- 6 Give two equation to calculate the deflection equation for straight tendon. (2)
- 7 List out different methods used in end block analysis. (2)
- 8 Define equivalent prism. (2)
- 9 Give any three advantages of continuous beams. (3)
- 10 Define 'partial prestressing'. (2)

**PART – B (50 Marks)**

- 11 What are the assumptions made in prestressed concrete? Give the reasoning to use high strength steel and concrete in prestressing technique?
- 12 Concrete beam of 10m span, 110mm wide and 300mm, deep is prestressed by 2-cables. The area of each cable is 150mm<sup>2</sup> and the initial stress in the cable is 1100N/mm<sup>2</sup>. Cable-1 is parabolic with an eccentricity of 50mm above the centroid at the supports and 50mm below at the centre of span. Cable 2 is straight with uniform eccentricity of 50mm below the centroid. If the cables are tensioned from one end only, estimate the % age of loss of stress in each cable due to friction? Assume  $\mu=0.30$  and  $K=0.0015$  per m.
- 13 An unsymmetrical I-section beam is used to support an imposed load of 5 kN/m over a span of 10m. The sectional details are top flange = 500mm wide and 50mm thick; bottom flange = 200mm wide and 60mm thick; thickness of web = 100mm overall depth of the beam = 800mm. At the centre of the span, the effective pre stressing force 150kN is located at 80mm from the soffit of the beam, estimate the stresses at the centre of the span section of the beam for the following load conditions.
  - (a) prestress + self weight
  - (b) prestress + self weight + live load

- 14 A PSC T beam is to be designed to support an imposed load of 5.3 kN/m over an effective span of 6m. The T-beam is made up of a flange 500mm wide and 50mm, thick. The rib is 120mm, wide and 250mm, deep. The stress in the concrete must not exceed  $17\text{N/mm}^2$  in compression and  $1\text{N/mm}^2$  in tension at any stage check for the adequacy of the section provided, and calculate the minimum prestressing force necessary and the corresponding eccentricity. Assuming 20% loss of prestress.
- 15 The cross section of PSC beam is an unsymmetrical I-Section with an overall depth of 1500mm, width and thickness of top flange is 500 x 50mm; width and thickness of bottom flange is 300 x 50 mm. Thickness of web is 60mm. At a particular section the beam is subjected to an ultimate moment  $M=2500$  kNm and a shear force  $V=300$  kN cube strength of concrete is  $45\text{ N/mm}^2$ . Effective prestress at the extreme tensile face of the beam is  $= 20.2\text{ N/mm}^2$ . Area of steel in the section is  $3100\text{ mm}^2$ , tensile strength of tendons is  $1600\text{N/mm}^2$  and effective stress in tendons after all losses is  $920\text{ N/mm}^2$ . Estimate the flexure shear resistance of the section.
- 16 A prestresse concrete beam has symmetrical I-section as cross section and has the following section  
flange width and thickness = 250 X 50 mm.  
Web thickness = 50mm  
overall depth = 500 mm  
It is prestressed by a cable carrying an effective prestress  $900\text{ N/mm}^2$ . The span of the beam is 6m. The cable composed of 4 wires of 6mm diameter has a parabolic profile with an eccentricity of 100mm at the centre of span to zero at the supports. Calculate the central deflection immediately after transfer for the following cases  
(i) Self weight + prestress  
(ii) Self weight + prestress + live load of 4kN/m
- 17 Write short notes on the following:  
(a) Double anchor and single anchor stress distribution with neat sketch by Guyon's method.  
(b) Design of continuous beams according to IS specifications.

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**FACULTY OF ENGINEERING****B.E. 4/4 (Civil) I- Semester (New) (Suppl.) Examination, July 2014****Subject : Pre-Stressed Concrete (Elective - I)****Time : 3 Hours****Max. Marks: 75****Note: Answer all questions of Part - A and answer any five questions from Part-B.****PART – A (25 Marks)**

- 1 Explain the need of high strength materials in prestressed concrete. (3)
- 2 Loss of stress due to elastic deformation of concrete is  $50 \text{ N/mm}^2$  and initial stress in steel is  $900 \text{ N/mm}^2$ . Determine the percentage loss of stress in steel. (3)
- 3 What is cracking moment, how it is developed? (3)
- 4 What are the different stresses that are developed in a beam cross-section due to dead and live loads? Explain with sketch. (3)
- 5 Explain the elastic theory of flexural member. (3)
- 6 What are the types of shear cracks? (2)
- 7 Give the Mohr's theorems. (2)
- 8 Give the deflection at the centre of the trapezoidal tendon. (2)
- 9 How do you calculate bursting tension in end block using Guyon method? (2)
- 10 What is moment redistribution? (2)

**PART – B (50 Marks)**

- 11 Discuss in detail about pre-tensioning and post-tensioning systems with suitable sketches. (10)
- 12 A pretensioned beam 250mm wide and 300mm deep is prestressed by 12 wires each of 7mm diameter initially prestressed to  $1200 \text{ N/mm}^2$  with their centroids located 100mm from the soffit. Estimate the final percentage loss of stress due to elastic deformation, creep, shrinkage and relaxation using IS : 1343 : 1980. The following data is considered: (10)
  - Relaxation of steel stress =  $90 \text{ N / mm}^2$
  - $E_s = 210 \text{ kN/mm}^2$
  - $E_c = 35 \text{ kN/mm}^2$
  - Creep coefficient ( $\phi$ )=1.6
  - Residual shrinkage strain =  $3 \times 10^{-4}$
- 13 A prestressed concrete beam, 200 mm wide and 300 mm deep, is used over an effective span of 6 m to support an imposed load of  $4 \text{ kN/m}$ . The density of concrete is  $25 \text{ kN/m}^3$ , at the quarter span section of the beam, find the magnitude of :
  - (i) concentric prestressing force necessary for zero fibre stress at the soffit, when the beam is fully loaded, and
  - (ii) eccentric prestressing force located 100 mm from the bottom of the beam which would nullify the bottom fibre stress due to loading. (10)

- 14 A concrete beam having a rectangular section 150 mm x 300 mm, is prestressed by a parabolic cable having an eccentricity of 100 mm at the centre of span, reducing to zero at the supports. The span of the beam is 8m. The beam supports a live load of 2 kN/m. Determine the effective force in the cable to balance the dead and live loads on the beam. Estimate the principal stresses at the support section. (10)
- 15 A concrete beam with a rectangular section 300 x 500 mm deep is prestressed by 2 post-tensioned cables of area 600 mm<sup>2</sup> each. Initially prestressed to 1600 N/mm<sup>2</sup>. The cables are located at a constant eccentricity of 100 mm throughout the length of the beam having a span of 10 m. The modulus of elasticity of steel and concrete is 210 and 40 N/mm<sup>2</sup> respectively.
- (a) Neglecting all losses, find the deflection at the centre of span, when it is supporting its own weight.
- (b) Allowing for 20% loss in prestress, find the final deflection at the centre of span when it carries an imposed load of 18 kN/m. (10)
- 16 (a) Differentiate between Magnel and Ganyon's method of end blocks. (3)
- (b) A continuous beam ABC (AB=BC=10m) has a rectangular section, 400 mm wide and 650 mm deep. The beam is prestressed by a concordant cable having a cross-sectional area of 1200 mm<sup>2</sup>, located 50 mm from the soffit at mid span points and 50 mm from the top of beam at B. If the beam supports two concentrated loads of 200 kN each at mid-span points, determine the load factor against collapse, assuming.
- (i) elastic distribution of moments, and
- (ii) complete redistribution of moments (7)
- 17 Write short notes on the following: (4 + 3 + 3)
- (a) Cracked and uncracked sections
- (b) Concordant cable profiles
- (c) Kern points



**FACULTY OF ENGINEERING**  
**B.E. 4/4 (Civil) I - Semester (Old) Examination, July 2014**

**Subject : Operation Research in Civil Engineering (Elective - I)**

Time : 3 Hours

Max. Marks: 75

*Note: Answer all questions of Part - A and answer any five questions from Part-B.*

**PART – A (25 Marks)**

- 1 What are classifications of optimization problems? (2)
- 2 What is standard form of linear programming problem? (3)
- 3 When does simplex method indicate that LPP has unbounded solution? (3)
- 4 What is advantage of dual simplex method? (2)
- 5 What are advantage of Dynamic programming? (3)
- 6 Explain Monte-Carlo technique. (2)
- 7 What is branch and bound technique in integer programming? (2)
- 8 What is quadratic programming? (3)
- 9 What is Non-Linear programming problem? (3)
- 10 What are uses of Reliability? (2)

**PART – B (50 Marks)**

- 11 (a) Briefly describe various optimization techniques. (5)  
 (b) Briefly mention about applications of optimization. (5)
- 12 Solve the LP problem (10)  
 Minimize  $Z = 2x_1 + 9x_2 + x_3$   
 Subject to :  $x_1 + 4x_2 + 2x_3 \geq 5$   
 $3x_1 + x_2 + 2x_3 \geq 4$   
 $x_1 \geq 0, x_2 \geq 0, x_3 \geq 0$
- 13 Use the dual simplex method to solve the following problem: (10)  
 Minimize  $Z = 2x_1 + x_2$   
 Subject to  $x_1 + x_2 = 4$   
 $2x_1 - x_2 \geq 3$   
 $x_1 \geq 0, x_2 \geq 0$
- 14 Solve the following integer programming problem using Branch Bound method. (10)  
 Minimize  $Z = -x_1 - 5x_2$   
 Subject to  $x_1 + 10x_2 \leq 20$   
 $x_1 \leq 2$   
 $x_1, x_2 \geq 0$  and Integers
- 15 Apply Dynamic programming to solve the following problem (10)  
 Minimize  $f(x) = x_1^2 + x_2^2 + x_3^2$   
 Subject to  $x_1, x_2, x_3 = 24$   
 $x_1, x_2, x_3 \geq 0$
- 16 (a) What are steps in Monte Carlo simulation? (5)  
 (b) What are advantages of using simulation techniques in solving real life problems? (5)
- 17 Write short notes on any **two** of the following: (5 + 5)  
 (a) Separable programming.  
 (b) Bellmans principle of optimality  
 (c) Random and Pseudo random numbers

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**FACULTY OF ENGINEERING****B.E. 4/4 (Civil) I - Semester (New) (Suppl.) Examination, July 2014****Subject : Operations Research (Elective-I)****Time : 3 Hours****Max. Marks: 75****Note: Answer all questions of Part - A and answer any five questions from Part - B.****PART – A (25 Marks)**

- 1 Define 'model'. What are the various types of models?
- 2 Define redundant constraint.
- 3 Define dual of linear programming problem.
- 4 What are the advantages of duality?
- 5 What is unbalanced transportation problems? How do you arrive basic feasible solution in this case?
- 6 Vogel's approximation method results better initial basic feasible solution than other method, why?
- 7 Define assignment problem. Mention two applications of it.
- 8 How do you solve maximization case in assignment problem?
- 9 What are the different types of replacement policies?
- 10 Define : (a) Progressive failure (b) Random failure (c) Balking

**PART – B (50 Marks)**

- 11 (a) Egg contains 6 units of vitamin 'A' and 7 units of vitamin 'B' per gram and costs 12 paise per gram. Milk contains 8 units of vitamin 'A' and 12 units of vitamin B per gram and costs 20 paise per gram. The daily minimum requirement of vitamin 'A' and vitamin 'B' are 100 units and 120 units respectively. Formulate the LPP. (5)
- (b) Use graphical method to solve the LPP (5)

$$\text{Maximize } Z = 6x_1 + 4x_2$$

$$\text{Subject to, } -2x_1 + x_2 \leq 2$$

$$x_1 - x_2 \leq 2$$

$$3x_1 + 2x_2 \leq 9$$

$$x_1, x_2 \geq 0$$

- 12 Use Dual simplex method to solve the following LPP

$$\text{Maximize } Z = 3x_1 - x_2$$

$$\text{Subject to, } x_1 + x_2 \geq 1$$

$$2x_1 + 3x_2 \geq 2$$

$$x_1, x_2 \geq 0$$

- 13 Find the initial basic feasible solution by Vogel's method

		To				Supply
		D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	
From	F <sub>1</sub>	3	3	4	1	100
	F <sub>2</sub>	4	2	4	2	125
	F <sub>3</sub>	1	5	3	2	75
		120	80	75	25	

- 14 Solve the following assignment problem.

(10)

		Workers			
		I	II	III	IV
Job	A	1	4	6	3
	B	9	7	10	9
	C	4	5	11	7
	D	8	7	8	5

- 15 A machine costs Rs.15,000. The running cost for the different years are given below:

Year	1	2	3	4	5	6	7
Running cost (Rs)	2500	3000	4000	5000	6500	8000	10000

Find the optimum replacement period if the capital is worth 10% per annum and has no salvage value.

(10)

- 16 Four jobs are to be processed under six machines in the order M
- <sub>1</sub>
- , M
- <sub>2</sub>
- ...M
- <sub>6</sub>
- . Processing time (in hours) is given below.

		M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>	M <sub>5</sub>	M <sub>6</sub>
		Job	A	18	8	7	2
B	17		6	9	6	8	19
C	11		5	8	5	7	15
D	20		4	3	4	8	12

Determine a sequence and find total elapsed time.

- 17 (a) Define Kendall's notation of queuing system.
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- (b) Solve the following game problem and determine the optimal solution.

		Player - B	
Player -A	5	1	
	3	4	

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**FACULTY OF ENGINEERING**  
**B.E. 4/4 (Civil) I - Semester (Old) Examination, July 2014**

**Subject : Geographical Information System**  
**(Elective - I)**

Time : 3 Hours

Max. Marks: 75

**Note: Answer all questions of Part - A and answer any five questions from Part - B.**

**PART – A (25 Marks)**

- 1 Explain the history of Geographical Information System. (2)
- 2 Explain various methods of storage of GIS data. (2)
- 3 Define the term of Geographical Information System and indicate the components of GIS with examples. (3)
- 4 Distinguish between Analog data and Digital data. (3)
- 5 Describe the map projections and coordinators systems. (2)
- 6 What is meant by resolution? And explain the types of resolution. (3)
- 7 Write down the characteristics of IRS satellite series. (3)
- 8 What is Digital Elevation Model? (2)
- 9 What is standard query language in data management? (2)
- 10 Briefly explain the utility of remote sensing in Civil Engineering. (3)

**PART – B (50 Marks)**

- 11 (a) Describe the characteristics of three sources of spatial data. (5)  
 (b) What are the main issues to be considered by users of large corporate GIS data bases? (5)
- 12 (a) How does land use planning is done in using GIS? Enumerate its advantages. (5)  
 (b) Briefly explain the different types of data storage structures in GIS. (5)
- 13 (a) What are the difference between analysis carried out on Raster and Vector data? (5)  
 (b) Briefly explain the edge matching and editing and enhancement. (5)
- 14 What are the corrections to be made for remote sensing data? Explain any one of the method with causes. (10)
- 15 (a) Explain the types of raster GIS models. (5)  
 (b) Explain the earth quakes risk assessment by using remote sensing and GIS. (5)
- 16 (a) Explain the electromagnetic spectrum and atmospheric windows used in remote sensing with a neat sketch. (5)  
 (b) Briefly explain the supervised and un-supervised classification of image processing. (5)
- 17 Write short notes on the following: (10)
  - (a) Standard query language (SQL) in data management
  - (b) Indian Remote Sensing satellite
  - (c) Data base management system in GIS

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**FACULTY OF ENGINEERING**

**B.E. 4/4 (Civil) I - Semester (New) (Suppl.) Examination, July 2014**

**Subject : Geographical Information Systems  
(Elective - I)**

**Time : 3 Hours**

**Max. Marks: 75**

**Note: Answer all questions of Part - A and answer any five questions from Part - B.**

**PART – A (25 Marks)**

- 1 Briefly explain the history and components of Geographical Information system. (3)
- 2 Define the characteristics of spatial data and non-spatial data. (2)
- 3 What do you mean by structure and query language (SQL)? (2)
- 4 Enumerate the limitations of satellite remote sensing. (2)
- 5 Discuss about data acquisition and data processing. (3)
- 6 Distinguish between analog data and digital data. (2)
- 7 Explain about overlay analysis. Discuss about edge matching. (3)
- 8 Differentiate between data base structure and data base management systems. (3)
- 9 Define the term standard structural query. (2)
- 10 What is resolution? Explain its types. (3)

**PART – B (50 Marks)**

- 11 (a) Briefly explain the types of data errors and corrections in GIS data. (5)  
(b) Explain the application of GIS in municipal corporation. (5)
- 12 (a) Discuss the various output functions used in GIS analysis. (5)  
(b) How GIS is useful in natural calamity study? Discuss how your knowledge of GIS could be in planning such operations. (5)
- 13 (a) Discuss with neat sketch about buffer analysis and overlay analysis. Give its advantages. (5)  
(b) Briefly explain the different types of data storage structures in GIS. (5)
- 14 (a) Distinguish between Vector data models and Raster data models? And give its merits and demerits. (5)  
(b) What is data errors? Explain about the geometric and Radio metric corrections in GIS data. (5)
- 15 (a) What are the types of scattering ? Explain in details with examples. (5)  
(b) Differentiate between aerial photography and satellite remote sensing. (5)
- 16 (a) Briefly explain the Electromagnetic Radiation Energy. Discuss the radiation curves. (5)  
(b) Briefly explain the Supervised and Un-supervised linkage processing. (5)
- 17 Write short notes on the following: (10)
  - (a) Types of platforms used in remote sensing.
  - (b) Edge matching and Edge Enhancement
  - (c) Latest Navy high resolution remote sensing satellite.

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**FACULTY OF ENGINEERING**

**B.E. 4/4 (Civil/CE/Int/MP) I - Semester (Old) Examination, July 2014**

**Subject : Entrepreneurship  
(Elective - I)**

**Time : 3 Hours**

**Max. Marks: 75**

**Note: Answer all questions of Part - A and answer any five questions from Part - B.  
PART – A (25 Marks)**

- 1 Distinguish between Entrepreneur and manager.
- 2 List out the types (or) Forms of enterprises.
- 3 What do you understand by the term "Technology Development"?
- 4 What are the environmental challenges before the women entrepreneurs?
- 5 List the general sources of secondary information available in India.
- 6 What aspects are considered in Technical Analysis?
- 7 What are the important functions of project planning and control?
- 8 How does network analysis helps in large complex projects?
- 9 Discuss about personality models.
- 10 Write the importance of the urgency Addiction Index.

**PART – B (50 Marks)**

- 11 Discuss the role of Industry in a developing economy.
- 12 Describe the role the Government plays in Entrepreneurial development.
- 13 What are the essential characteristics (or qualities) of a successful entrepreneur?
- 14 What is project formulation? Explain the various stages of project formulation.
- 15 Explain the Network Terminology involved in PERT and CPM and distinguish between them.
- 16 State the aspects of leadership concepts and explain the leadership models.
- 17 Draw neatly the four quadrants of the "Time Management Matrix" and explain their importance.

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**FACULTY OF ENGINEERING**

**B.E. 4/4 (Civil/EE/Int./M/P) I- Semester (New) (Suppl.) Examination, July 2014**

**Subject : Entrepreneurship  
(Elective-I)**

**Time : 3 Hours**

**Max. Marks: 75**

**Note: Answer all questions of Part - A and answer any five questions from Part - B.**

**PART – A (25 Marks)**

- 1 What are the characteristics of an entrepreneur?
- 2 How are competence and challenges related to each other?
- 3 Define entrepreneurial motivation.
- 4 What is the meaning of zeroing the process?
- 5 Distinguish between entrepreneur and entrepreneurship.
- 6 What is the importance of project report?
- 7 List out the agencies supporting machinery supply by entrepreneur.
- 8 What problems are faced by women entrepreneurs as being women?
- 9 Why do industries fall sick?
- 10 Give an account of franchising in India.

**PART – B (50 Marks)**

- 11 (a) How are competence, opportunities and challenges related to each other?  
(b) What are the major reasons for sickness of small scale industries?
- 12 (a) Justify the need for and significance of entrepreneurs in an economy like India.  
(b) Discuss the measures taken by the Government of India to promote women entrepreneurship in India.
- 13 What is meant by marketing mix? Why is it called 'marketing mix'? Discuss the elements of marketing mix.
- 14 (a) Discuss the role of IDBI in Financing small enterprises in the country.  
(b) What are the various types of lease agreements? As a lessee, which one will you prefer? Give your justification.
- 15 (a) What are the advantages of limitations of PERT and CPM?  
(b) Briefly explain the need for plant layout.
- 16 (a) What are various approaches of time management, their strength and weakness?  
(b) Explain the role of Financial Institutions in Entrepreneurial development.
- 17 Write short notes on the following:
  - (a) Collaborative interaction for technology development
  - (b) Project financing in India
  - (c) Behaviour aspects of entrepreneurs

**FACULTY OF ENGINEERING**  
**B.E. 4/4 (EEE) I – Semester (Old) Examination, July 2014**

**Subject : Transducers(Elective – I)**

**Time : 3 hours**

**Max. Marks : 75**

**Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.**

**PART – A (25 Marks)**

- |    |   |   |
|----|---|---|
| 1  | Show that the potentiometer is an example of zero order system.   | 3 |
| 2  | A certain first order system is initially at rest. It is subjected to a sudden input at $t = 0$ . If its response reaches 1.1 v in 4 secs and eventually reaches a steady state of 2 v. Find the time constant of the system. | 3 |
| 3  | What is the difference between accuracy and precision?  | 3 |
| 4  | Explain the principle of thermister. Write the relevant equations of thermister.  | 3 |
| 5  | Give three applications of capacitive transducers.  | 3 |
| 6  | A $120\Omega$ strain guage resistance changes to $120.5\Omega$ when subjected to a strain of $10\mu$ strains. What will be the ratio of change in length to original length of the wire guage? [G F = 2].                     | 2 |
| 7  | What is piezo electric effect?  | 2 |
| 8  | What are the different types of systematic errors?  | 2 |
| 9  | What is RVDT? Where it is used?   | 2 |
| 10 | What are the laws of thermocouple?  | 2 |

**PART – B (50 Marks)**

- |    |  |    |
|----|--|----|
| 11 | Draw the block diagram of generalized measurement system? Explain each block with examples.          | 10 |
| 12 | Explain the construction and working of RTD? Obtain the linear approximation of RTD characteristics? | 10 |
| 13 | Obtain the expression for gauge factor for metal wire gauges. What are foil gauges?                  | 10 |
| 14 | Derive the expression for full bridge circuit for strain measurement.                                | 10 |
| 15 | With a neat diagram explain hall effect transducer.  | 10 |
| 16 | Derive the relationship between O/P voltage and applied force for Peizo electric transducer.         | 10 |
| 17 | Write short notes on :<br>a) Semi conductor sensors<br>b) Capacitive sensors                         | 10 |

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