FOUR YEAR B.Tech. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.Tech. FIRST SEMESTER

Branch — Civil Engineering

Paper — REMOTE SENSING AND GIS

Time : 3 Hours   *Max. Marks : 60*

Answer ONE question from each Unit.

UNIT I

1. Explain with a neat sketch the components of remote sensing.

Or

2. Explain about the electromagnetic radiation.

UNIT II

3. (a) Explain various types of plat forms used in remote sensing.

    (b) Write a short note on polarization.

Or

4. Enumerate and explain the various types of remote sensors.

UNIT III

5. Discuss the following :

    (a) Visual interpretation technique

    (b) Digital image processing.

Or

6. Explain the various types of data products.

UNIT IV

7. Write the difference between the radiometric correction and geometric correction.

Or

8. Explain the various types of classification techniques.

UNIT V

9. Write about the components of GIS and functioning of GIS.

Or

10. Explain the various types of data structures.

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FOUR YEAR B.Tech. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.Tech. FIRST SEMESTER

Branch – EEE

POWER SEMICONDUCTOR DRIVES

Time : 3 Hours   Max. Marks : 60

Answer ONE question from each Unit.

UNIT–I

1. What are the different parts of electric drive? Explain each of them in detail, with neat sketches. (12)

Or

2. (a) What is meant by an electric drive? State the advantages of electric drives. (6)

    (b) What are the classifications of electric drives? (6)

UNIT– II

3. Derive the speed-torque equations of a fully controlled converter connected to separately excited DC motor with continuous current operation with necessary wave forms. (12)

Or

4. What is continuous current operation of chopper fed DC motors? Explain with relevant waveforms. (12)

UNIT–III

5. (a) Generally the stator voltage control is suitable for speed control of induction motor in fan and pump drives. Discuss in detail why the above method is useful. (6)

    (b) Explain why the stator voltage control is not an efficient method of control. (6)

Or

6. What are the different methods used for speed control of an induction motor? Explain them in detail. (12)

UNIT–IV

7. Explain the principle of operation of self control of synchronous motor fed from VSI source. (12)

Or

8. Explain the principle of operation of Induction motor fed from CSI. (12)

[P.T.O.]

9. (a) Explain the importance of quality of electricity supplied to driven machines. (6)

    (b) Describe the electrical energy conservation areas in a/c system. (6)

Or

10. (a) Write a short note on the losses and efficiency of electrical drive system. (6)

    (b) What are the measures of energy conservation in electrical drives? (6)

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FOUR YEAR B.Tech. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.Tech FIRST SEMESTER

Branch – ECE

Paper – OPTICAL COMMUNICATIONS

Time : 3 Hours   Max. Marks : 60

Answer FIVE question. Choosing one questions from each.

UNIT – I

1. (a) Discuss about step index and graded index fibers with reference to   (6)

    (i)   Mode of propagation

    (ii) Index profile and compare them.

    (b) When a light ray is entering from glass $(\mu = 1.5)$ into Ethly Alcohol $(\mu = 1.36)$, find the angle of refraction if the light ray is incident at $30°$.   (6)

Or

2. (a) Explain about various linear and non linear scattering losses in detail.   (6)

    (b) Explain the concept of total internal reflection in optical fibers.   (6)

UNIT – II

3. (a) Explain the principle of operation of LASER.   (6)

    (b) Explain various fiber splicing techniques.   (6)

Or

4. Draw and explain the LED structure based on double hetero structure configurations.   (12)

UNIT – III

5. (a) Explain PIN photo diode in detail.   (6)

    (b) Derive the expression for responsibly of photo diodes.   (6)

Or

6. (a) Write modified expression for SNR at the output of an ADD based anolog receiver.   (6)

    (b) What are the differences in specifications, selection of components, performance merits parameters of digital and analog fiber optic receivers?   (6)

UNIT – IV

7. (a) Briefly explain the broadcast and select WDM networks. (8)

   (b) Discuss the possible replacement of selected components if the transmission distance has to be double the system margin should be increased to 10dB from 5dB. (4)

Or

8. (a) Explain the basic applications of optical amplifiers. (4)

   (b) Briefly explain the types of optical amplifiers. (8)

UNIT – V

9. (a) Explain the various components of optical communication system and explain each in detail. (8)

   (b) Write about the applications of optical communications in telemetry. (4)

Or

10. (a) Briefly explain telephony telemetry. (7)

    (b) List out the requirements that are to be considered in analyzing a link. (5)

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(10 EC 37)

FOUR YEAR B.Tech. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.Tech. FIRST SEMESTER

Branch – Mechanical Engineering

CAD/CAM

Time : 3 Hours   Max. Marks : 60

Answer ONE question from each Unit.

UNIT – I

1. (a) Explain about various stages in product life cycle revised with CAD/CAM.   (8)

    (b) Explain the benefits of CAD over traditional design process.   (4)

Or

2. (a) Explain about the process of workstation design.   (6)

    (b) Explain about the database management in CAD.   (6)

UNIT – II

3. (a) Explain about point transformation and lines transformation.   (6)

    (b) Describe about the geometry and line generation in CAD.   (6)

Or

4. (a) Explain about 2D transformations of translation and rotation.   (6)

    (b) Write a short note on windowing.   (6)

UNIT – III

5. (a) Discuss briefly about B-splines and Bezier curves.   (6)

    (b) Write a short note on :

    (i)   B-rep solid modelers.

    (ii) Constructive solid geometry.   (6)

Or

6. (a) Explain the entities of different geometric modeling techniques with neat sketches.   (8)

    (b) Distinguish between 2D modeling and 3D modeling.   (4)

[P.T.O.]

7. (a) Explain about classification of manufacturing system. (6)

   (b) Explain the concept of group technology. (6)

Or

8. (a) Explain the components of FMS. (6)

   (b) Discuss briefly applications and benefits of FMS. (6)

UNIT – V

9. (a) Explain the basic procedure involved in retrieval type CAPP. (6)

   (b) Explain inputs to MRP with a block diagram. (6)

Or

10. Write a short note on :

    (a) Material requirement planning. (4)

    (b) Capacity planning. (4)

    (c) Shop floor control. (4)

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FOUR YEAR B.Tech. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.Tech FIRST SEMESTER

Branch — COMPUTER SCIENCE AND ENGINEERING

SOFTWARE PROJECT MANAGEMENT

Time : 3 Hours   Max. Marks : 60

Answer FIVE questions, choosing One question from each Unit.

UNIT – I

1. (a) Explain the layers of WebApps engineering.   (6)

   (b) What is planning? Why is it important for web engineering projects?   (6)

Or

2. (a) Briefly explain the process of web engineering.   (6)

   (b) Explain the issues related to the project management for web engineering.   (6)

UNIT – II

3. (a) Differentiate between Architecture design and Content design for web applications.   (6)

   (b) What is testing? Explain the content testing in detail.   (6)

Or

4. (a) Explain the design metrics for web applications.   (6)

   (b) Explain the testing process in detail.   (6)

UNIT – III

5. (a) Explain the metrics for software quality.   (6)

   (b) What is feasibility of a software? Does it have any impact on project planning? Explain.   (6)

Or

6. (a) Differentiate metrics in process and project domains.   (6)

   (b) Explain the empirical estimation models.   (6)

UNIT – IV

7. (a) Differentiate Risk Mitigation, monitoring and management.   (6)

   (b) Explain the reviews of software in detail.   (6)

Or

8. (a) Compare and Contrast Reactive versus proactive risk strategies.   (6)

   (b) Explain the software quality assurance.   (6)

[P.T.O]

9.   (a)   Explain object constraint language.   (6)

     (b)   Give the functional specification required for cleanroom software engineering.   (6)

<div align="center">Or</div>

10. (a)   Explain formal specification languages.   (6)

     (b)   Explain the design of cleanroom software engineering.   (6)

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FOUR YEAR B.TECH. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.TECH FIRST SEMESTER

Branch — EICE

EMBEDDED SYSTEMS

Time : 3 Hours   *Max. Marks : 60*

Answer ONE question from each Unit.

UNIT – I

1. List out the components of an embedded system hardware and explain them.   (12)

Or

2. Discuss in detail design issues of an embedded system.   (12)

UNIT – II

3. (a)   Explain the concept of piplining.   (6)

    (b)   How micro controller is different from microprocessor?   (6)

Or

4. Give important features of

    (a)   ASIP   (6)

    (b)   DSP.   (6)

UNIT – III

5. Explain synchronous data flow graph model.   (12)

Or

6. Explain a crylic precedence expansion graph model.   (12)

UNIT – IV

7. List out RTOS task scheduling models and give their important features.   (12)

Or

8. (a)   When is RTOS needed and when it is not in embedded systems?   (6)

    (b)   Explain how interrupt call is handled by RTOs.   (6)

[P.T.O]

UNIT – V

9. Explain codesign issues in an embedded system development process. (12)

Or

10. Give a note on hardware and software tools used in embedded system development process. (12)

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(10 EC 25)

FOUR YEAR B.Tech. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.Tech. FIRST SEMESTER

Branch —Civil Engineering

Paper — ENVIRONMENTAL ENGINEERING – II

Time : 3 Hours

Max. Marks : 60

Answer ONE question from each Unit.

UNIT – I

1. (a) Write about the different sources of waste water in detail.

   (b) Using any four empirical formulae, explain about the design of newers.

Or

2. (a) Discuss about the joints in newers and its shapes with neat diagrams.

   (b) What is minimum velocity of flow? Explain its concept.

UNIT – II

3. (a) Explain the different cycles of decomposition.

   (b) Design grit chamber for

      (i) Settling velocity

      (ii) Overflow rate

      (iii) Velocity control devices

Or

4. (a) What is BOD? How can we test it?

   (b) Determine ultimate BOD for a sewage having 5 day BOD at 20°c as 160 ppm. Assume the deoxygenation constant as 0.2 per day.

UNIT – III

5. (a) Explain activated sludge process.

   (b) Why it is used?

Or

6. (a) What are the factors that affect biological treatment of waste water?

   (b) Calculate the volume of a single stage trickling filter required to yield an effluent of BOD_5 of 20 mg/l When treating settled domestic newage with BOD_5 of 120 mg/l. The sewage flow is 2200m³/day and the recirculation in constant at 4000 m³/day.

[P.T.O]

7. (a) Explain about sludge banks. Write the concept of sleek. What do you understand about the sewage sickness?

(b) In detail, write the disposal of refuse by

(i) Sanitary land filling and

(ii) Pulverization

Or

8. (a) Explain about Indore method and Bangalore method.

(b) Write a detailed note on removal of Nitrogen from waste water.

UNIT – V

9. (a) Explain about the treatment processes of waste water in brief. Describe the different Anaerobic biological units.

(b) Describe the dilution of surface water bodies and why is it used? What are the advantages associated with it?

Or

10. (a) Design a septic tank for a colony of 200 people. The colony is supplied water at a rate of 135 lit/person/day. Assume a detention period of 24 hours and 75% of the water becomes waste water. The tank is cleaned once in a year. The rate of deposition at sludge is 40 lit/person/year. Depth of tank is to be kept as 2.0 m. Provide a free board of 0.3 m. L/B ratio =3:1.

(b) What are the different disposal standards of wastewater?

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FOUR YEAR B.Tech. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.Tech. FIRST SEMESTER

Branch — EEE

SWITCH GEAR AND PROTECTION

Time : 3 Hours   Max. Marks : 60

Answer ONE question from each Unit.

Each question carry equal marks.

UNIT – I

1. (a) What is meant by insulation co-ordination?   (6)

    (b) Explain the insulation co-ordination between bus bars and transmissions lines.   (6)

Or

2. (a) For the different equipment of basic impulse insulation levels draw the volt-time curve.

                                                                                             (6)

    (b) What are the causes of over voltages?   (6)

UNIT – II

3. Explain the following in detail :

    (a) Oil circuit breakers   (6)

    (b) Air blast circuit breakers.   (6)

Or

4. State the principles of arc extinction and also explain the different methods for arc extinction.   (12)

UNIT – III

5. (a) Describe the construction, principle of operation of an

        (i) Induction disc and

        (ii) Induction cup type of relays.   (9)

    (b) What is the ratio of reset to pick up valve in case of these relays?   (3)

Or

6. Write a short notes on :

    (a) Instantaneous over current relays   (6)

    (b) Time over current relays.   (6)

[P.T.O]

UNIT – IV

7. Draw the circuit diagram of definite time static over current relay. Also explain its operation. (12)

Or

8. With the help of circuit diagram explain the principle of operation of rectifier bridge phase comparator.

UNIT – V

9. Illustrate the basic features of using 3-zone stepped distance protection scheme for a long transmission lines. (12)

Or

10. Define "Differential protection". Describe the principle of circulating current differential protection. (12)

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FOUR YEAR B.Tech. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.Tech. FIRST SEMESTER

Branch — ECE

Paper — RADAR ENGINEERING

Time : 3 Hours   *Max. Marks : 60*

Answer ONE question from each unit.

UNIT – I

1.   (a)   Explain how the radar is used to find the range of the target.   (7)

     (b)   With the help of the suitable block diagram explain the operation of pulse radar.   (5)

Or

2.   (a)   Discuss the applications of radar.   (6)

     (b)   For the specifications of a radar listed below, compute the power received at 50 km distance from the radar antenna.   (6)

Operating wavelength = 3 cm

Peak pulse transmitter power = 320 kw

Transmitting gain G. of the antenna = 9.6×104

Effective aperture area of receiving antenna = 58 sq.m.

Radar crossectional area of target = 12 sq.m.

UNIT – II

3.   (a)   Briefly explain crossed-field amplifiers.   (6)

     (b)   What is a plane position indicator? Compare this with A-scope display.   (6)

Or

4.   (a)   Derive the overall noise figure of a receiver with noise figure Fr that is preceded by an RF devie with a loss L_{RF}.   (6)

     (b)   What is the overall noise figure of a transmisson line and duplexer, which have a loss of 1.2 dB, connected to a receiver whose noise figure is 2.3 dB?   (6)

UNIT – III

5.   (a)   Discuss the limitations of non-coherent MTI radar systems.   (6)

     (b)   An MTI radar is operated at 9 GHZ with a PRF of 3000 PPS. Calculate the first two lowest blind speeds for this radar. Derive the formula used.   (6)

Or

6. (a) What is the Doppler effect? Explain how it is used in CW radar? (6)

    (b) Explain why isolation between transmitter and receiver is required in the CW radar? What are the devices used for isolation? (6)

UNIT – IV

7. (a) What types of antennas might be used for the detection and tracking of hostile bauastic missiks? (6)

    (b) Write note on Loop Antenna. (6)

Or

8. (a) Briefly explain about VOR receiving equipment. (6)

    (b) Write the three forms of radar range equation and to give the importance of each term in these equations. (6)

UNIT – V

9. Explain in detail about hyperbolic navigation systems. (12)

Or

10. Write notes on : (12)
     (a) TACAN
     (b) STACAN

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FOUR YEAR B.Tech. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.Tech. FIRST SEMESTER

Branch — Computer Science and Engineering

LANGUAGE PROCESSORS

Time : 3 Hours   *Max. Marks : 60*

Answer FIVE questions, choosing ONE question from each unit.

UNIT – I

1. Give the structure of a compiler and explain each phase.   (12)

Or

2. (a) What are the tools used in constructing a compiler?   (6)

   (b) Explain how lexical analyzer is created with Lex.   (6)

UNIT – II

3. Explain bottom up parsing with example.   (12)

Or

4. Explain LR parsing algorithm with an example.   (12)

UNIT – III

5. Consider the grammar $SS \to SS + |SS * |a$ construct a parse tree for the string $aa + a*$. Can this can be generated using above grammar. What language does this grammar generates?   (12)

Or

6. Write notes on :
   (a) Syntactic checking.
   (b) Type checking.   (6 + 6)

UNIT – IV

7. (a) Write notes on garbage collection.   (6)

   (b) Give mark and swap garbage collection algorithm.   (6)

Or

8. What is a DAG? Explain how DAG is constructed. Draw DAG for the block.   (12)
   $a = b + c$
   $b = a - d$
   $c = b + c$
   $d = a - d$

[P.T.O.]

9. Write notes on:

    (a) Code propagation.

    (b) Dead code elimination.

    (c) Reduction in strength. (4 + 4 + 4)

Or

10. Write notes on any two peephole optimizations. (6 + 6)

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FOUR YEAR B.Tech. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.Tech. FIRST SEMESTER

Branch – EICE

PROCESS CONTROL

Time : 3 Hours   *Max. Marks : 60*

Answer ONE question from each Unit.

UNIT – I

1. (a) What do you understand by degrees of freedom for a process? Explain its significance with example. (6)

   (b) Explain the characteristics of liquid system. (6)

Or

2. (a) What is continuous process? Explain with example. (6)

   (b) Write short notes on self regulation with examples. (6)

UNIT – II

3. (a) Explain the characteristics of on-off control scheme. (6)

   (b) Describe PD control scheme with equation. Calculate the output of a controller for step change in error. Plot error vs controller output. (6)

Or

4. (a) Discuss about PI control scheme with equation. Find the response of controller for ramp change in error. (6)

   (b) Explain in detail about single speed floating control modes. (6)

UNIT – III

5. (a) What are self operated controllers? Explain with examples. (6)

   (b) Explain working of pneumatic controller with neat sketch. (6)

Or

6. (a) Explain working of Hydraulic controller with neat sketches. (6)

   (b) Draw the control scheme of Electronic PID controller. Derive the input-output equation. (6)

[P.T.O.]

7. (a) Explain Ziegler Nichols tuning with neat sketch. (6)

   (b) Explain feed forward control scheme with neat sketch. Compare it with feed back control. (6)

Or

8. (a) What do you understand by Dynamic compensation? Explain different methods of dynamic compensation. (6)

   (b) Describe cascade control scheme with neat block diagram and an example. (6)

UNIT–V

9. (a) What is pneumatic actuator? Explain Electro pneumatic actuator with example. (6)

   (b) What is control value? Explain its operation with neat sketch. (6)

Or

10. (a) Discuss about Slidingstem control values with neat sketches. (6)

    (b) What is control valve sizing? Discuss about the procedure for determination of valve size for given application. (6)

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FOUR YEAR B.Tech. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.Tech. FIRST SEMESTER

Branch — Mechanical Engineering

Paper — DESIGN OF MACHINE ELEMENTS (SI UNITS)

Time : 3 Hours   Max. Marks : 60

Answer any ONE questions from each Unit.

UNIT – I

1. (a) Draw the profile of a taper sunk key.   (2)

   (b) Design a square key for fixing a gear on a shaft, of diameter 20 mm. A power of 15 kW at 700 rpm is transmitted from the shaft to the gear. The key is made of steel 50 C$_4$ (Syt = 460 N/mm^2) and the factor of safety is 2.5. The yield strength in compression can be assumed to be canal to the yield strength in Tension. Determine the dimensions of the key.   (10)

Or

2. (a) Give the classification of couplings.   (2)

   (b) A Rigid coupling is used to transmit 50 kW power at 250 rpm. There are six bolts. The outer diameter of flanges is 200 mm while the recess diameter is 150 mm. The coefficient of friction between the flanges is 0.15. The bolts are made of steel 45 C8 (Syt = 380 N/mm^2) and the factor of safety is 3. Determine the diameter of the bolts. (10)

UNIT II

3. (a) Explain the pressure distribution in a hydrodynamic bearing.   (4)

   (b) Explain the design procedure for a journal bearing.   (8)

Or

4. Design a journal bearing for the following data.   (12)

Journal speed = 1450 rpm

Journal diameter = 50 mm

Specific gravity of oil = 0.8

Ambient temperature –27°C.

Clearance – 0.005 mm : Viscosity of oil – 25 cp Assume suitable data if required.

UNIT III

5. (a) Write a short note on lubrication of rolling contact bearing.   (6)

    (b) A ball bearing subjected to a radial load of 5 kN is expected to have a life of 8000 hrs at 1450 rpm with a reliability of 99%. Calculate the dynamic load capacity of the bearing, so that it can be selected from the manufacturer's catalogue based on a reliability of 90%.   (6)

Or

6. (a) Select a proper roller contact bearing as per the given specifications :

    Bearing life = 10,000 hrs, spindle drilling machine

    Diameter = 50 mm (with journal)

    Spindle speed Axial load = 8 kN

    Angular speed = 29 radiant/sec.   (10)

    (b) List out the assumptions of Stribeck's equation.   (2)

UNIT IV

7. (a) Define law of GEARING.   (2)

    (b) A pair of spur gears with 20° pressure angle, consists of a 17 teeth pinion meshing with a 68 teeth gear. The module and face width are 2.5 and 25 mm respectively. The gears are machined to meet the specification of grade 10 and heat treated to a surface hardness of 250 BHN. Calculate the maximum power transmitted by the gears at the above speed.   (10)

Or

8. A pair of parallel helical gears consists of an 18 teeth pinion meshing with a 45 teeth gear. A 7.5 kW power at 200 rpm is supplied to the pinion through its shaft. The normal module is 6 mm and the normal pressure angle is 20°. The helix angle is 23°. Determine the tangential, radial and axial components of the resultant tooth force between the meshing teeth.   (12)

UNIT V

9. What are the parameters to be considered for designing a piston to an IC engine? Describe the function of connecting to an IC engine.   (12)

Or

10. Explain the stress due to whipping action on connecting rod ends.   (12)

FOUR YEAR B.Tech. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.Tech. FIRST SEMESTER

Branch — EEE

POWER SYSTEM ANALYSIS

Time : 3 Hours   Max. Marks : 60

Answer FIVE questions, choosing ONE question from each Unit.

UNIT – I

1.   Explain Z-bus building algorithm.   (12)

Or

2.   (a)   A power plant has two generators of 10 mvA, 15% reactance each and two 5 mvA generators of 10% reactance paralled at a common bus bar from which load is taken through a number of 4 mvA step-up transformers. Each having a reactance of 5%. Determine the short circuit capacity on LV and HV side of the transformer.   (8)

     (b)   Explain about transients due to a short circuit in a transmission line.   (4)

UNIT – II

3.   (a)   The line currents in a 3-phase supply to an un-balanced load are respectively $I_a = (10 + T20)$ $I_b = (12 – T10)$ $I_c = (–3 – T5)$. The phase sequence is abc. Determine sequence components of current.   (6)

     (b)   Obtain sequence Impedance and Networks of synchronous machine.   (6)

Or

4.   (a)   What are symmetrical components? Why they are used in power system fault analysis? Explain in detail.   (6)

     (b)   Bring out the relationship between symmetrical components and unbalanced phase. (6)

UNIT – III

5.   (a)   Derive the necessary equations to determine the fault current for single line – to – ground fault.   (6)

     (b)   Draw and explain the sequence networks for open conductor fault.   (6)

Or

6.   (a)   Explain the bus – impedance matrix method for analysis for unsymmetrical shunt faults.   (6)

     (b)   A 3-phase 11 kv, 25 mvA generators with $X_1 = X_2 = T0.2$ and $X_0 = T0.05$ pu is grounded through a reactance of $T0.3$ pu. Determine fault currents when those is a   (6)

          (i)   LLG fault

          (ii) LG fault.

7.   (a)   Explain various types of buses in a power system for load flow studig.   (6)

    (b)   Compare G-S and N-R methods.   (6)

Or

8.   Explain clearly with a flow-chart the computational procedure for load flow solution using N-R method.   (12)

UNIT – V

9.   (a)   Derive the swing equation of synchronous machine.   (6)

    (b)   Determine the transfer reactance apparing between the generator and infinite bus. For the power system shown in fig if there is a   (6)
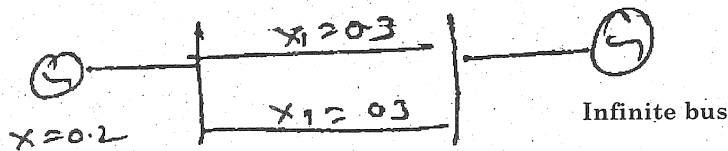
3-phase fault in the middle of the lower transmission line.

Or

10.   (a)   Explain any one method of solving swing equation.   (6)

    (b)   Explain the factors that affect transient stability.   (6)

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(10 EE 21)

FOUR YEAR B.Tech. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.Tech. FIRST SEMESTER

Branch – ECE

COMPUTER ORGANIZATION

Time : 3 Hours

Max. Marks : 60

Answer FIVE questions, choosing ONE question from each Unit.

UNIT – I

1. Draw 4-bit arithmetic circuit and explain its working. (12)

Or

2. Draw flow chart for interrupt cycle. (12)

UNIT – II

3. Explain clearly functioning of two pass assembler. (12)

Or

4. Give micro instruction format and explain its components. (12)

UNIT – III

5. Write notes on addressing modes of a computer. (12)

Or

6. Explain different instruction formats with examples based on operands. (12)

UNIT – IV

7. Write notes on :

   (a) Stroking.

   (b) Handshaking

   (c) Serial data transfer. (4 + 4 + 4)

Or

8. Explain in detail different modes of I/O data transfer. (12)

UNIT – V

9. Draw block diagram of associative memory and explain. (12)

Or

10. What is cache coherence? What are different methods to over come it? (12)

FOUR YEARS B.TECH. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.TECH. FIRST SEMESTER

Branch — Mechanical Engineering

MACHINE DYNAMICS AND VIBRATIONS (SI UNITS)

Time : 3 Hours   Max. Marks : 60

Answer ONE question from each Unit.

UNIT I

1.   Define cam. Give the detailed classification of Cams with neat sketches.   (12)

Or

2.   Draw the profile of a cam operating a roller reciprocating follower and with the following data. Minimum radius of cam = 25mm; Lift = 30mm; Roller diameter = 15mm. The cam lifts the follower for 120° with SHM followed by a dwell period of 30°. Then the follower lowers by a 150° of the cam rotation with uniform acceleration and deceleration followed by a dwell period. If the cam rotates at the uniform speed of 150rpm. Calculate the maximum velocity and acceleration of the follower during the descent period.   (12)

UNIT II

3.   In an in-line six cylinder engine working on two stroke cycle, the cylinder center lines are spaced at 600mm. In the end view the cranks are 60° apart and in the order 1-4-5-2-3-6. The stroke of each piston is 400mm and the connecting rod length is 1metre. The mass of the reciprocating parts is 200kg per cylinder and that of rotating parts 100kg per crank. The engine rotates at 300 r.p.m. Examine the engine for the balance of primary and secondary forces and couples. Find the maximum unbalanced forces and couples.   (12)

Or

4.   The reciprocating mass per cylinder in a 60° V-twin engine is 1.5kg. The stroke and connecting rod length are 100mm and 250mm respectively. If the engine runs at 2500 r.p.m., determine the maximum and minimum values of the primary and secondary forces. Also find out the crank position corresponding these values.   (12)

UNIT III

5.   Define whirling speed of a shaft. Derive the expression for whirling speed of a shaft.   (12)

Or

6.   Discuss free torsional vibrations of a two rotor system and three rotor system and also find expressions of natural frequencies of respective systems.   (12)

[P.T.O]

7. Discuss the following terms:

   (a) Vibration isolation

   (b) Transmissibility. (12)

Or

8. Establish the expressions for the frequency of under damped forced vibrations by using graphical method. (12)

UNIT V

9. (a) How the Newton's laws applied to the mechanisms. (6)

   (b) What are the conditions of equilibrium? (6)

Or

10. Give the detailed analysis of inertia force applied on various mechanisms. (12)

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FOUR YEAR B.TECH. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.Tech. FIRST SEMESTER

Branch – EICE

Paper — INDUSTRIAL POWER ELECTRONICS

Time : 3 Hours   *Max. Marks : 60*

Answer FIVE question. Choosing one question from each unit.

UNIT I

1. (a) Explain the various types of triggering methods of SCR briefly. Which is the universal method and why?   (6)

   (b) The gate cathode characteristics of an SCR is given by $Vg = 0.5 + 8Ig$. For a triggering frequency at 400Hz and duty cycle of 0.1 compute the value of resistance to be connected in series with the gate circuit. The rectangular trigger pulse applied to the gate circuit has an amplitude of 12V. The thyrists has average gate power loss at 0.5 watts.   (6)

Or

2. (a) Draw the turn – off characteristics of an SCR and explain the mechanisum of turn off.   (6)

   (b) Explain the over voltage and over current protection applicable to a thyristor.   (6)

UNIT II

3. (a) Describe the working of six-pulse mid point converter with inter phase reactor. Sketch the wave forms for $\alpha = 30°$ and $\alpha = 120°$.   (6)

   (b) List the various techniques for improving power factor in phase controlled converters.   (6)

Or

4. Derive an expression for output voltage of a three phase fully controlled bridge converter by conducting the following factors.   (12)

   (a) Overlap angle

   (b) Source inductance.

5. With the help of voltage and current wave forms explain the working of first quadrant chopper give the complete time domain analysis of class A chopper. (12)

Or

6. (a) Design a Jones chopper circuit for optimum frequency considerations to meet the following specifications source voltage $E_{dc} = 200V$, load current $I_o = 50A$ and $t_q = 200us$. (8)

(b) Mention the advantages of Jones chopper circuit over other chopper circuits. Give the applicational of this chopper. (4)

UNIT IV

7. (a) Derive the following expressions for 1-ϕ half bridge transistorized VSI (8)

(i) RMS out put voltage.

(ii) Instantaneous output voltage.

(iii) n^{th} harmonic component.

(iv) Switch voltage and current ratings.

(b) Single –Phase half-bridge inverter has a resistive load of $R = 3\Omega$ and the d.c input voltage $E_{dc} = 50V$. Calculate

(i) The RMS output voltage at the fundamental frequency E_1

(ii) The output power Po

(iii) The average and peak current of each thyristor and

(iv) The peak reverse-blocking voltage of each thyristor.

Or

8. Describe modified Mcmurry-Bed ford half-bridge inverter circuit with related voltage and current wave forms. (12)

UNIT V

9. (a) Explain about Electronic welding and the control techniques. (6)

(b) Explain about the process of dielectric heating. (6)

Or

10. (a) Explain the operation of resistance welding. (6)

(b) What are the applications in industries? (6)

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(10 EI 09)

FOUR YEAR B.Tech. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.Tech. FIRST SEMESTER

Branch – Civil Engineering

IRRIGATION AND HYDRAULIC STRUCTURES

Time : 3 Hours *Max. Marks : 60*

Answer ONE question from each Unit.

UNIT – I

1. Discuss in brief the benefits and ill-effects of irrigation. (12)

Or

2. (a) Discuss in brief various methods of subsurface and surface irrigation. (6)

   (b) Compare surface irrigation with subsurface irrigation. (6)

UNIT – II

3. Design an irrigation channel on Kennedy's theory, to carry a discharge of 45m³/sec. Take N = 0.0225 and m = 1.05. The channel has a bed slope of 1 in 5000. (12)

Or

4. Design a channel section by Kennedy's theory given the following data :

   discharge Q = 28 m³/sec; Kutter's N = 0.0225; side slope = $\frac{1}{2}$: 1, B/D = 7.6; critical velocity ratio m = 1; find also the bed slope of the channel. (12)

UNIT – III

5. Draw a neat layout of diversion head works and indicate the various components of the system. Briefly indicate the functions of each component. (12)

Or

6. Design a vertical drop weir on bligh's theory for the following site conditions :

   Maximum flood discharge = 2800 m³/sec; H.F.L. before construction = 286. Minimum water level = 278 mts; F.S.L. of canal = 284 m; afflux = 1 m; coefficient of creep = 12; permissible exit gradient = 1/6. Assume any other data required. (12)

UNIT – IV

7. Classify various types of dams. Distinguish clearly between rigid and non-rigid dams. (12)

Or

8. (a) What are the physical factors governing selection of type of dam? (6)

   (b) What are the factors on which selection of site for a dam depends? (6)

UNIT – V

9. (a) What is spillway? What are its functions? Enumerate various types of spillways. (6)

   (b) Write a note on components of spillways. (6)

Or

10. Explain various methods of dissipation of Energy systems below spillways. (12)

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(10 CE 38)

UNIT – III

5. (a) Given a 3 – stage lattice filter with coefficients $K_1 = \frac{1}{4}$, $K_2 = \frac{1}{4}$, $K_3 = \frac{1}{3}$, determine the FIR filter coefficients for the direct – form structure. (6)

   (b) Obtain FIR linear phase and cascade form realization of the system function
   $$H(z) = \left(1 - \frac{1}{4}z^{-1} + \frac{3}{8}z^{-2}\right)\left(1 - \frac{1}{8}z^{-1} - z^{-2}\right).$$
   (6)

Or

6. (a) Distinguish between FIR and IIR filters. (4)

   (b) Obtain the Direct form – I and Direct form – II realizations for the system described by the following difference equation,
   $$y(n) = 2y(n-1) + 3y(n-2) + x(n) + 2x(n-1) + 3x(n-2).$$
   (8)

UNIT – IV

7. (a) Distinguish between Butterworth and Chebyshev (Type – I) filter. (5)

   (b) Prove that $\Omega_C = \dfrac{\Omega_p}{\left(10^{0.1\alpha p} - 1\right)^{1/2N}} = \dfrac{\Omega_s}{\left(10^{0.1\alpha s} - 1\right)^{1/2N}}$. (7)

Or

8. Design a chebyshev filter for the following specification using

   (a) bilinear transform

   (b) impulse invariance method.
   $$0.8 \leq \left|H\left(e^{jw}\right)\right| \leq 1 \qquad 0 \leq \omega \leq 0.2\pi$$
   $$\left|H\left(e^{jw}\right)\right| \leq 0.2 \qquad 0.6\pi \leq \omega \leq \pi.$$
   (12)

UNIT – V

9. (a) Design an ideal differentiator with frequency response $H\left(e^{jw}\right) = jw$ $\quad -\pi \leq \omega \leq \pi$ using Hamming window with N = 8. Plot frequency response. (8)

   (b) What are the desirable characteristics of the window? (4)

Or

10. (a) Draw the frequency response of N – point rectangular window. (2)

    (b) Give the equation specifying Hanning and Blackman windows. (4)

    (c) Using a rectangular window technique. Design a low pass filter with passband gain of unity, cut off frequency of 1000 uz and working at a sampling frequency of 5 KHZ. The length of the impulse response should be 7. (6)

FOUR YEAR B.Tech. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.Tech. FIRST SEMESTER

Branch – EEE and EICE

Paper — DIGITAL SIGNAL PROCESSING

Time : 3 Hours *Max. Marks : 60*

Answer ONE question from each Unit.

UNIT – I

1. Find the z-transform of the following discrete – time signals, and find ROC for each

    (a) $x(n) = \left(\dfrac{-1}{5}\right)^n u(n) + 5\left(\dfrac{1}{2}\right)^{-n} u(-n-1)$ (4)

    (b) $x(n) = (n+0.5)\left(\dfrac{1}{3}\right)^n u(n)$ (4)

    (c) $x(n) = u(n-2)$. (4)

Or

2. (a) What are the properties of Region of convergence? (6)

    (b) Find the inverse z-transform of, $x(z) = \dfrac{z+0.2}{(z+0.5)(z-1)}, |z| > .$ (6)

UNIT – II

3. Compute the N – point DFT of

    (a) $x(n) = s(n)$ (3)

    (b) $x(n) = a^n$ (3)

    (c) $x(n) = e^{j2\pi nko/N}$ (3)

    (d) $x(n) = 1$ for n even
        $= 0$ for n even. (3)

Or

4. (a) Determine the circular convolution of the sequences $\begin{array}{c} x_1(n) = \{1,2,3,1\} \\ \uparrow \\ x_2(n) = \{4,3,2,2\} \\ \uparrow \end{array}$ (6)

    (b) Develop a radix – 3 decimation – in – time FFT algorithm for $N = 3^V$ and draw the corresponding flow graph for N = 9. What is the number of required complex multiplications? Can the operations be performed in place? (6)

FOUR YEAR B.TECH. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.Tech. FIRST SEMESTER

Branch – ECE

Paper — DIGITAL IMAGE PROCESSING

Time : 3 Hours   *Max. Marks : 60*

Answer FIVE question. Choosing one questions from each unit.

UNIT I

1. (a) Explain the fundamental steps involved in digital image processing with example.   (8)

    (b) Give a note on different hard ware devices needed in DIP.   (4)

Or

2. (a) Explain the effect of quantization and sampling on quality of image.   (8)

    (b) Give basic relationships between pixels.   (4)

UNIT II

3. (a) State and prove sampling theorem.   (4)

    (b) List out properties of DFT.   (8)

Or

4. (a) Explain DCT.   (8)

    (b) Obtain hadamard transform for N=4.   (4)

UNIT III

5. What is histogram? Explain how histogram equalization is helpful for image enhancement? What is histogram stretching?   (12)

Or

6. (a) Write notes on pseudo color image processing.   (6)

    (b) Give any two color models.   (6)

UNIT IV

7. (a) Explain algebraic approach for image restoration.   (8)

    (b) Explain inverse filtering.   (4)

Or

8. (a) Explain constrained least square restoration.   (8)

    (b) Explain about least mean square filters.   (4)

9.   (a)   What is an edge? Give any two kernels to detect edges?   (6)

      (b)   Explain how boundary is detected.   (6)

Or

10.   Explain how encoding process is carried and its effect on fidelity?   (12)

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(10 EC 36)

FOUR YEAR B.Tech. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.Tech. FIRST SEMESTER

Branch – Mechanical Engineering

Paper — MECHANICAL MEASUREMENTS AND CONTROL

Time : 3 Hours

Max. Marks : 60

Answer any ONE questions from each Unit.
All questions carry equal marks.

UNIT – I

1. (a) Explain about concepts of dynamic measurements. (6)

   (b) Explain method of graphical analysis. (6)

Or

2. (a) Define terms span and range and hysterisis.

   (b) Explain various types of experimental errors.

UNIT – II

3. (a) Write about electric transducer elements. (6)

   (b) Write about thermo couple vacuum gauge. (6)

Or

4. (a) Write about any one of high vacuum measurements. (6)

   (b) Explain about differential transformer. (6)

UNIT – III

5. (a) Explain about magnetic flow meter. (6)

   (b) Explain about mass balance methods. (6)

Or

6. (a) Explain about resistance thermometers. (6)

   (b) Explain about turbine meter. (6)

UNIT – IV

7. Name the flow seismic instruments and working of any one instrument to measure the vibration. (12)

Or

8. (a) Explain how the temperature is componsated in strain gauge. (6)

   (b) How you measure the output to an electrical resistance strain gauge. (6)

[P.T.O.]

9.   (a)   Explain about automatic control system.   (6)

     (b)   Explain about pneumatic control system.   (6)

<div align="center">Or</div>

10.   (a)   Explain about servo mechanisms.   (6)

      (b)   Explain about hydraulic control system.   (6)

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FOUR YEAR B.Tech. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.Tech. FIRST SEMESTER

Branch – Computer Science and Engineering

DATA MINING

Time : 3 Hours   *Max. Marks : 60*

Answer FIVE questions, choosing ONE question from each Unit.

UNIT – I

1. (a) Explain the steps involved in data mining when viewed as a process of knowledge discovery. (4)

   (b) Discuss the below

      (i) discrimination

      (ii) classification

      (iii) characterization

      (iv) clustering. (8)

Or

2. (a) Explain the primitives for specifying a data mining test. (6)

   (b) Explain the data warehouse architecture. (6)

UNIT – II

3. (a) Explain the strategies for data reduction. (6)

   (b) Discuss issues to be considered during data integration. (6)

Or

4. (a) Explain Accuracy, Completenees and consistency for assessing data quality. (6)

   (b) Explain the entropy based discretization. (6)

UNIT – III

5. (a) Explain Multiway array cube computation method. (6)

   (b) Explain frequent pattern growth mining frequent itemsets. (6)

Or

6. Explain the techniques for mining multidimensional association rules. (12)

UNIT – IV

7.   (a)   Explain the steps in Decision tree classifier.   (6)

     (b)   Explain the regression models.   (6)

<div align="center">Or</div>

8.   (a)   What is associative classification? Explain.   (6)

     (b)   Explain Bayesian classification.   (6)

UNIT – V

9.   (a)   Explain the Applications of clustering.

     (b)   Explain the different approaches for clustering using partitioning methods, hierarchical, density based methods.

<div align="center">Or</div>

10.   (a)   Explain model based clustering methods.   (6)

      (b)   Explain different distances used in K-means algorithm.   (6)

FOUR YEARS B.TECH. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.TECH. FIRST SEMESTER

Branch — Civil Engineering

CONSTRUCTION PLANNING AND MANAGEMENT

Time : 3 Hours   *Max. Marks : 60*

Answer ONE question from each Unit.

UNIT I

1. (a) Write about the significance of construction management.   (6)

    (b) Explain briefly the types of construction.   (6)

Or

2. (a) Explain the stages of construction in construction management.   (6)

    (b) Write short notes on various resources required in construction industry.   (6)

UNIT II

3. (a) What do you mean by PERT? What is its significance? Explain briefly.   (6)

    (b) Find the floats of all the activities and the critical path of the network given below. (6)
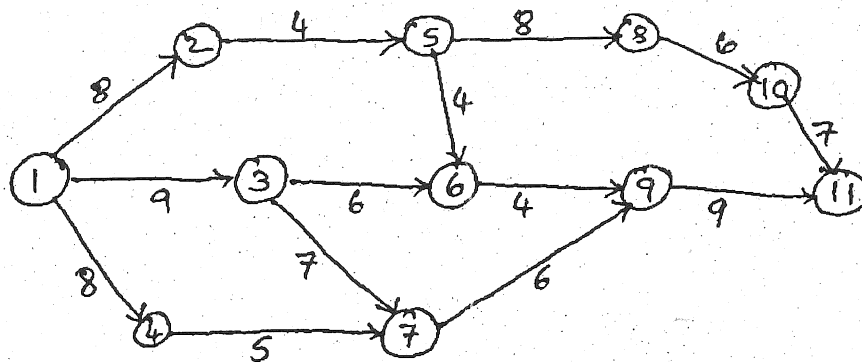
Or

4. (a) What is a milestone chart? How does it differ from a bar chart? How can a milestone chart be developed into a network?   (6)

    (b) Draw the network for a construction project, the details of which are given below. Find the total duration of the project and total float for each activity. (6)

Activity	A	B	C	D	E	F	G	H	I	J	K
Immediate successor	C, D	E, F	H, I	K	G	J	I	J	K	K	-
Duration (days)	15	14	16	24	8	9	11	13	16	20	21

[P.T.O]

5. Compare the characteristic and application of different types of earth moving equipment. (12)

Or

6. Discuss the different types of pumps for pumping and dewatering in construction operations. (12)

UNIT IV

7. Explain various stages of inspection and quality control measures in a construction Industry. (12)

Or

8. Write short notes on the following: (12)

   (a) Ethical Audit

   (b) Audit Reviews

   (c) Need for inspection and quality control.

UNIT V

9. (a) Bring out the importance of safety in construction projects. (6)

   (b) Discuss briefly the types of risks. (6)

Or

10. (a) Explain various types of organization. (6)

    (b) Explain about organization for a construction firm. (6)

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FOUR YEAR B.Tech. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.Tech. FIRST SEMESTER

Branch — EEE, ECE, EICE

MANAGEMENT SCIENCE

Time : 3 Hours   *Max. Marks : 60*

Answer FIVE questions from each Unit.

All questions carry equal marks.

Use of statistical tables is permitted.

UNIT – I

1. (a) Prepare the organisation chart for any large industry, with whose technology and managerial function you may be familiar.   (8)

   (b) Differences between management and administration.   (4)

Or

2. State the different types of organisations which are prevailing in industries.   (12)

UNIT – II

3. Explain the factors affecting on plant location.   (12)

Or

4. Explain types of plant layout with examples.   (12)

UNIT – III

5. Explain the concept of personal management. Aims, objectives and functions of personal management.   (12)

Or

6. Define human resource management. Explain functions and objectives of human resource management.   (12)

UNIT – IV

7. (a) What is the importance of productivity? Mention various factors which effect productivity.   (8)

   (b) Define productivity. What is the difference between production and productivity?   (4)

Or

8. (a) Explain types of production systems.   (8)

   (b) What are the benefits from increased productivity?   (4)

UNIT – V

9. (a) A project has nine activities. The expected time of each activity is as follows : (9)

S.No. :	1	2	3	4	5	6	7	8	9
Activity :	1-2	1-3	2-4	3-4	4-6	5-6	3-5	5-7	6-7
Expected time (days) :	6	8	7	12	3	5	7	11	10

(i) Draw the project network.

(ii) Identify the critical path.

(iii) Find project duration.

(iv) What is slack time in each event.

(b) Write advantages and disadvantages of PERT. (3)

Or

10. (a) A small project is composed of 7 activities. The expected time in months of each activity is given below : (7)

S.No. :	1	2	3	4	5	6	7
Activity :	1-2	1-3	1-4	2-5	3-5	4-6	5-7
Expected time in months :	5	4	6	10	6	8	5

Draw a network diagram and show earliest and latest time, expected time and critical path on it.

(b) Write down the differences between CPM and PERT. (5)

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FOUR YEAR B.Tech. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.Tech. FIRST SEMESTER

Branch — Mechanical Engineering

Paper — TOOLS DESIGN

Time : 3 Hours   *Max. Marks : 60*

Answer any ONE question from each unit.

UNIT – I

1. (a) Explain various elements of a single point cutting tool, with the help of a neat sketch.   (8)

    (b) Explain Tool Signature.   (4)

2. (a) Explain the principal elements of Metal Machining.   (8)

    (b) Differentiate between orthogonal cutting and oblique cutting.   (4)

UNIT – II

3. (a) Explain the phenomenon of Heat distribution in metal cutting.   (8)

    (b) Explain the factor affecting cutting temperature.   (4)

4. (a) Discuss the general working rules for selection of a cutting fluid.   (6)

    (b) Discuss various methods of applying the cutting fluid at the cutting zone.   (6)

UNIT – III

5. (a) Give the classification of cutting tool materials.   (4)

    (b) Discuss the role of carbon, chromium, cobalt, manganese, Vanadium and tungsten in tool steels.   (8)

6. (a) Explain the requirements of a tool material.   (4)

    (b) Discuss the T–series and M–series high speed steels.   (8)

UNIT – IV

7. (a) Explain the costs associated with machining operation.   (6)

    (b) Derive an expression for optimum cutting speed for minimum cost and maximum production.   (6)

8. (a) Explain the factors considered while selecting a press for a given job.   (6)

    (b) Explain the methods of reducing cutting forces in press working.   (6)

9. (a) Explain the 3–2–1 principle of location. (6)

    (b) Explain the design principles for design of Jigs and fixtures. (6)

10. (a) Discuss the types of clamping devices used in Jigs and fixtures. (6)

    (b) Explain the types of fixtures for milling. (6)

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FOUR YEAR B.Tech. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.Tech. FIRST SEMESTER

Branch — Computer Science and Engineering

COMPUTER NETWORKS

Time : 3 Hours   *Max. Marks : 60*

Answer FIVE questions choosing ONE question from each unit.

UNIT – I

1. (a) What is the band rate of classic 10 mbps Ethernet?   (4)

    (b) Six stations communicating using MACA protocol. Is it possible for two transmissions to take place simultaneously? Explain.   (8)

Or

2. What are the service classes supported by IEEE 802.16. Explain them?   (12)

UNIT – II

3. (a) Write notes on :   (8)

    (i) Expedited forwarding.

    (ii) Assured forwarding.

    (b) Write notes on tunneling.   (4)

Or

4. Write notes on IP version 4 protocol.   (12)

UNIT – III

5. Explain clearly real time transport protocol.   (12)

Or

6. Explain clearly TCP service model.   (12)

UNIT – IV

7. Explain clearly internet message access protocol.   (12)

Or

8. (a) Explain RFC 5322 interntet message format.   (6)

    (b) Discuss about 3-way handshake?   (6)

UNIT – V

9. Write notes on different types of cipher modes.   (12)

Or

10. Explain RSA algorithm with example.   (12)

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FOUR YEAR B.Tech. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.Tech. FIRST SEMESTER

Branch — Civil Engineering

Paper — CONCRETE TECHNOLOGY

Time : 3 Hours   *Max. Marks : 60*

Answer ONE question from each Unit.

UNIT – I

1. Explain about different types of cements.

   (a) Portland Blast furnance Cement

   (b) White portland cement

   (c) Super sulphate cement

   (d) Expansive cement.   (12)

Or

2. Define the term additive and explain the classifications of additives – retarders, water proofers and pigments?   (12)

UNIT – II

3. (a) Describe the moisture content of aggregate and its effects.   (8)

   (b) What is the effect of the maximum size of aggregate on concrete strength?   (4)

Or

4. (a) Define workability. What are the various factors which affect the workability of concrete.   (6)

   (b) What are the advantages of using ready mixed concrete instead of site mixed concrete?   (6)

UNIT – III

5. (a) Explain:

   (i)   Modulus of elasticity

   (ii) Poisson's ratio

   (iii) Shrinkage.   (6)

   (b) Define creep. Explain the factors affecting creep.   (6)

Or

6. (a) How does permeability affect the durability of concrete?   (6)

   (b) What are the various types of chemical attack encountered by concrete? (6)

[P.T.O]

7. (a) What is meant by curing of concrete? Explain any one method in detail (6)

    (b) Briefly discuss the steam curing at atmospheric pressure. (6)

Or

8. (a) Explain:

    (i) Splitting test

    (ii) Flexure test. (6)

    (b) Write short notes on abrasion of concrete. (6)

UNIT – V

9. (a) Write the basic considerations for concrete mix design. (6)

    (b) What are the factors in the choice of properties of design mix. (6)

Or

10. Design a concrete mix using IS method for the following data.

Characteristic compressive strength = 30 MPa.

Maximum size of coarse aggregate = 20 mm

Specific gravity of coarse aggregate = 2.63

Specific gravity of five aggregate = 2.64

Specific gravity of cement = 3.15

Sand confirming to Zone = II.

Degree of workability = 0.9 CF

Dry rodded density = 1550kg/m³. (12)

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(10 CE 44)

FOUR YEAR B.Tech. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.Tech. FIRST SEMESTER

Branch — EEE, ECE, EICE

Paper — NEURAL NETWORKS AND FUZZY LOGIC

Time : 3 Hours   Max. Marks : 60

Answer ONE question from each Unit.

UNIT – I

1. (a) Explain the terms w.r.t. biological neuron.   (6)

   (i) Dendrite (ii) Soma   (iii) Axon

   (b) Compare biological neural net with artificial neural net.   (6)

Or

2. Write about MC culloch–pilts neuron mode and realize XOR gate with this model.   (8+4=12)

UNIT – II

3. (a) Explain generalized delta learning rule.   (8)

   (b) Discuss energy function used in discrete Hopfield net.   (4)

Or

4. Give the architecture of RBFN. Explain training algorithm for RBFN with fixed centers. (12)

UNIT – III

5. (a) Explain "winner take all learning" rule.   (6)

   (b) Give any two variants of $L \vee Q$.   (6)

Or

6. (a) Explain Max net architecture.   (6)

   (b) Explain Mexican hat architecture.   (6)

UNIT – IV

7. (a) What is a crispset and fuzzy set?   (4)

   (b) Define union and intersection of fuzzy sets.   (4)

   (c) Give any two operations of fuzzy relations. (Other than union and intersection).   (4)

Or

8. Explain any four fuzzy membership functions.   (12)

[P.T.O]

UNIT – V

9. Explain any two defuzzification techniques. (6 × 2=12)

Or

10. Compare defuzzification methods w.r.t. (12)
    (a) Continuity
    (b) Plausibility
    (c) Weight counting.

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FOUR YEAR B.Tech. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.Tech. FIRST SEMESTER

Branch — Mechanical Engineering

WORK STUDY

Time : 3 Hours

Max. Marks : 60

Answer ONE question from each Unit.

UNIT – I

1. Give the concept history of industrial engineering and also give the applications of industrial engineering. (12)

Or

2. (a) What are the various contributions of Taylor in work study? (6)

    (b) Discuss in brief about scientific management. (6)

UNIT – II

3. What is string diagram? Give the construction, advantages and disadvantages of string diagram. (12)

Or

4. (a) What are the steps in drawing a flow diagram? (6)

    (b) Define travel chart. How the travel chart can be constructed. (6)

UNIT – III

5. What are the rules of principles of motion economy for human body, work place layout and material handling? (12)

Or

6. Explain the concept and steps involved in micro motion study. (12)

UNIT – IV

7. How the performance rating can be done? Compare observed and standard ratings. (12)

Or

8. Briefly discuss the time study equipment. (12)

[P.T.O]

UNIT – V

9. What is the concept of job evaluation? Give the objectives, and procedure of job evaluation. (12)

Or

10. Define Ergonomics. What are the objectives and applications of ergonomics? (12)

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FOUR YEAR B.Tech. DEGREE EXAMINATION, DECEMBER 2013

FOUR B.Tech. FIRST SEMESTER

Branch – Computer Science and Engineering

MOBILE COMPUTING

Time : 3 Hours   *Max. Marks : 60*

Answer ONE questions from each Unit.

UNIT – I

1. (a) Explain multiplexing and modulation in wireless transmission.   (6)

    (b) Describe about spread spectrum in wireless transmission.   (6)

Or

2. (a) Describe about idea of motivation for specialized Mac in detail.   (6)

    (b) Explain the radio Interference.   (6)

UNIT – II

3. (a) Differentiate between Tradition TCP and transactional TCP.   (6)

    (b) Explain about fast retransmit and Fast Recovery transmission TCP.   (6)

Or

4. (a) Describe about wireless datagram in detail.   (6)

    (b) Describe in detail about mobile Ip.   (6)

UNIT – III

5. (a) Explain the three tier Architecture of data Hoarding.   (6)

    (b) Explain Cache Invalidation Mechanism.   (6)

Or

6. (a) Explain issues and problems in Mobile Databases.   (6)

    (b) Explain client server communication computing with adaptation.   (6)

UNIT – IV

7. (a) Explain the push based mechanism for Data Delivery.   (6)

    (b) Explain the communication asymmetry.   (6)

Or

[P.T.O]

8. (a) Explain selective tuning technique. (6)

   (b) Explain the synonization types of data. (6)

UNIT – V

9. (a) Explain MANET's and their salient features. (6)

   (b) Explain Dynamic Source Routing. (6)

Or

10. (a) Explain the Architecture of MANET's. (6)

   (b) Explain the different routing protocols for MANET's networks. (6)

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