Code No. 338

FACULTY OF ENGINEERING

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

Subject : Renewable Energy Sources
(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 the need of non-conventional energy sources? 3
2. What do you understood about drag and lift? 2
3. What are the parameters limiting the performance of solar cell? 2
4. What are the advantages and disadvantages of PV system over conventional power system? 3
5. What do you understand by the behavior and structure of wind? 3
6. Explain the following terms: Tip speed ratio and tangential force. 2
7. What are the advantages and disadvantages of geothermal energy over other energy forms? 3
8. What are the main differences between the conventional thermal power plant and geothermal power plant? 2
9. Explain the factors which effects the tidal power. 2
10. What is wave energy? Give typical range of ocean waves. 3

PART – B (50 Marks)

11. Define Renewable energy sources and give advantages and limitations of Renewable energy sources and explain the concept of RES. 10

12. a) With neat schematic diagram describe in detail about stand-alone solar PV system. 5
    b) With neat diagram explain in detail about stirling engine. 5

13. a) What is the condition of maximum output power from a wind turbine? Find its value. 5
    b) What do you understand by torque coefficient? How is it related to power coefficient? 5

14. a) With neat diagram describe the principle of dry steam open system. 5
    b) With neat diagrams brief the details of any two types of chullas. 5

15. a) Discuss in detail about the design aspects of 5 MW OTEC pro commercial plant. 5
    b) Derive the expressions for potential and kinetic energy of wave. 5

16. a) Explain the working principle of any one wave energy conversion machine. 5
    b) Explain in details about induction type generators. 5

17. Write short notes on
    a) Horizontal axis rotors 5
    b) Exhaust types of conventional steam turbines 5

*****

Code No. 346

FACULTY OF ENGINEERING

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

Subject : Process Plant Design and Safety Management
(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 are the steps involved in updating new plants? (3)
2. What are the prerequisites to consistent automation system? (2)
3. Explain about entity concept with an example. (3)
4. Mention different types of purge systems. (2)
5. What are the available process analysis hazards? (2)
6. Mention the HIPPS justification with example. (3)
7. What are digital certificates in network? (2)
8. What is fire-wall problem. Mention briefly? (3)
9. Mention the basic functions of Workstation hosts. (3)
10. What is reliability and scalability? (2)

PART –B (5 X 10=50 Marks)

11. Explain in detail I & C documentation with examples and also draw a document dependency map of instrumentation and control system design project. (10)

12. Explain in detail with suitable example the intrinsic safety rules for bus installations. (10)

13. Explain in detail Hazardous area classification. What are key factors contributing the classification of hazardous system? (10)

14. (a) What is public key encryption system. Give them in detail. (5)
    (b) What is the concept operating system security? (5)

15. (a) Explain briefly with neat diagram the manufacturing platform hierarchy. (5)
    (b) Explain with neat diagram general steps to design new control room. (5)

16. (a) Write short notes on Independent HMIs interfacing to proprietary controls. (5)
    (b) How the flow diagram and functional diagramming for loops are useful for Industries? (5)

17. Write short notes on the following: (10)
    (a) Work Stations
    (b) Purging System
    (c) Historical data Storage

*****

Code No: 379

FACULTY OF ENGINEERING

B.E. IV/IV(M/P) II – Semester (Main & Backlog) Examination, May/June 2018

Subject: Product Design and process Planning (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. Briefly explain product design function.
2. Define project
3. Explain how curiosity and imagination are related
4. List few steps in the interaction between the design and testing.
5. Comment on Brain storming.
6. Enlist the role of factors in selection of right product.
7. Define trade mark.
8. Explain the significance of process sheets.
9. Comment on Human Machine Interaction.
10. Define innovation

PART – B(50 Marks)

11. Define ergonomics and enlist the principles of ergonomics.
12. Explain the detail the factors contributing to successful technological innovation.
13. Explain in detail about various manufacturing processes
14. Explain in detail the steps involved in processes development process design.
15. Explain in detail design for manufacturing.
16. Explain the interaction between the functions of testing and marketing.
17. Write short notes on:
    1. Innovation funnel
    2. Reliability function

****

Code No. 380

FACULTY OF ENGINEERING

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

Subject : Modern Machining and Forming Methods (Elective-III)

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 State the classification of nontraditional machining processes on the basis of energy domain.
2 What are the advantages of water jet machining over abrasive jet machining?
3 What are the functions of dielectric used on Electro discharge machining process?
4 What is the principle electro-chemical machining?
5 State the advantages of electron beam machining process.
6 Why is the energy density of plasma more than electric arc?
7 What are various explosives used in explosive forming process?
8 What are the advantages of rubber pad forming over conventional forming?
9 What are differences between cone spinning and tube spinning?
10 What is hydro static forming process?

PART – B (50 Marks)

11 a) State the parameters effecting MRR and surface finish in ultrasonic machining process. Plot their variation and explain the probable causes of the variations.
b) What are various types of transducers used in ultrasonic machining process? Explain about their principles of working? What are various abrasives used?

12 a) Explain the electrochemical grinding process with a neat sketch and state its advantages over conventional grinding.
b) Derive the expression for MRR in case of pure metal in ECM process.

13 a) Explain the working of electron beam welding equipment with a neat sketch.
b) What is LASER? Explain the principle of production of laser.

14 a) Explain the Guerin process with a neat sketch.
b) Explain the principles of explosive forming process? Describe briefly confined and unconfined processes with a neat sketch

15 a) Describe the rotary stretch forming with a neat sketch.
b) What is the principle of water hammer forming? Explain the process with its applications.

..2

16 a) Derive the expression for metal removal rate in abrasive jet machining of brittle materials.

b) What are the gases used to generate plasma? Compare them. “Oxygen in downstream increases the cutting speed in steels”? Why?

17 a) What are the metallurgical changes and the changes in mechanical properties observed in the metallurgical changes and changes in mechanical properties observed in the material adjacent to the drilled hole by EDM?

b) Explain Electro-hydraulic forming with a neat sketch.

******

Code No: 407

FACULTY OF ENGINEERING

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

Subject: Cloud Computing (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.	Differentiate between Web Services and SOA	3M
2.	Elaborate the relation between SLA and Vendor Lock-in?	2M
3.	Compare the merits and demerits of virtualization at various levels	3M
4.	The traditional x86 processor offers four instruction execution rings: Ring 0,1,2, and 3 specify their role	2M
5.	Illustrate the need for an PaaS model. Mention few PaaS service providers	3M
6.	List out the various enabling technologies for Cloud?	2M
7.	What are the security and trust barriers in cloud computing?	3M
8.	What are the 4 security improvements suggested for CryptDB	2M
9.	Specify the various service offerings given by Microsoft in PaaS, SaaS.	2M
10.	List out few standards for Application Development on Cloud?	3M

PART – B(50 Marks)

11.	a) List and explain the desired features of a cloud?	5
	b) Demonstrate the role of hardware Virtualization in Cloud computing models?	5
12.	a) Explain the role of hardware support for virtualization in intel x86 processor?	5
	b) Differentiate between physical and Virtual Clusters?	5
13.	a) Give the architecture of Google File System employed for performing Map Reduce?	5
	b) With a neat diagram, explain the architecture design of a compute cloud?	5
14.	a) List and explain the security and Trust Crisis in Cloud Computing	5
	b) What are the challenges addressed by CryptDB, Specify the key ideas which addresses them	5
15.	Explain the features of Amazon AWS and Microsoft Azure	10M
16.	a) Draw the layered organization of Cloud Stack from physical infra to applications	5M
	b) List the various techniques for establishing trusted zones for virtual cluster insulation	5M
17.	Write short notes on:	
	1. Data center Management Issues	3M
	2. Format Preserving Encryption	3M
	3. Contributions of Distributed Management Task force	4M

****

Code No. 418

FACULTY OF INFORMATICS

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

May / June 2018

Subject: Cloud Computing (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	Explain the Safe Harbor Principles for privacy issues in cloud model.	(3)
2	List the features of Google App Engine Environment.	(2)
3	What are the layered components required in implementation of IaaS?	(2)
4	What are the advantages Amazon's Elastic Cloud?	(3)
5	List the benefits of Virtualized Technology	(3)
6	What is virtualization software?	(2)
7	List the basics for protecting data privacy.	(2)
8	What are the key components of data center physical security?	(3)
9	Explain Internet Messaging Access Protocol.	(2)
10	Write about the set of services and systems underlying all applications in Android?	(3)

PART – B (5x10 = 50 Marks)

11	a) Explain the Parallel Processing.	(5)
	b) Explain the evolution of IPV6.	(5)
12	Explain protection against Internal and External Threats in MaaS.	(10)
13	a) Explain SOA as a step towards Cloud Computing	(5)
	b) Explain the new clod model of PaaS.	(5)
14	a) Illustrate the Architecture of Microsoft Virtual Server.	(5)
	b) things to do before and after migration in virtualization.	(5)
15	a) Explain the four levels of Federation.	(5)
	b) What are seven security issues listed by Gartner.	(5)
16	a) Explain Security Assertion Markup Language.	(5)
	b) Describe VMware Mobile Virtualization Platform.	(5)
17	Write short notes on :	
	a) Kernel-based Virtual Machine	(5)
	b) Storage Virtualization	(5)

*****

Code No: 550 / N

FACULTY OF ENGINEERING

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

Subject: Fuzzy Logic Applications (Elective – IV)

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 Fuzzy sets. Give an example 3M
2. Write the DcMorgan's laws and Excluded middle laws for Fuzzy sets. 2M
3. Define Fuzzy relation with an example 3M
4. What are the characteristic properties of binary Fuzzy relations? 3M
5. What is the extension principle for Fuzzy sets? 2M
6. What are the features of membership function? 3M
7. Define Fuzzification. Name different Fuzzification methods. 2M
8. What is Defuzzification? State different Defuzzification methods. 2M
9. What is an adaptive FAM? 2M
10. What are FAMs as mapping with example? 3M

PART – B (50 Marks)

11. a) write all the properties of Fuzzy sets. 4M

    b) Consider, A = $\left\{\frac{0.2}{1}+\frac{0.4}{2}+\frac{0.6}{3}+\frac{0.8}{4}+\frac{1}{5}\right\}$

    $B=\left\{\frac{0.1}{1}+\frac{0.3}{2}+\frac{0.5}{3}+\frac{0.7}{4}+\frac{0.9}{5}\right\}$ *and* $C=\left\{\frac{0.3}{1}+\frac{0.4}{2}+\frac{0.5}{3}+\frac{0.6}{4}+\frac{0.7}{5}\right\}$ prove all the properties of Fuzzy sets. 6M

12. Explain in detail operations on Fuzzy sets with non-parametric and parametric functions for Fuzzy complement. 10M

13. What are similarity relations? Consider the similarity relation,

R(x,x) =

	x_1	x_2	x_3	x_4	x_5
x_1	1	0.7	0.3	0.6	0.7
x_2	0.7	1	0.3	0.6	0.9
x_3	0.3	0.3	1	0.3	0.3
x_4	0.6	0.6	0.3	1	0.6
x_5	0.7	0.9	0.3	0.6	1

Draw the partition tree for the above similarity relation 10M

Contd..2..

14. What is Fuzzification? Explain in detail any four Fuzzification methods. 10 M

15. What is Defuzzification? Explain in detail any four Defuzzification methods. 10 M

16. Explain in detail Bi-directional FAM theorem for:

. a) Correlation – Minimum encoding 5M

b) Correlation – Product encoding 5M

17. Explain in detail FAM system architecture with an example. 10M

****

Code No: 551 / N

FACULTY OF ENGINEERING

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

Subject: Wireless Networks (Elective – IV)

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

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

PART – A (25Marks)

1. Bring out the differences between adhoc networks and wireless sensor networks. 2M
2. Discuss the characteristic requirements of Sensor Networks. 3M
3. What is Single Hop and Multiple Hop in Sensor Networks? 2M
4. What are the various transceiver tasks in sensor node architecture? 2M
5. Differentiate between contention based protocols and schedule based protocols. 2M
6. What are the performance requirements of MAC protocols for Sensor Networks 3M
7. What are the various time synchronization algorithms? 3M
8. Write a note on clustering of a Sensor Network. 3M
9. Requirement of simulation of a Sensor Network. 2M
10. Brief on Berkeley note and specifications. 3M

PART – B (50 Marks)

11. a) Draw the block diagram of the subsystems of a sensor node. 4M
    b) List the enabling technologies used in development of WSN. 6M
12. a) What is gateway concept and discuss methods for interfacing of WSN to outside world. 5M
    b) Bring out the Optimization goals and figure of merit of WSN 5M
13. a) What are the factors in the choice of physical layer in wireless sensor networks. 4M
    b) Explain Sparse topology and energy management protocol. 6M
14. a) Discuss on energy problems in MAC layer in sensor networks 5M
    b) Explain the importance of Localization and positioning procedures in WSNs. 5M
15. Bring out the security requirements in WSN to protect information and resources. 10 M
16. a) Write notes on Tiny OS. 4M
    b) How multi target tracking problem is solved by static centric programming. 6M
17. Write short notes on any two of the following:
    1. Specifications of a mote and their relevance in WSN 5M
    2. Operating system and environment 5M
    3. Two applications of sensor networks. 5 M

****

Code No: 549/N

FACULTY OF ENGINEERING

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

Subject: Global Navigational Satellite Systems(Elective – IV)

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

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

PART – A (25Marks)

1. Explain the concept of Trilateration 2M
2. Write short notes on Keplarian elements. 3M
3. What is anti-spoofing? 2M
4. What is UERE? 3M
5. Classify GPS augmentation systems. 2M
6. Write briefly on DGPS errors 3M
7. Write on the consettlation of GLONASS 2M
8. What are the services Galileo signals provides 3M
9. Write Briefly on GPS- Pseudolite integration 2M
10. Explain briefly the satellite – orbit(s) of QZSS 3M

PART – B (50 Marks)

11. a) Draw and Explain GPS architecture in detail 8M
    b) Explain about GPS time 2M
12. a) Draw and explain the block diagram for generation of C/A codes for GPS 4M
    b) Explain satellite ephemeris and clock errors. 6M
13. a) Write the comparison of SBAS and GBAS 5M
    b) Draw and explain the architecture of EGNOS 5M
14. a)Draw and explain the architecture of BieDou-2/COMPASS 5M
    b) Write terrestrial applications of GNSS 5M
15. a) Draw and explain the architecture of IRNSS. 6M
    b) Draw and explain the block diagram of GPS integration with INS. What are the merits and demerits. 4M
16. a) Write various applications of GPS 6M
    b) Explain the relationship between UERE and DOP 4M
17. Answer the following:
    (b) Explain briefly about GDOP, VDOP and PDOP 5M
    (c) GPS signal structure. 5M

****

Code No: 553/N

FACULTY OF ENGINEERING

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

Subject: Speech Signal Processing (Elective – IV)

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 vector quantization and what are its advantages? 3M
2. Define average magnitude difference function. 2M
3. Why female speakers have higher pitch than male speakers? Give the nearer pitch frequency ranges for men, women and children. 3M
4. What are the requirements of a speech synthesis-by-rule system? 3M
5. What are formants? 2M
6. What is morph dictionary? 2M
7. What are LAR's? 2M
8. Draw the block diagram of a parallel formant synthesizer 3M
9. What are allophones? 2M
10. What is difference between speaker identification and speaker verification? 3M

PART – B (50 Marks)

11. a) What is a phoneme? Explain in detail, the Vowels, Dipthongs and Nasals. 5M
    b) With a schematic, describe the speech production mechanism 5M
12. a) Explain Simplified Inverse Filter tracking method for pitch extraction. 5M
    b) Give the algorithm for end point detection of speech. 5M
13. a) Describe in detail the technique of linear predictive analysis by autocorrelation Method. 6M
    b) Explain how homomorphic filtering of speech could separate out the excitation and impulse response of speech production system. 4M
14. a) Explain transform coding in detail. 5M
    b) Draw the block diagram of a channel vocoder (analyzer/synthesizer) and explain. 5M
15. a) Describe in detail the Mermelsteins Articulatory model 5M
    b) Give the LPC 10 algorithm. 5M
16. a) Write the DTW algorithm and use it to compute the difference between the one dimensional patterns $P_1(n) = (5,2,2,6,3,5)$ and $P_2(m) = (4,3,3,2,8,5)$ determine also the time alignment path. 7M
    b) Give the parameters on which the HMM is dependent on. 3M
17. Write short notes on:
    1. Phoneme synthesis 5M
    2. Differential pulse code modulation 5M

****