FACULTY OF ENGINEERING

B.E. 4/4 (CSE) II – Semester (Backlog Examination, December 2020

Subject: information retrieval systems (Elective-III)

Time: 2 Hours   **Max.Marks: 75**

Note: (Missing data if, any can be assumed suitable)

PART – A

Answer any seven questions.   **(7 X 3 = 21 Marks)**

1   Distinguish information retrieval Vs. Data retrieval?
2   Define fuzzy set model. What are the operations defined on fuzzy sets?
3   What is flat browsing and structure guided browsing?
4   Define IR model?
5   What are the three major parts of the TREC conference?
6   Define query expansion?
7   What are Boolean Queries? Give an example?
8   What are the steps of searching algorithm on an inverted Index?
9   Explain query processing in distributed information retrieval?
10 What is pattern matching?

PART – B

Answer any three questions.   **(3 x 18 = 54 Marks)**

11 a) Give the functional overview of a typical IRS?
   b) Explain about any one classical IR model?

12 a) Explain in detail determination of S and T for confined aquifer using cooper-Jacob method?
   b) What is stemming? Discuss porter stemming algorithm?

13 a) Explain about the key-word based querying?
   b) What is user relevance feedback? Explain in detail with example?

14   Example in detail the steps of document preprocessing?

15 a) Explain about probability ranking principle?
   b) Explain about parallel information retrieval

16)a) Define fuzzy set theory. How it is used in fuzzy information retrieval?
   b) Compare and contract digital libraries and information retrieval system

17 Write short notes

   a) Text normalization process

   b) Bayesian model in statistical indexing

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FACULTY OF ENGINEERING
BE 4/4 (Mech./Prod.) II-Semester (Backlog) Examination, December 2020

Subject: Power Plant Engineering (Elective – II)

Time : 2 Hours   Max. Marks: 75

Note: (Missing data if, any can be assumed suitable)

PART – A

Answer any seven questions.   **(7 X 3 = 21 Marks)**

1 Enumerate the sources of energy.
2 Explain why coal storage is given importance.
3 Write merits and demerits of pulverized coal.
4 Mention any 3 auxiliaries of Gas turbines.
5 Draw and explain the hydrologic cycle.
6 What is a spillway? Why are spillways required?
7 List the functions of control rods in a reactor.
8 How do you cater for safety of nuclear power plants?
9 What is the significance of load curves?
10 What is meant by depreciation of a power station?

PART – B

Answer any three questions.   **(3 x 18 = 54 Marks)**

11 Draw a general layout of steam power plant with neat diagram and explain the working of different circuits.

12 (a) Explain the working principle of open cycle and closed cycle of gas turbines with neat sketch?
   (b) Briefly explain Sodium zeolite process for feed water treatment.

13 (a) Hydro projects are developed for what purpose. List the advantages and disadvantages of hydroelectric power plants.
   (b) What is a dam? Explain in brief any two types of dams.

14 (a) Describe with a neat sketch the working of Boiling Water Reactor (B.W.R). Discuss the advantages and disadvantages of it?
   (b) What are the principal parts of a nuclear reactor? Explain each part in brief.

15 (a) Discuss on pollution control and waste disposal of coal and nuclear power stations.
   (b) The annual peak load on a 30 MW power station is 25 MW. The power station supplies load having maximum demands of 10 MW,8.5 MW,5 MW and 4.5 MW. The annual load factor is 0.45. Determine: (a) Average load on power station (b) Energy generated per year (c) Demand factor (d) Diversity factor.

16 What is a cooling tower? How are cooling towers classified? Explain any one of them with a neat sketch?

17 Write short notes on:
   (a) Pressurized water reactor
   (b) Pollution from nuclear power plants

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FACULTY OF ENGINEERING

B. E. 4/4 (ECE) II – Semester (Old) Examination, December 2020

Subject: Global Positioning System (Elective – III)

Time: 2 hours   **Max. Marks: 75**

Note: (Missing data if, any can be assumed suitable)

PART – A

Answer any seven questions.   **(7 X 3 = 21 Marks)**

1. Differentiate between VDOP and PDOP.
2. The value of GDOP at location a' is 2, and the value of GDOP at location 'B' is 20. Comment on this statement.
3. What is the need of coordinate system for GPS.
4. Explain briefly about 'Troposphericerror.
5. What do you understand by the term 'Antispoofing'.
6. List out the salient features of 'C/A' and 'P' – code.
7. Compare 'WAAS' and 'GAGAN'.
8. What are advantages of SBAS over GPS.
9. Explain briefly the application of GPS in surveying.
10. Give the signal structure of GLONASS.

PART – B

Answer any three questions.   **(3 x 18 = 54 Marks)**

11.   (a) Discuss about the GPS space and user segments.
      (b) Explain about the various Keplerian elements.

12.   Explain in detail about satellite and Receiver clock errors, ephemeris error and receiver measurement noise.

13.   Discuss in detail about the RINEX observation data format and give its uses.

14.   Draw the architectural diagram of LAAS and explain in detail about its operation, advantages and disadvantages.

15.   Discuss in detail the application of GPS Integration with
      (a) GIS
      (b) INS

16.   Draw the architectural diagram of Galileo and explain its operation.

17.   Write short notes on
      (a) WAAS
      (b) WGS-84

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FACULTY OF ENGINEERING

B.E. (Civil) VIII-Semester (CBCS) (Make-up) Examination, December 2020

Subject : Principles of Green Building Practice (E-V)

Time: 2 Hours   **Max Marks: 70**

PART-A

Note: Answer any Five Questions.   **(5 x 2 = 10 Marks)**

1 Define green building

2 Discuss briefly on IGBC

3 What is rainwater harvesting system

4 List out the ventilation systems adopted in green buildings

5 What are the different water efficient plumbing systems

6 Compare on life cycle energy and operational energy

7 State how efficient lightening technologies help in reducing operational energy in green buildings.

8 What are zero ozone depleting potential materials.

9 How reuse of waste and salved materials are carried out?

10 List out the exhaust systems in green buildings?

PART-B

Note: Answer any Four Questions.   **(4x15 = 60 Marks)**

11 a) What are typical features of green building towards sustainable development
   b) Explain in detail about different criteria set for rating systems

12 a) How orientation of building facades are carried out in order to maximize comfort in green buildings
   b) Which irrigation systems are required to be adopted to reduce the water demand for landscape? Explain briefly.

13 a) How operational energy demand can be reduced in green buildings
   b) What are the energy efficient and BEE rated appliances for heating and air conditioning systems in buildings.

14 Which type of wind turbine and solar energy harvesting devices help in attaining the concept of net zero building and How?

15 a) How embodied energy can be reduced in building materials with the use of agro and industrial waste.
   b) Explain separation of household waste is carried out in green buildings.

16 a) What are the criteria laid down for handling of all types of waste generation in green buildings
   b) Explain in detail about the importance of day lighting and air ventilation systems in maintaining indoor air quality in green buildings.

17 Write a short on
   a) Use of materials & adhesives for maintaining air indoor quality in green buildings
   b) Use of rammed earth, stabilized mud blocks for reducing the embodied energy

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FACULTY OF ENGINEERING

B.E. (CBCS) (EEE) VIII - Semester (Make-up) Examination, December 2020

Subject : Special Electrical Machines (E-V)

Time: 2 Hours   **Max Marks: 70**

PART-A

Note: Answer any Five Questions.   **(5 x 2 = 10 Marks)**

1. Compare synchronous reluctance motor and induction motor

2. Classify the different types of synchronous reluctance motor

3. Name the various modes of excitation in stepper motor

4. Distinquistion the half step and full step operation of a stepper motor

5. Illustrate the different types of operation of switched reluctance motor

6. Give the advantages of sensorless operation of switched reluctances motor

7. What is principle of operation of PMBLDC motor

8. Write down the torque equation of PMBLDC motor

9. Write the principle of linear synchronous motor

10. Construction detail of Linear Induction Motor.

PART-B

Note: Answer any Four Questions.   **(4x15 = 60 Marks)**

11. Explain the operating principles, construction features
    a) Permanent Magnet stepper motor
    b) Hybrid Stepper motor

12. a) Draw and explain power converter for Switched reluctance motor and explain merits and Demerits
    b) Draw torque speed characteristic of switched reluctance motor.

13. a) Describe the Permanent magnetic synchronous motor with their characteristic
    b) Explain what is sensorless control of PMSM

14. a) Explain torque speed characteristics of Brushless DC Motor
    b) Write about application of Brushless DC Motor

15. a) Write about principle and types of LSM
    b) Write about construction detail of linear induction motor

16. a) Explain open loop and close loop of stepper motor.
    b) Explain about DC split converter

17. a) Explain about the Rotor position sensor of SRM
    b) Construction of Brushless DC Motor

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FACULTY OF ENGINEERING

B.E. VIII - Semester (EEE) (CBCS) (Make-up) Examination, December 2020

Subject: Power Electronics Applications to Renewable Energy (E-V)

Time: 2 Hours   **Max Marks: 70**

PART-A

Note: Answer any Five Questions.   **(5 x 2 = 10 Marks)**

1) Draw Simplified equivalent circuit for a solar cell?

2) Write short notes on solar power extraction?

3) List different DC-DC converters for solar PV energy

4) What is the basic difference between Flyback and CUK Converter?

5) What are the different types of Bi-Directional Converters?

6) Write short notes on grid connected inverter

7) What is power balancing in Grid Connected Inverters?

8) List out different charging and discharging methods for battery.

9) List out different control schemes of microgrids

10) Draw Block diagram of a typical MPPT system

PART-B

Note: Answer any Four Questions.   **(4x15 = 60 Marks)**

11) a) Discuss the current world energy requirement and availability? What steps should be taken to extract more energy from renewables in the future?
    b) Discuss in detail effective storage of solar power.

12) Discuss Rooftop application of grid-connected PV system with schematic diagram.

13) Draw the schematic diagram of Interleaved converter and explain the operation in detail.

14) Explain 3phase grid connected inverter with transformers with neat schematics.

15) a) Explain the principle of operation of doubly fed induction generator for wind power generation with near schematics.
    b) Introduction generator with W/O converter.

16) Explain about HERIC transformer-less grid connected inverter topology and how the leakage current is minimized in this topology?

17) Write a short note on (i) Grid integrated PMSG (ii) SCIG based WECS

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FACULTY OF ENGINEERING

B.E. VIII-Semester (ECE) (CBCS) (Make-up) Examination, December 2020

Subject : Fuzzy Logic & Application (E-V)

Time: 2 Hours **Max Marks: 70**

PART-A

Note: Answer any Five Questions. **(5 x 2 = 10 Marks)**

1. Compare Crisp sets & Fuzzy sets with examples.

2. Differentiate type-1 & type-2 Fuzzy sets.

3. What is a Fuzzy relation? Give an example.

4. Define Fuzzy Composition?

5. Write the features of membership function.

6. Define Fuzzification. List the different Fuzzification methods.

7. Define DeFuzzification. List the different DeFuzzification methods.

8. Discuss any one DeFuzzification method.

9. What is an Adaptive FAM system.

10. Write a short note on Fuzzy Hebb FAMs.

PART-B

Note: Answer any Four Questions. **(4x15 = 60 Marks)**

11. Explain in detail Non-parametric & parametric functions for:
    a) Fuzzy Compliment
    b) Fuzzy Union

12. What are Resemblance relations? Consider the Resemblance relation
    Draw the complete α-cover tree for the above Resemblance relation.

R (X,X)=	1	0.6	0.3	0.3	0.7
	0.6	1	0.3	0.3	0.9
	0.3	0.3	1	0.3	0.3
	0.3	0.3	0.3	1	0.7
	0.7	0.9	0.3	0.7	1

13. What is Fuzzification? Explain in detail any fourFuzzification methods.

14. What is DeFuzzification? Explain in detail any four DeFuzzification methods.

15. Explain in detail FAM system architecture with an example.

16. a) State the operations &properties of Fuzzy sets.
    b) Given A={0.2/1+0.4/2+0.6/4+0.8/5}, B={0.1/1+0.3/2+0.5/3+0.7/4} &
       C={0.3/1+0.4/3+0.5/4+0.6/5}. Prove the operations properties of Fuzzy sets.

17. Explain in detail Bidirectional FAM theorem for
    a) Correlation-Minimum Encoding
    b) Correlation-Product Encoding

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FACULTY OF ENGINEERING

B.E (CBCS) (ECE) VIII-Semester (Make-up) Examination, December 2020

Subject : Radar Systems   (Elective – V)

Time: 2 Hours　　　　　　　　　　　　　　　　　　　　　　**Max Marks: 70**

PART-A

Note: Answer any Five Questions.　　　　　　　　　　　　**(5 x 2 = 10 Marks)**

1. Discuss frequencies used in RADAR Systems

2. State any 2 applications of RADAR Systems.

3. Explain PPI display in RADAR systems

4. Solve for Doppler shift of the target of a target closing on a radial of a radar site with a relative velocity of 200 knots and at a wavelength of 5 cm.

5. Describe "Butterfly Effect" in Radars

6. Sketch two pulse canceller with a diagram

7. Sketch any 2 acquisition patterns

8. Explain split range gate tracking

9. Define effective aperture of the antenna

10. Explain about directivity in antenna

PART-B

**Note: Answer any Four Questions.**　　　　　　　　　　　　**(4x15 = 60 Marks)**

11 (a) Explain operation of radar with neat block diagram.
   (b) Discuss "probability of false alarm".

12.(a) Discuss Multiple frequency CW radar.
   (b) Explain Low Noise Front Ends used in RADAR Systems.

13 (a) Explain MTI radar with power oscillator transmitter with neat block diagram.
   (b) Explain Non- coherent MTI radar with block diagram.

14.(a) Explain sequential lobbing with neat diagram.
   (b) Describe Amplitude Comparison Monopulse tracking radar.

15.(a) Sketch Cassegrain antenna and explain it's working.
   (b) Compare Cosecant squared antenna pattern with Cassegrain antenna

16.(a) Explain any four system losses in radars
   (b) Discuss Isolation between transmitter and receiver in CW radar.

17.(a) Identify the reasons for Blind speeds RADAR Systems.
   (b)Discuss Line of Sigth in RADAR Systems.

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FACULTY OF ENGINEERING

B.E (CBCS) (ECE) VIII-Semester (Make-up) Examination, December 2020

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

Time: 2 Hours   **Max Marks: 70**

PART-A

Note: Answer any Five Questions.   **(5 x 2 = 10 Marks)**

1. Define maintainability and repair rate.

2. Graphically show the relation between reliability and time incorporating MTBF

3. Give the reliability of   i) Hybrid   ii) Triplicated TMR redundancy schemes

4. Explain the bath-tub curve

5. Give the requirements for fail – soft operation

6. Explain N-Version programming

7. Define the properties of a self-checking circuits

8. Illustrate How controllability can be improved in digital circuits

9. Give the syndrome of 2-Input OR and NOR gate

10. Give the block diagram of self – checking berger codes

PART-B

Note: Answer any Four Questions.   **(4x15 = 60 Marks)**

11. (a) Give the properties of Boolean difference for product and sum of two functions
    (b) For the given series to a parallel and parallel to series connections find reliability
        if the reliability of individual blocks is i) 0.7   ii) 0.8   iii) 0.95. What are the
        conclusions?
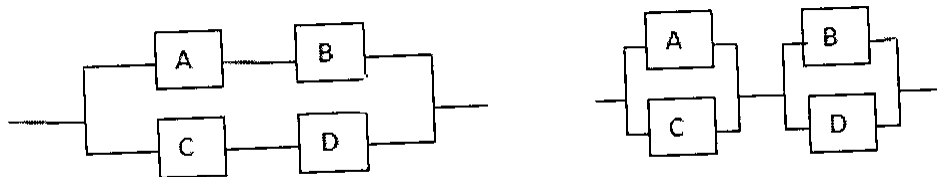
12. (a) Explain in detail the self – purging scheme for fault tolerance
    (b) Give the block diagram of hybrid redundancy system to obtain fault tolerance

13. Explain the following practical fault tolerant system i) FTMP ii) COMTRAC

14. What is a Fail – Safe system? Design a complete fail – safe machine for the given
    sequential circuit using the method proposed by chuang and das.

Present State	Input	
	X=0	X=1
A	E,0	B,0
B	C,0	D,0
C	A,0	D,0
D	E,0	D,1
E	A,0	D,1

15. Explain the reed – muller expansion technique. For the given function design a testable circuit using the reed-Muller expansion technique
    $F(W,X,Y) = WX + W'Y+X'Y'$.

16. (a) Explain in detail the various redundancies employed to achieve fault tolerance.
    (b) Give the model of a totally self – checking checker and explain how it indicates error.

17. Write short notes on
    (a) Path sensitisation

    (b) BIST

    (c) Berger codes

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FACULTY OF ENGINEERING

B.E. (M/P/AE) VIII-Semester (CBCS)(Make-up) Examination, December 2020

Subject: Energy Conservation and Management (E-V)

Time: 2 Hours   **Max Marks: 70**

PART-A

Note: Answer any Five Questions.   **(5 x 2 = 10 Marks)**

1. What are the various forms of energies in ECM?

2. What is the importance and role of energy management?

3. What is the medium source for transport of heat energy?

4. What are the modes of mechanical source of energy transport?

5. How do you measure the quality of fuel?

6. Mention the sources of conversion of energy in ECM?

7. What is the role of CECP in ECM?

8. What is the procedure for collection of accountable the data in ECM?

9. What is Industrial energy conservation modeling?

10. What is the Methodology for forecasting Industrial Energy Supply in ECM?

PART-B

Note: Answer any Four Questions.   **(4x15 = 60 Marks)**

11. a) Explain the potential sources of energy losses in detail.
    b) Discuss various principles of energy conservation ECM.

12. a) Explain the various modes of medium of transport of heat energy in ECM.
    b) Explain the Sources of loss of power in energy conversion into electricity in pumps.

13. a) Explain with neat sketch various methods used for combustion of Pulverized coal.
    b) Explain with neat sketch various methods used for combustion of petrol.

14. a) Explain the Procedure for Comprehensive Energy Conservation Planning.
    b) Evaluate and Synthesize, optimization the alternative conservation measures in ECM.

15. Explain with Flow Chart of organization's functions in CECP.

16. a) Explain with primary copper production system model in ECM.
    b) Explain the Structure of energy conservation model in ECM.

17. Write short notes on the following:
    a) Unit production cost and unit energy requirements.
    b) Calculation of effecting parameters in chemical energy.
    c) Recuperators in ECM.

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FACULTY OF ENGINEERING

B. E. (M/P/AE) (CBCS) VIII – Semester (Make-up) Examination, December 2020

Subject: Waste Heat Recovery and Co-Generation (Elective-V)

Time: 2 Hours **Max Marks: 70**

PART-A

Note: Answer any Five Questions. **(5 x 2 = 10 Marks)**

1. What is the advantage of Waste Heat Recovery in Industry?

2. What are the most suitable devices in a low to medium temperature Waste Heat Recovery System?

3. What is Peclet Number?

4. Define superficial velocity?

5. What is LMTD? Draw temperature profile for parallel flow heat exchanger?

6. Define NTU? What is the significance of NTU?

7. Describe the limitations of Metallic Recuperators?

8. What are the efficiency figures for a conventional power plant?

9. Explain gas turbine co-generation System?

10. Explain the term 'back pressure steam' in steam turbines?

PART-B

Note: Answer any Four Questions. **(4x15 = 60 Marks)**

11. (a) Describe elaborately about the sources of waste heat?
    (b) Describe the industries commonly believed to have the most potential for waste heat recovery?

12. Discuss the classification and applications of heat exchangers?

13. (a) Discuss elaborately about Re-generators and Recuperators with neat sketches?
    (b) Describe convection Recuperator with a neat sketch?

14. Differentiate between In-plant power generation system and reject heat utilization system.

15. What are co-generation plants? Explain the difference between bottoming and topping cycle co-generation plants?

16. Describe in detail about Thermal Storage Systems?

17. Describe the environments considerations for co-generation and waste heat recovery?

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FACULTY OF ENGINEERING

B. E. VIII – Semester (CBCS) (CSE/I.T) (Make-up) Examination, December 2020

Subject: Cloud Computing (Elective – V)

Time: 2 Hours   **Max Marks: 70**

PART-A

Note: Answer any Five Questions.   **(5 x 2 = 10 Marks)**

1. Classify the types of hardware virtualization.

2. Describe resource pooling of on demand self-service.

3. Differentiate between Private & Public cloud.

4. List the layer that define the cloud architecture with respect to scaling in cloud.

5. Discuss examples of large cloud provider and their Services

6. List any three open source cloud computing platform database and its functions.

7. Identify data type used in cloud computing.

8. Examine the platform which are used for large scale cloud computing.

9. Design SOA for cloud.

10. Demonstrate the enterprise custom applications in cloud.

PART-B

Note: Answer any Four Questions.   **(4x15 = 60 Marks)**

11. (a) Related the advantages of cloud computing over internet in detail.
    (b) What are the basic components of Cloud computing and explain in details?

12. (a) Design scalling mechanism in cloud.
    (b) Construct capacity planning for a cloud and explain with an example.

13. (a) Explain the limitations of cloud computing security concerns in details.
    (b) Interpret the scenarios in which Cloud Computing can be used.

14. (a) Compare and construct the cloud services being offered by google – IBM.
    (b) Suppose a company XYZ decides to setup ba cloud to deliver software as a service to its clients through a remote location answer the following, justify your answer.
    (i) What are the security risk for which a customer needs to be careful about?
    (ii) What kind of infrastructural set up will be required to setup a cloud?
    (iii) What sort of billing model will such customers have?

15. (a) Identify the risks associated with cloud computing.
    (b) Demonstrate the fundamental requirements for cloud applications architecture.

16. (a) Create virtual machine image and deploy them on cloud.
    (b) Evaluate the characteristics of server virtualization and application virtualization.

17. (a) Construct the architecture of PaaS and SaaS in cloud computing.
    (b) Test the feature of Amazon simple database with respect to the cloud.

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FACULTY OF ENGINEERING

B. E. VIII – Semester (CBCS) (CSE/I.T) (Make-up) Examination, December 2020

Subject: Human Computer Interaction (E – V)

Time: 2 Hours   **Max Marks: 70**

PART-A

Note: Answer any Five Questions.   **(5 x 2 = 10 Marks)**

1. List the interaction styles.

2. Demonstrate the GUI with its importance.

3. List the goals of interaction designs.

4. Describe the interface design standards.

5. Explain the design principles.

6. Differentiate between RGB & HSV color system.

7. Classify interaction design models.

8. Discuss the interface components.

9. Evaluate the technical issues concerning text.

10. Examine the applications of speech recognition.

PART-B

Note: Answer any Four Questions.   **(4x15 = 60 Marks)**

11. (a) Discuss interaction paradigms in detail.
    (b) Describe interaction framework and its importance in styles.

12. (a) What is the purpose of designing and explain the facets of interface?
    (b) Design the iterative model and explain in detail.

13. (a) What is usability testing and explain the scenarios while developing the test cases?
    (b) Discuss modeling of human perceptual system.

14. (a) Describe two situations when you might use a trackball rather than a mouse.
    (b) Interpret the technical issues concerning text in detail.

15. (a) Classify human issues concerning icons and colors.
    (b) Identify speech and hearing in human perceptual system.

16. (a) Compare and contrast waterfall model with the spiral model. Discuss their relevance to HCI.
    (b) Explain about WIMP interface.

17. (a) Describe deconstructing icons.
    (b) Evaluate different types of testing.

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