Code No. 320

FACULTY OF ENGINEERING

B.E. 4/4 (Civil) II – Semester (Main & Backlog) Examination, May / June 2018

Subject: Health Monitoring & Retrofitting of Structures (Elective – II)

Time: 3 Hours **Max.Marks: 75**

Note: Answer all questions from Part – A & any five questions from Part – B.

PART – A (25 Marks)

1. What are the basic components of SHM? (2)
2. Explain the difference between passive SHM and active SHM. (3)
3. Describe the arrangement of capacitive probe for cover concrete. (2)
4. Give detailed classification of NDT procedure. (3)
5. Explain working principle of NDT methods like rebound hammer and UPV (3)
6. What are the applications of Ground Penetrating Radar test? (2)
7. What is the Non-Destructive evaluation of a concrete structure? (2)
8. What are the steps taken for quality control in concrete structure? (2)
9. Explain the difference between 'repair' and 'retrofitting' of concrete structures. (3)
10. Give short note on Jacketing. (3)

PART – B (50 Marks)

11 Explain the SHM, NDE, NDECs' terms and a way for smart materials and structures. (10)

12 Discuss the application of capacitive methods for monitoring the Health of a bridge with external Post-tensioned cables. (10)

13 Describe the principle and application of Half-Cell Electrical Potential Method and its applications. (10)

14 Explain in detail the various possible defects in concrete structures and measurements adopted to detect them. (10)

15 a) What are the direct, indirect & semi-direct methods of UPV testing? (5)
b) How are the results of UPV and rebound hammer tests correlated? (5)

16 Explain the execution of seismic retrofitting strategy, with reference to any one case study. (10)

17 Write short notes:
a) Bio-mimetics and its analog with SHM (3)
b) Infra Red thermograph (4)
c) Shotcrete (3)

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Code No. 533

FACULTY OF ENGINEERING

B.E. 4/4 (Civil) II – Semester (Main & Backlog) Examination, May / June 2018

Subject: Ground Improvement Techniques (Elective – II)

Time: 3 Hours **Max.Marks: 75**

Note: Answer all questions from Part – A & any five questions from Part – B.

PART – A (25 Marks)

1 "Blending of aggregates is a process of mixing chemicals to soil to find the particles". Answer Yes or No and justify your answer. (3)

2 What are the factors influencing the selection of ground improvement techniques? (3)

3 Name the functions served by Bitumen in stabilization. (2)

4 List the admixtures used in clay soil stabilization. (3)

5 What is Dynamic Compaction? (2)

6 Comment on effectiveness of vibration methods in in-situ densification of clay. (2)

7 State the principle on which thermal methods help in in-situ densification of cohesive soils. (2)

8 What does Band Drain mean? (2)

9 The interface friction between the earth and reinforcing material do not influence performance of the reinforced earth. Answer Yes or No and justify. (3)

10 In a non woven geo textile, how the fibres are bonded? (3)

PART – B (50 Marks)

11 a) Explain the necessity of ground improvement at various stages of a civil engineering project with suitable example. (5)

b) Discuss the applications of ground improvement techniques. (5)

12 a) Explain the procedure of grouting adopted in ground improvement. (5)

b) Explain how lime is effective in stabilization of soils and factors affecting it. (5)

13 a) Write detailed note on "blasting technique" in ground improvement including its merits and demerits. (5)

b) Describe vibro-displacement method of ground improvement. (5)

14 a) Explain in detail about the method of pre-loading. How do vertical drains improve the functioning of preloading technique? (5)

b) Discuss in brief about the methods of Dewatering. (5)

...2

15 a) Describe the separation function served by geo-textiles. Justify your answer with suitable field applications. (5)

b) Sketch a typical reinforced earth retaining wall and explain the functions served by each component. (5)

16 a) Write the differences between Suspension and Solution grouts (5)

b) Compare terraprobe with vibro-flotation (5)

17 Write short notes on any two of the following

a) Blending of aggregates (5)

b) Lime piles (5)

c) Tests on geo-textiles (5)

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Code No. 322

FACULTY OF ENGINEERING

B.E. 4/4 (Civil) II – Semester (Main & Backlog) Examination, May / June 2018

Subject: Advanced Environmental Engineering (Elective – Ii)

Time: 3 Hours **Max.Marks: 75**

Note: Answer all questions from Part – A & any five questions from Part – B.

PART – A (25 Marks)

1		Highlight the effects of industrial wastewater effluent on human health.	2
2		State few characteristic of waste generated from dairy industry.	2
3		Give the detailed classification of air pollutants.	2
4		Define the term source correction.	2
5		What are the limitations of an EIA process?	2
6		State the factors on which the reoxygenation depend.	3
7		Draw the flow chart to show the treatment process of pharmaceutical industry.	3
8		What is meant by photochemical smog?	3
9		When do you recommend absorption as a method of control of gaseous contaminants?	3
10		What is the data required for the preparation of EIA report of an industry?	3

PART – B (50 Marks)

11	a)	Derive the equation for mathematical analysis of Oxygen Sag Curve.	6
	b)	Give the classification of industries along with the characteristics of effluent.	4
12	a)	Draw the flow chart to show the manufacturing process of Pharmaceutical Industry.	5
	b)	Discuss the characteristics of wastewater generated from Sugar and Distilleries Industry.	5
13	a)	Explain the significance of wind rose diagrams in air pollution.	4
	b)	Discuss the role of meteorological elements in the dispersion of air pollutants in the atmosphere.	6
14	a)	Explain in detail Wet Scrubbing Methods of control of hazardous emissions.	6
	b)	Discuss about Gaseous sampling and its methods of collections in detail.	4
15	a)	How do you predict and evaluate the impacts of EIA? Explain.	4
	b)	What are the various methods of EIA? Explain any two methods.	6
16	a)	Show the characteristics and treatment process of the effluent from leather industry.	4
	b)	Explain the control of suspended particulate matter by Filtration and Centrifugation.	6
17		Write short notes on the following:	
	a)	Environmental Management Plan	3
	b)	Analysis of air pollutants	3
	c)	Environmental legislation of hazardous wastes.	4

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Code No. 535 / N

FACULTY OF ENGINEERING

B.E. 4/4 (Civil) II – Semester (New) (Main) Examination, May / June 2018

Subject: Advanced Reinforced Concrete Design (Elective – II)

Time: 3 Hours **Max.Marks: 75**

Note: Answer all questions from Part – A and any five questions from Part – B. Use of IS 456 permitted. Assume suitably any missing data.

PART – A (25 Marks)

1. What is a deep beam? Where it is provided? 2
2. What is a substitute frame? Explain its uses. 2
3. Write the IS code provision for the size of following: 2
   i) Column and Middle strip.
   ii) Drop in the slab
4. What is a pile? What are the forces acting on it? 2
5. Under what circumstances a raft foundation is provided? 2
6. In a semicircular beam in plan the maximum values of bending moments and twisting moments occur at an angle of _____ and _____ from left end. 3
7. Explain the procedure of finding the B.M Coefficient in Direct Design method, for an exterior panel of Flat slab whose two adjacent edges are discontinuous. 3
8. Explain the procedure of design of a Hinge in a hinged base portal frame. 3
9. What is pattern loading and how the maximum negative moment at an interior support can be determined using pattern loading? 3
10. Explain the design procedure of pile cap. 3

PART – B (5x10 = 50 Marks)

11 A circular beam of radius 5 m, supported over 5 equally spaced columns is of overall size 230 mm x 450 mm. It subjected to an all inclusive factored load of 40 kN/m. Analyse the beam and design a section of maximum torsion. Use M25 and Fe 500 grade of concrete and steel. The coefficients for support moment, span moment and tensional moment **C1, C2** and **C3** are **0.108, 0.054** and **0.014** respectively.

12. A continuous deep beam spanning over three equal spans of 7 m each has an overall depth of 4 m. The width of beam is 300 mm and width of support is 600 mm. The beam carries an all- inclusive factored load of 150 kN/m over all three spans. Design the beam and sketch the reinforcement details. Use M 20 and Fe 500 grade of concrete and steel.

13. A portal frame fixed at its base is of height 5 m and span 8 m is supporting a 120 mm thick Slab. The live load on the slab is 4 kN/m and the spacing of portal frames is 3 m. analyse the frame and design the beam of the portal frame. Use M 20 and Fe 415 grade of concrete and steel. Assume width of beam and column as same, and depth of beam is twice the depth of column.

...2

14 A Three bay 5 storey frame has spans of beams as 4 m, 5 m and 4 m respectively and height of each storey as 5 m. The size of exterior columns is 230 mm x 400 mm and that of interior columns is 230 mm x 500 mm. The size of all beams is 230 mm x 450 mm overall. The frame is subjected to a dead load of 20 kN/m and live load of 18 kN/m. Design the interior beam for maximum positive moment. Use M 20 and Fe 500 grade of concrete and steel.

15 Using Direct Design Method, design an interior panel of a system of flat slab for the following specifications. Size of panel 5 m x 5 m, Live load of 6 kN/sq m , Floor finish and partition wall load 2 kN/ sq m. Use M 25 and Fe 500 grade of concrete and steel.

16 The foundation for an structure, transmitting a load of 4000 kN is supported over 4 pile arranged in two rows with distance between their centres as 1.25 m. in both direction. Length of each pile is 7 m. Design any one pile using M 20 and Fe 500 grade of concrete and steel.

17. Explain the stepwise procedure of design of Raft foundation.

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Code No. 324

FACULTY OF ENGINEERING

B.E. 4/4 (Civil) II - Semester (Main & Backlog) Examination, May / June 2018

Subject : Advanced Transportation Engineering (Elective – II)

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 What are the changes occurs in soils due to soil stabilization? (2)
2 Explain Fuller's formula. (3)
3 Discuss about the critical combination stress at corner of a rigid pavements. (2)
4 The width of expansion joint gap is 2.5cm in a cc pavement. If the laying temperature is 12^{o}C and the maximum slab temperature is 50^{o}C. Compute the spacing between the expansion joint. Assume coefficient of thermal expansion is $10x10^{-6}$ per ^{o}C. (3)
5 What is the criteria adopted to fulfill the permeability criteria for the selection of filer material? (2)
6 What is the method adopted for the design of rigid overlay over a rigid pavement? (3)
7 Discuss about the influence of width of road on Level of service. (2)
8 Write any one drawback of benefit cost ratio of evaluation of highway project? (3)
9 Explain the concept of Tidal flow. (2)
10 What are the limits prescribed for noise pollution due to vehicles in India? (3)

PART – B (50 Marks)

11 (a) Explain Triangular method of soil stabilization. (5)
(b) Discuss about soil bitumen stabilization. (5)

12 (a) Explain the concept of designing dowel bar system for a rigid pavement. (5)
(b) Explain the method designing flexible pavement using G.I. (5)

13 (a) Explain various approaches adopted in pavement evaluation. (5)
(b) The maximum quantity of water to be discharged by two side drains on a highway section is 1.45 m^3/sec. Design the side drains for the following conditions. Silty loam, maximum velocity of flow = 0.8 m/sec and roughness coefficient=0.03. (5)

14 A single lane road of 60 km long is to be widened to two lanes at a cost of 20 lakhs per km, including all improvements. The cost of operation of vehicles on single is Rs. 1.8 per vehicle km, whereas Rs. 1.2 per vehicle km on improved facility. The average traffic may be assumed as 500 vehicles per day over next 15 years. The interest rate is 9.5% per annum. The cost of maintenance is Rs. 8500 per km on the existing road and Rs. 15000 per km on the improved road. Find out the investment on the improvement is worthwhile. (10)

15 (a) What are the detrimental effects of the traffic on the environment? (5)
(b) What are the advantages and disadvantages of one way traffic system on roads? (5)

16 (a) Discuss about restrictions of turning moments of traffic. (5)
(b) Discuss about various causes of highway accidents. (5)

17 Write short notes on any **three** of the following:
(a) Traffic problems of your city
(b) Chemical stabilization of soils
(c) Prevention of highway accidents
(d) Level of service

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Code No. 331

FACULTY OF ENGINEERING

B.E. 4/4 (EEE) II-Semester (Main & Backlog) Examination, May / June 2018

Subject : Utilization

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	How is resistance heating different from induction and dielectric heating?	3
2	How power is controlled in arc welding?	2
3	Give the application of Float switches.	2
4	What are the basic laws of illumination?	3
5	What is 'Stroboscopic effect' while using gas discharge lamps?	3
6	What are the advantages of dielectric heating?	3
7	What speed – Torque characteristics are desirable for traction motors operating i) suburban service and ii) Mainline service	3
8	What types of motors find application in traction work?	1
9	What is the scope of application of battery drives?	2
10	What is flood lighting?	3

PART – B (50 Marks)

11	a)	Explain the various types of electric arc welding.	5
	b)	Describe the construction and working of an induction furnace.	5
12	a)	What are the advantages of fluorescent lighting over plain mercury discharge lighting?	3
	b)	Explain the action of i) Push buttons ii) Limit switches iii) Float switches iv) Pressure switch v) Transfer switches vi) Plugging switches and vii) Master controllers	7
13	a)	Derive the expression for illumination on the surface i) When it is normal? ii) When it is inclined to axis of a beam of incident light	
	b)	Explain Rousseau's construction for calculating m.s.c.p. of a lamp.	4+6
14	a)	What is specific energy consumption and what are the factors affecting the specific energy consumption?	3
	b)	An electric train has quadrilateral speed-time curve as follows : Uniform acceleration from rest at 2 kmphps for 30 seconds coasting for 50 seconds. Duration of braking for 20 seconds. If the train is moving a uniform up gradient of 10% tractive resistance 40 Newton/tonne, rotational inertia effect 10% of dead weight of train, duration of station stop 15 seconds and overall efficiency of transmission gear and motor as 75%, find the schedule speed and specific energy consumption of run?	7

...2

15 a) Explain the merits and demerits of the induction motor for traction duties. 2

b) Two motors each of 1500V and armature resistance of 0.2 ohm take 500 amperes during starting. If the effective weight of the train is 145 tonne and dead weight of 130 tonne, track resistance of 50.
Newton's/tonne tractive effort per motor 40000 Newtons, speed at the end of starting period 40 kmph. Find a) Duration of starting period b) Speed of the train at transition c) Rheostatic loss 8

16 a) What are the advantages of series parallel control of motor over rheostatic method of starting and speed control? 5

b) Explain the main transition connections from series to parallel operation of traction motors. And compare their relative merits. 5

17 Write short notes on the following :

a) Compare a.c. and d.c. systems of traction 5

b) Advantages and disadvantages of 25kV ac traction systems 5

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Code No. 349

FACULTY OF ENGINEERING

B.E. 4/4 (ECE) II-Semester (Main & Backlog) Examination, May / June 2018

Subject : Design of Fault Tolerant Systems (Elective-II)

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 Derive exponential failure law for constant failure period. 3
2 Classify stuck at fault models. 2
3 Find output Z if line b s-a-0 shown in fig.1 2

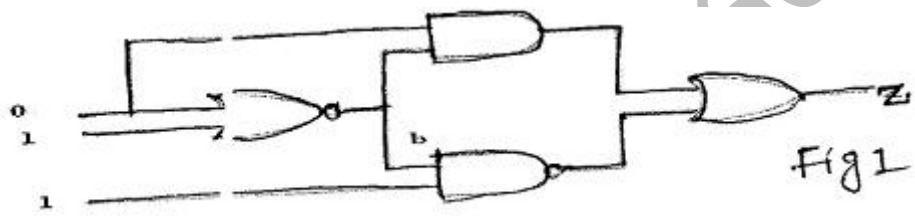


Fig 1

4 Show how transition count changes due to effect of fault in combinational circuits. 3
5 Differentiate between fault prevention and fault tolerance. 2
6 Give a block diagram of dynamic redundancy scheme. 3
7 Discuss the COMTRAC practical fault tolerant system. 3
8 What is fail safe design? 2
9 Explain the terms controllability and observability. 2
10 Discuss how use of control logic enhances controllability. 3

PART – B (50 Marks)

11 a) Derive the relationship between Reliability and MTBF. 4
b) For the given logic network, determine the test sets for s-a-0 and 1 fault at nodes 1, 2 and 3 as shown in fig.2. 6

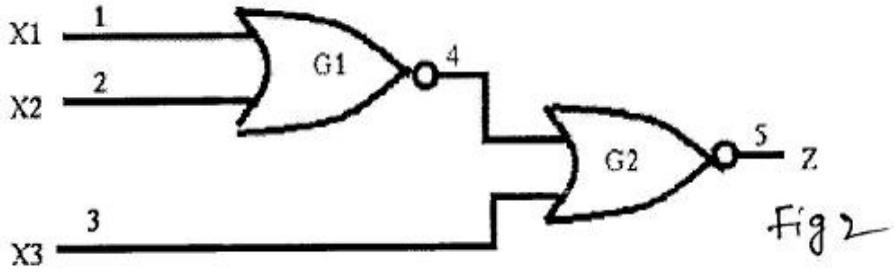


Fig 2

12 a) Explain the detail about hybrid redundancy scheme for obtaining fault tolerance. 5
b) Describe the concept of sift out modular redundancy (SMR). 5

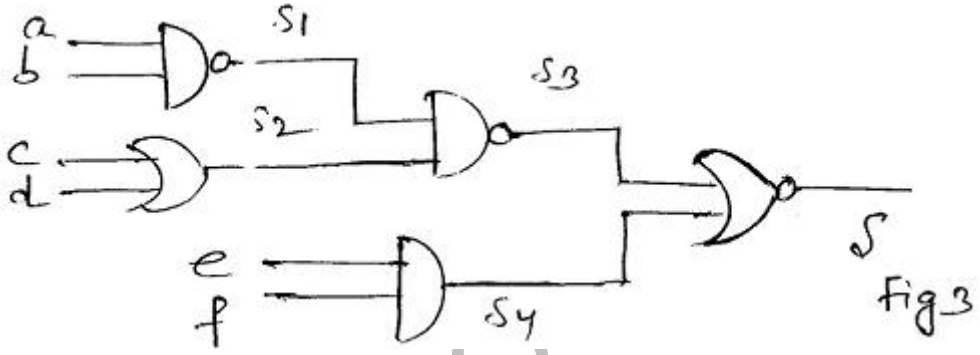
13 Explain in detail the following practical fault tolerant systems 5+5
i) Space shuttle computer system ii) COPRA

...2

14 a) Explain totally self checking checkers using m out of n codes. 5
b) Give an example and explain fail-safe design of sequential circuit using partition theory. 5

15 a) What are three kinds of faults that can occur in PLAs? 3
b) Draw signature analyzer circuit and explain generation signatures using PRBS. 7

16 a) Explain Reed-Muller expansion technique. 6
b) Explain syndrome testable designs and find syndrome value of given figure 3. 4



17 Write short notes on the following : 5+5
a) A scheme for fault tolerant design for VLSI chips
b) Built in self test (BIST) design

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Code No. 350

FACULTY OF ENGINEERING & INFORMATICS

B.E. 4/4 (ECE/CSE/I.T.) II – Semester (Main& Backlog) Examination, May / June 2018

Subject: Entrepreneurship (Elective – II &V)

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	What are the significant aspects of small scale industries?	3
2	Describe sole proprietorship companies.	2
3	List out various favourable conditions for women entrepreneurs in India.	3
4	What are the different sources of ideas?	2
5	Define project formulation.	2
6	Explain about profitability analysis.	3
7	Define the terms critical path and float.	3
8	Define project and mention objectives of project management.	3
9	Describe briefly about change management.	2
10	List out various approaches of time management.	2

PART – B (5x10 = 50 Marks)

11	a)	What are the various opportunities for budding entrepreneurs in Indian Context?	5
	b)	Explain in detail about the areas where linkage is required between small and large scale industries.	5
12	a)	Define an idea and explain the necessity to have new ideas in an entrepreneurial journey.	5
	b)	What are the various desirable qualities required for an entrepreneur?	5
13		Explain in detail about marketing and technical analysis of project formulation.	10
14	a)	Define network diagram and mention various rules to be followed in drawing network diagram.	5
	b)	Explain in detail about the procedure of Project Management.	5
15	a)	Who is a leader? And discuss briefly about various models of leadership.	5
	b)	Explain in detail about Time Management Matrix with examples.	5
16	a)	“Entrepreneurship and innovation goes together” – Explain.	5
	b)	Explain various sources of raising finance in India.	5
17		Write short notes on any three of the following:	10
	a)	Partnership enterprise	
	b)	First generation entrepreneur	
	c)	Choice of technology	
	d)	Personality determinants	

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Code No.351

FACULTY OF ENGINEERING

B.E. 4/4 (ECE) II Sem. (Main & Backlog) Examination, May / June 2018

Subject : Real Time Operating Systems (Elective-II)

Time : 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part-A & any five questions from Part-B.

PART – A (25 Marks)

1. Explain briefly SJF?
2. Explain about demand paging?
3. What is thrashing?
4. What is thread? How is it different from a process?
5. What is a system call? Give any two examples?
6. Write short notes on resource allocation graph?
7. Define job, task?
8. Draw a neat diagram to implement segmentation?
9. Explain deadlock prevention? .
10. Explain Round Robin Scheduling with an example?

PART – B (50 Marks.)

11. Write the characteristics of Real Time systems?

12. Discuss about the following structures of O.S
    (a) Monolithic Structure
    (b) Exo-Kernel structure
    (c) Layered approach of OS

13. Discuss the following disk scheduling strategies with examples
    (i) SSTF (ii) SCAN (iii) C-SCAN (iv) LOOK

14. (a) Describe the differences among short term, medium term and long term scheduling?
    (b) What are the methods for handling deadlocks? Explain Briefly?

15. (a) Explain classical problems of synchronization?
    (b) Explain Banker's algorithm?

16. (a) What is a process? Discuss the concept of process state with the help of a diagram?
    (b) What is a Semaphore? Where is it used?

17. (a) Explain paging with an example?
    (b)Write short note on Virtual memory?

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Code No.353

FACULTY OF ENGINEERING

B.E. 4/4 (ECE) II Semester (Main & Backlog) Examination, May / June 2018

Subject : Wireless Sensor Networks
(Elective-II)

Time : 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part-A & any five questions from Part-B.

PART – A (25 Marks)

1. Briefly explain the evolution of sensor networks.
2. What are the challenges and limitations of WSNs?
3. Differentiate between mobile adhoc and sensor networks.
4. What are programming challenges for sensor network software tools?
5. What are the various applications of wireless sensor networks?
6. Define scalability.
7. What are design protocols for a routing protocol of WSNs?
8. Briefly explain MagnetOS.
9. Define Throughput.
10. Briefly explain CODA protocol for transportation control.

PART – B

11. a) Explain hardware components of a typical sensing node.
    b) Explain smart home environment.

12. a) Explain the idea of information based sensor tasking.
    b) Discuss the range assignment problem in topology control.

13. a) Explain simulator TOSSIM for Tinyos applications.
    b) Explain information driven sensor quering (IDSQ) algorithm.

14. Explain MAC protocols for WSNs.

15. a) Explain how MAC address assignment is done in sensor networks.
    b) Briefly explain the wakeup radio concepts.

16. a) Explain timing - synchronization protocol for sensor networks.
    b) Write about node level simulators in sensor networks.

17. Write Short notes on:
    a) GEAR protocol
    b) Energy consumption of sensor nodes.

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Code No: 354

FACULTY OF ENGINEERING

B.E. IV/IV(ECE) II – Semester (Main & Backlog) Examination,

May / June 2018

Subject: Speech Processing (Elective – II)

Time: 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part A & any five from Part B

PART – A (25Marks)

1. What are speech articulators? 2M
2. Classify Phonemes 3M
3. Explain how short time energy function can be used to classify voiced and unvoiced speech. 3M
4. Explain LBG algorithm 3M
5. What is the use of auto correlation function in speech processing 2M
6. Differentiate parametric and non- parametric coders 3M
7. Why lattice synthesis filter is used in linear predictive synthesis 2M.
8. What are the challenges associated with ASR 3M
9. Define prosody and stress in terms of speech signals 2M
10. What do you mean by co-articulation 2M

PART – B

11. a) Explain in detail, about Source filter model of speech production with a neat Diagram. 10
12. a) Explain in detail the process of End point detection in a given speech signal. 5
    b) Describe briefly about Vector quantization. 5

13. a) With a neat block diagram explain text top speech synthesis. 5
    b) Explain briefly the operation of basic serial format synthesizer. 5

14. a) Explain cepstral vocoder. 5
    b) Explain channel vocoder. 5
15. Explain any one recursive algorithm used in HMM with a suitable example?

16. Explain in detail about cepstral analysis of speech. 10

7. Write short notes on any Two 10
   1. Delta modulation
   2. Pre emphasis
   3. Pitch synchronous analysis.

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CODE NO: 543/N

FACULTY OF ENGINEERING

BE 4/4 (ECE) II-Semester (NEW) (Main) Examination, May / June 2018

Subject: Real Time Operating Systems

(Elective-III)

Time:3 hours **MAX. MARKS:75**

Note: Answer All Questions From Part-A, & Any Five Questions from Part-B

PART - A (25 Marks)

1. What is a multiprogramming? How is it different from time sharing? 2
2. Mention the functions of os? 3
3. Define the following terms
   (a) Deadline (b) Scheduler (c) Hard real time system. 3
4. Discuss the criterion used to evaluate cpu scheduling algorithms? 2
5. Draw the state diagram? 3
6. What is a thread? How is it different from a process? 2
7. Differentiate between General purpose operating system and real time operating system 3
8. Mention advantages of Multiprocessor system over single processor system? 2
9. How is LINUX advantageous over other operating systems 2
10. Explain about IDE tools 3

Part - B (50 Marks)

11. (a) Briefly explain the services of OS 5
    (b) Discuss about Layered approach of OS and Microkernel structure of OS 5

12. Consider the following set of processes with the length of CPU-Burst time given in milli seconds. 10

Process	Burst time	priority
P1	10	3
P2	1	1
P3	2	3
P4	1	4
P5	5	2

The processes are assumed to have arrived in the order P1, P2, P3, P4, P5 all at time 0. Draw four Gantt Charts, illustrating the execution of these processes using FCFS, SJF, and RR scheduling (quantum=1).

13. (a) Briefly explain the about inter process communication 5
    (b) Write about deadlock prevention and avoidance? 5

14. (a) Discuss about file allocation methods using INODE shucture 5

...2

(b) Explain about fork () in detail 5

15. (a) Explain about host / target development and debug setup used in Linux OS? 6
    (b) Mention the types of boot configurations used in Linux? 4

16. (a) Explain about pre emptive and non – preemptive scheduling algorithms 5
    (b) Explain classical problems of synchronization 5

17. (a) Discuss about shell programming 5
    (b) Explain about the evolution of operating system 5

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Code No: 545/N

FACULTY OF ENGINEERING

B.E. IV/IV II – Semester (NEW)(Main) Examination, May / June 2018

Subject: Design of Fault Tolerant Systems (Elective – III)

Time: 3 Hours **Max. Marks: 70**

Note: Answer all questions from Part A & any five questions from Part B

PART – A (25 Marks)

1. Differentiate between failure and faults.
2. Write properties of Boolean differences.
3. List out the advantages of TMR scheme.
4. Differentiate among hot and cold stand by techniques.
5. What is meant by fail-safe operations?
6. Define Time Redundancy, and how it is different from other redundancy techniques.
7. List out the characteristics of self checking checkers.
8. Define the terms “Fail Secure” and “Self Testing”.
9. Write syndrome relations for AND, OR, NAND, NOR and EXOR gates with unshared inputs.
10. List out good candidates for text points and control points.

PART – B (50 Marks)

11. a) Briefly explain Fault detections and text Generation algorithm using Boolean differences.
    b) Derive the overall system reliability (RoV) if the system consists of penciled-to-serial inter connections of sub systems. Derive the required parallel and serial sub-systems reliabilities separately.

12. a) Explain TMR technique in detail and derive an expression for system reliability.
    b) Describe various components of self purging systems.

13. a) Draw the block diagram of FTBBC’s Self checking computer module and explain the operation of basic building in detail.
    b) Explain the operations of SIFT(Software implemented Fault tolerance) and compare its performance with That of FTMP (Fault Tolerant Micro processor).

14. a) Write the procedure for construction of totally self-checking circuits for large number of m-out-f-n codes and explain with a suitable example.
    b) Draw the block diagram of totally self checking checker for low-cost residue codes and explain its operation with a suitable examples.

15. a) Explain in detail the concept of built-in-text.
    b) Explain Reed-Muller expansion technique for the design of Testable combinational logic circuit.

16. a) Explain in detail, Transaction count testing.
    b) Explain the operation of any two practical fault tolerant systems.

17. Write short notes on any Two
    1. Self checking PLA Design
    2. Fail-soft Operation.
    3. Syndrome testing.

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Code No.546/N

FACULTY OF ENGINEERING

B.E. 4/4 (ECE) II Sem. (New) (Mainl) Examination, May / June 2018

Subject : Radar Systems (Elective-III)

Time : 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part-A & any five questions from Part-B.

PART – A (25 Marks)

1. Define maximum unambiguous range. (2)
2. What is Doppler Effect? (2)
3. What is the working principle of Pulse Doppler Radar? (2)
4. What is the difference between continuous tracking and track-while-scan radar? (2)
5. Draw any two acquisition search patterns. (2)
6. Explain about integration improvement factor. (3)
7. What are the Low-Noise Front-Ends used in Radars? (3)
8. Explain delay line cancellers. (3)
9. Explain amplitude comparison monopulse method. (3)
10. What is effective aperture of the antenna? (3)

PART – B (50 Marks)

11. Neatly draw Radar block diagram and explain operation. (10)

12. (a) With neat diagrams explain transmit and receive conditions in balanced duplexer. (6)
    (b) Draw block diagram of FM-CW Radar. (4)

13. (a) Explain range gated doppler filters. (5)
    (b) What are the limitations to MTI Performance? (5)

14. With neat block diagram explain conical scan tracking radar. (10)

15. (a) Explain in detail Cosecant-Squared antenna pattern. (6)
    (b) Explain Aperture Efficiency. (4)

16. (a) Mention any four applications of Radar. (4)
    (b) Write short notes on sequential lobing. (6)

17. Write short notes on
    (a) Minimum detectable signal (3)
    (b) Non-coherent MTI radar (4)
    (c) Effect of surface reflection (3)

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Code No. 547/N

FACULTY OF ENGINEERING

B.E. 4/4 (ECE) II-Semester (NEW)(Main) Examination, May/June 2018

Subject: Mobile & Cellular Communications (Elective-III)

Time: 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part A and any five questions from Part B.

PART-A (25 Marks)

1	List the factors influencing handoffs.	2
2	Draw the block diagram of a cellular system	3
3	Calculate the Brewster angle for awave impinging on ground having a permittivity of4	2
4	Differentiate between indoor and outdoor propagation models	3
5	List special features of CSMA	2
6	Compare TDMA, CDMA and FDMA	3
7	Describe in brief about slotted ALOHA	2
8	List the various GSM Services	3
9	Listout the feature of WLAN	2
10	Write the special features of 4G technology	3

PART-B (50 Marks)

11. a. Explain frequency reuse concept in cellular systems and estimate the co –channel reuse ratio when cluster size is 7. 6
    b. Explain channel assignment strategies. 4

12. a. Assume a receiver is located 10 Km from a 50 W transmitter. The carrier frequency is 900 MHz. Free space propagation is assumed. If Gt = 1 and Gr = 2. Find
    i) The power at the receiver
    ii) The magnitude of the E-field at the receiver antenna.
    iii) The rms voltage applied to the receiver input assuming that the receiver antenna has a purely real impedance of 50Ω and is matched to the receiver 6
    b. Discuss briefly parameters of small scale multipath propagation model. 4

13. Explain various packet radio protocols and reservation protocols in wireless communication 10

14. a. Draw GSM architecture and explain its features 6
    b. Explain digital cellular standard IS-95. 4

15. a. Explain the important features of 2G, 2.5G and 3G and technologies 6
    b. Explain Bluetooth system in detail 4

16. a. Explain interference and system capacity of cellular systems 6
    b. Discuss Okumura propagation model 4

17. Write a short note on any two of the following 10
    a. UMTS (b) SSMA Multiple access technique (c) log-distance path loss model

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Code No. 395

FACULTY OF ENGINEERING

B.E. 4/4 (A.E.) II - Semester (Main & Backlog) Examination, May / June 2018

Subject : Earth Moving Vehicles
(Elective – III)

Time : 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part-A & any five questions from Part-B.

PART – A (25 Marks)

1 List out any four land clearing machine.
2 What are the main differences between scraper and grader?
3 Explain about hydraulic jack.
4 Define slewing.
5 What are the types of Tractors used for off road?
6 Explain final drive.
7 Explain under carriage unit of dozer.
8 What are the actions involved on blade of grader?
9 Define Crowding.
10 What are the advantages of dragline?

PART – B (50 Marks)

11 What are the different activities of the scrape? Discuss in detail.

12 Give brief notes on ditcher.

13 Write short notes on following:
(a) Tractors
(b) Trollies
(c) Trailers

14 Classify cranes and write short notes on each crane with neat sketch.

15 Give detailed notes on land clearing machines neat sketches.

16 Explain with a neat sketch “Shovel’s construction” and of its working principle.

17 Write brief notes on dragline with a neat sketch.

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Code No.399

FACULTY OF ENGINEERING

B.E. 4/4 (CSE) II Sem. (Main & Backlog) Examination, May / June 2018

Subject : Human Computer Interaction (Elective-II)

Time : 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part-A & any five questions from Part-B.

PART – A (25 Marks)

1) What is the advantage of Command Line Interface over Graphical User Interface? (3)
2) Define the Term Usability? (2)
3) Write about 5W+H heuristic? (3)
4) Write short notes on mapping? (2)
5) Define Iterative Interaction Design Process? (3)
6) Explain Mouse Three-State model With diagram? (2)
7) What is WIMP Interface? (2)
8) Write about Novice User? (2)
9) Figure out the Components of Digital Text? (3)
10) Draw the Speech-Related Issues Diagram? (3)

PART-B (50 Marks)

11) a) Explain Execution /Evaluation Action cycle in detail? (6)
b) What is Interaction Framework? (4)

12) a) What is DSDM? Explain in detail? (6)
b) What are the benefits of high level software tools? (4)

13) Explain the Principles of Interaction Design in detail? (10)

14) a) What is GOMS in Interaction Design models? (5)
b) Explain different GOMS models? (5)

15) a) Explain the Human Perceptual System of Speech and Hearing? (6)
b) How Haptic Techniques are used in Interaction Design? (4)

16) Explain in detail about the Technical issues concerning Icons? (10)

17) Describe the following
a) Command Line Interface (3)
b) Interpretation in Discovery (3)
c) Human Visual System. (4)

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Code No. 400

FACULTY OF ENGINEERING

B.E. 4/4 (CSE) II – Semester (Main & Backlog) Examination, May / June 2018

Subject: Software Reuse Techniques (Elective – II)

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	Define behavioural patterns and list them.	3
2	What are the key RSEB (Reuse Driven Software Engineering Business) processes in a running reuse business?	2
3	Write the intent and advantages of Façade pattern.	3
4	Mention various mechanisms which can be used for expressing use case variability.	3
5	What are the participants in bridge patterns?	2
6	Write the liabilities of the blackboard pattern.	2
7	Describe an example of whole-part pattern.	2
8	Discuss the importance of component reuse.	2
9	List the different architectural patterns.	3
10	Write about the motivation of template method pattern.	3

PART – B (5x10 = 50 Marks)

11	a)	Explain about Singleton method pattern with its implementation.	5
	b)	When to use a builder method pattern?	5
12	a)	Why software reuse requires changes in process.	5
	b)	Explain about applications and components sub-systems.	5
13	a)	Describe about two-way adapter in detail.	5
	b)	Explain the intent, structure consequences, and participants of the composite patterns.	5
14		Describe in detail about memento pattern.	10
15		Describe in detail about the chain of responsibility pattern.	10
16		Write the intent, motivation, structure and known uses of the following patterns:	
	a)	State	5
	b)	Visitor	5
17		Write short notes on:	
	a)	Model-viwe-controller	5
	b)	Micro Kernel architecture	5

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CODE NO: 415

FACULTY OF INFORMATICS

B.E 4/4 (I.T) II – Semester (Main & Backlog) Examination, May/June 2018

Subject: Human Computer Interaction (Elective – V)

Time: 3 Hours **Max. Marks: 75**

Note: Answer All Questions From Part – A & Any Five Questions From Part – B.

Part – A (25 Marks)

1. Define interaction space.
2. What is user centered design?
3. What are the two basic interaction styles in web navigation?
4. What are the advantages of interface design standards?
5. What is GOMS?
6. Explain Gestalt Principles of Perception.
7. What is WIMP Interface?
8. Distinguish between Phonogram and Logogram.
9. What are the different techniques of dynamic text presentation?
10. Explain how haptic interfaces are used in Aerospace field.

Part – B (50 Marks)

11. (a) Explain in detail about Metaphors and Zoomable Interfaces.
    (b) What are different interaction paradigms? Describe the characteristics of any two paradigms.

12. Explain in detail about Interaction Design Models and discuss how it is helpful in Interaction Design Process.

13. Explain in detail about Fitt's and its implications in interaction design. Set: II CODE NO: 5389

14. (a) Describe the physical attributes that affect the way we perceive icons.
    (b) What are the factors that affect color perception?

15. Explain about The Human Perceptual System and the Technical Issues Concerning Haptics.

16. (a) List the advantages and disadvantages of menu based interfaces.
    (b) Distinguish between scrolling and paging.

17. Write short notes on the following:
    (a) Three – State Model.
    (b) Nielsen's Heuristics.

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Code No.416

FACULTY OF INFORMATICS

B.E. 4/4 (I.T.) II Sem. (Main & Backlog) Examination, May / June 2018

Subject : Software Project Management (Elective-V)

Time : 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part-A & any five questions from Part-B.

PART – A (25 Marks)

1. What are the five necessary improvements for the betterment of waterfall model? (2)
2. How do we achieve ROI across different domains? (3)
3. Differentiate between a project and programme with respect to software project. (3)
4. List out various management artifacts. (2)
5. Define conventional WBS issues. (3)
6. Write the primary objectives of construction and transition phases. (2)
7. List the various checkpoints of the process. (2)
8. Define stakeholder cohesion or contention. (2)
9. List out the seven top level workflows. (3)
10. Define process automation. What are its advantages in software project? (3)

PART – B (50 Marks)

11. List and explain the ten reasons of why conventional software management does not perform satisfactorily. (10)

12. Describe the primary objectives, essential activities and primary evaluation criteria of elaboration phase. (10)

13. a) How should the evolutionary WBS be structured? (6)
    b) Discuss the iterative process planning. (4)

14. a) What are the four component teams in a default project organization and their responsibilities? (6)
    b) What are the benefits of matching people to roles? (4)

15. Write short notes on the following
    a) Software management best practices. (5)
    b) Next generation cost models. (5)

16. Explain the following
    a) Domain Experience (4)
    ‘ b) Process flexibility or Rigor (3)
    c) Architectural Risk (3)

17. Discuss the next generation software cost models. (10)

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