

FACULTY OF ENGINEERING

BE 4/4 II-Semester (Backlog) Examination, July 2021

Subject : Disaster Mitigation and Management (Elective – II, III & V)**(Expect / M/P / AE)****Time: 2 Hours****Max marks: 75****Missing data, if any, may be suitably assumed****PART - A****Note: Answer any Seven questions.****(7x3=21 Marks)**

1. Mention some objectives of ISDR programme?
2. What is the role of NIDM in disaster management?
3. What are the causes of land desertification?
4. State the significance of cyclone shelters
5. Explain the vulnerability profile of India
6. What are the different types of Chemical / Industrial Hazards? Explain the characteristics.
7. What are the components of GIS?
8. What are the essential elements of earthquake safety?
9. List the factors that contribute to risk during earthquake
10. What are the remote sensing and GIS tools available for disaster mitigation and management?

PART - B**Note: Answer any Three questions.****(3x18=54 Marks)**

11. a) Draw and explain the disaster management cycle with suitable examples.
b) What is the role of state government and international agencies in disaster management?
12. a) Describe the different types and causes of landslides
b) What are the remedial measures in controlling the land slides
13. a) What is a Tsunami? Describe the various precautions to be taken for reducing the effect of Tsunami.
b) What are the effects of avalanches?
14. a) Explain applications of Remote sensing in disaster management
b) Explain certain applications of GIS in disaster management and mitigation.
15. a) What is risk mapping and vulnerability analysis? Explain the role of GIS.
b) Formulate and explain the types of warning systems that are available to alert the people in the case of predicted disasters such as floods, cyclones etc.
16. a) Write about Disaster management structure in India.
b) Explain risk and Vulnerability to disaster.
17. Write notes on the following
 - a) Landslide remediation structures
 - b) Oil spills

FACULTY OF ENGINEERING**B.E. (Civil) VIII-Semester (CBCS) (Main & Backlog) Examination, July 2021****Subject : Principles of Green Building Practices****Time: 2 hours****Max. Marks: 70****Note: Missing data, if any, may be suitably assumed.****PART – A****Answer any five questions.****(5x2 = 10 Marks)**

- 1 What are the objectives of Green Buildings?
- 2 What are the Green Building Certifications Rating systems available for building projects in India?
- 3 What is Urban Heat Island (UHI)? What are the effects of UHI on the environment?
- 4 What are the Rain Water Harvesting (RWH) strategies that can be adopted in a Green Building?
- 5 Distinguish between the terms embodied energy and operational energy.
- 6 What are the methods that can be used for the energy efficient building envelopes?
- 7 What is the intent in encouraging the use of building materials with recycled content in Green Buildings?
- 8 What are the requirements for handling post-occupancy wastes in green buildings?
- 9 What is the intent of having exhaust systems in kitchen and bathrooms in green buildings?
- 10 What is meant by building flush out? What is the recommendation from green buildings point of view?

PART – B**Answer any four questions.****(4x15 = 60 Marks)**

- 11 Describe in brief the components in the various criteria for Green Rating in a Building.
- 12 What is the importance of protecting the top soil in a construction site? Briefly describe the measures to be used for Soil erosion and sedimentation control.
- 13 Discuss some measures and methods used for achieving Energy Efficiency in Green Buildings.
- 14 Write short notes on the following measures of using sustainable building materials in Green Building Projects
 - a) Use of Local Materials
 - b) Use of salvaged building materials
- 15 Write short notes of any three of the following in relation to Indoor Environmental Quality (IEQ) in green building practices:
 - a) Air Ventilation
 - b) CO₂ monitoring
 - c) Low VOC Compounds
 - d) Indoor & Outdoor Pollutants protection measures
- 16 What is the intent of having on-site waste water treatment system in a green buildings? Describe the measures and methods for treatment and reuse of waste water.
- 17 Write short notes on any three of the following :
 - a) Separation of household waste at source
 - b) Organic Waste Management System on-site
 - c) The concept of NET ZERO buildings
 - d) Handling e-waste

FACULTY OF ENGINEERING**B.E. (Civil) VIII-Semester (CBCS) (Main & Backlog) Examination, July 2021****Subject : Traffic Engg. & Infrastructure Design (E-V)****Time: 2 hours****Max. Marks: 70****Note: Missing data, if any, may be suitably assumed.****PART – A****Answer any five questions.****(5x2 = 10 Marks)**

- 1 Draw a typical cross-section of a highway showing control line, Building line and Road-land boundary line?
- 2 Write Terrain Classification?
- 3 What is Transition curve. Mention its uses.
- 4 Determine the curve radii beyond which no super elevation is provided when the design speed of 70 km/hr the camber is 2%.
- 5 What is Intersection sight distance?
- 6 Write the font size of Informative signs on roads.
- 7 What is Queuing theory's basic principle?
- 8 Mention the different types of Traffic Barricades?
- 9 List any three Guidelines for on & off street parking.
- 10 Mention IRC codes required for foot-over bridge design.

PART – B**Answer any four questions.****(4x15 = 60 Marks)**

- 11 a) List & explain factors which affect the Highway Geometric Design.
b) A two lane national highway without raised curves is passing through a plain terrain. Calculate the length of transition curve, if the radius of the circular curve is equal to the minimum ruling radius.
- 12 a) Calculate the safe OSD for a design speed of 92 Kmph.
b) The radius is 60 Kmph & lateral friction is 0.15.
i) Calculate the super elevation required if full lateral friction is assumed to develop.
ii) Calculate if no super elevation is provided.
- 13 a) What is a skew intersection? Draw typical sketches showing left and right skewed intersections with negative and positive skew angles?
b) Describe the design principles for intersections as per IRC. Draw sketches wherever applicable.

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- 14 a) Draw a neat sketch of Rotary Intersection, also write the Design standards as per IRC.
 b) Traffic flow in an urban section at the intersection of two highways in the design year are given below:

Design Rotary Intersection.

Approach	Left Turning			Straight ahead			Right Turning		
	Car	Commercial	Scooter	Car	Commercial	Scooter	Car	Commercial	Scooter
E	210	60	120	260	120	160	160	50	90
S	190	80	100	200	60	120	210	40	120
W	260	100	120	160	60	80	170	70	80
	230	60	130	190	80	100	240	60	100

- 15 a) Write in detail about different types of Roads signs with their standard dimensions.
 b) List various specifications required for road markings.
- 16 a) Write in detail about the facilities provided for pedestrians on Urban Roads. With their standard values.
 b) Discuss the design of Subway & Foot over Bridge.
- 17 Write short notes on any Two of the following:
- Level of Service and capacity.
 - Classification of ramps.
 - Driver field of vision
 - Fundamental relationships between traffic flow parameters.

FACULTY OF ENGINEERING
B.E. VIII - Semester (CBCS) (ECE) (Main & Backlog) Examination, July 2021

Subject: Fuzzy Logic & Application (P.E-V)

Time: 2 Hours

Max. Marks: 70

(Missing data, if any, may be suitably assumed)

PART – A

Note: Answer any five questions.**(5x2 = 10 Marks)**

- 1 Compare Crisp sets & Fuzzy sets with examples.
- 2 Differentiate type-1 & type-2 Fuzzy sets.
- 3 What is a Fuzzy relation? Given an example.
- 4 What is Fuzzy partial ordering?
- 5 Write the features of membership function with its Venn diagram.
- 6 Define Fuzzification.
- 7 Define DeFuzzification.
- 8 Discuss any one DeFuzzification method.
- 9 What is a 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 Intersection.
- 12 What are Resemblance relations? Consider the following Resemblance relation

$$R(X,Y) = \begin{bmatrix} 1 & 0.8 & 0 & 0.1 & 0.2 \\ 0.8 & 1 & 0.4 & 0 & 0.9 \\ 0 & 0.4 & 1 & 0 & 0 \\ 0.1 & 0 & 0 & 1 & 0.5 \\ 0.2 & 0.9 & 0 & 0.5 & 1 \end{bmatrix}$$

Draw the complete α -cover tree for the above Resemblance relation.

- 13 Explain in detail any five Fuzzification methods.
- 14 Explain in detail the below defuzzification methods
 - (a) Central Method
 - (b) Weighted Average Method
 - (c) Mean-max Membership
 - (d) Center of Sums.
- 15 Explain in detail FAM system architecture with an example.
- 16 (a) State the operations & properties of Fuzzy sets.
 (b) Given $A = \{0.2/1 + 0.4/2 + 0.5/3 + 0.6/4 + 0.8/5\}$, $B = \{0.1/1 + 0.3/2 + 0.5/3 + 0.7/4 + 0.9/5\}$ & $C = \{0.3/1 + 0.1/2 + 0.4/3 + 0.5/4 + 0.6/5\}$. Prove the operations, properties of Fuzzy sets.
- 17 Explain in detail Bidirectional FAM theorem for
 - (a) Correlation-Minimum Encoding
 - (b) Correlation-Product Encoding.

FACULTY OF ENGINEERING
B.E. (ECE) VIII-Semester (CBCS) (Main & Backlog) Examination, July 2021

Subject: Radar Systems (E-V)

Time: 2 hours

Max. Marks: 70

Note: Missing data, if any, may be suitably assumed.

PART – A

Answer any five questions.

(5x2 = 10 Marks)

- 1 List any four major applications of radar.
- 2 What do you understand by maximum unambiguous range in radar?
- 3 What are the limitations of CW radar?
- 4 What is PPI Display?
- 5 Differentiate MTI and Pulse Doppler radar.
- 6 What is delay line canceller and where it is exactly used?
- 7 Draw the various acquisition and scanning patterns.
- 8 What do you mean by sequential lobing?
- 9 List the radar antenna parameters and define any two of them.
- 10 What is the concept of LOS propagation?

PART – B

Answer any four questions.

(4x15 = 60 Marks)

- 11 (a) Obtain the radar equation in terms of minimum detectable power and gains of transmitting and receiving antennas.
(b) Explain about False alarm and probability of False alarm.
- 12 (a) With neat block diagram explain the operation of FMCW radar.
(b) Explain A-scope and B-scope radar displays.
- 13 (a) Discuss the operation of pulse Doppler radar.
(b) Define blind speed. An MTI radar operates at 5GHz with PRF of 1000 pps. Find the three lowest blind speeds of the radar.
- 14 (a) Why is amplitude comparison mono pulse tracker more likely to be preferred over the phase comparison mono pulse?
(b) Explain conical scan tracking radar.
- 15 (a) What are the different types of radar antennas used? Explain the operation of Cassegrain antenna.
(b) Explain about environmental noise in radar systems.
- 16 (a) Explain about multiple frequency CW radar.
(b) With neat block diagram explain MTI radar.
- 17 (a) Explain about integration of radar pulse.
(b) A guided missile tracking radar has the following specifications.
Transmitted power = 400 KW, prf = 1500 pps, pulse width = 0.8 μ sec
Determine unambiguous range, duty cycle and average power.

FACULTY OF ENGINEERING
B.E. (ECE) VIII-Semester (CBCS) (Main & Backlog) Examination, July 2021

Subject: Design of Fault Tolerant System (E – V)

Time: 2 hours

Max. Marks: 70

Note: Missing data, if any, may be suitably assumed.

PART – A

Answer any five questions.

(5x2 = 10 Marks)

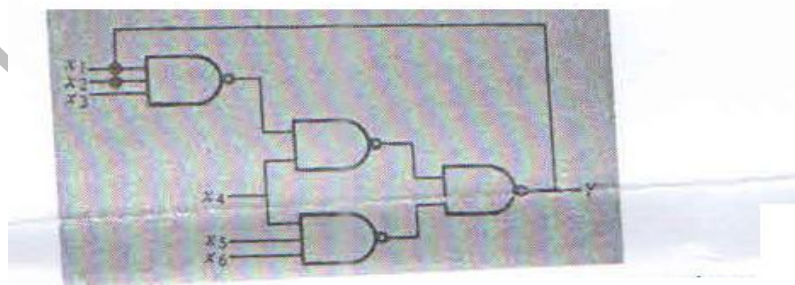
- 1 Define (a) Reliability (b) MTBF
- 2 Mention the factors to be considered during assembly phase for worst case design.
- 3 Graphically show the relationship of dynamic systems reliability as a function of simplex system reliability.
- 4 List the different fault models in use today.
- 5 Explain Reliability Improvement Factor (RIF) for fixed mission time, T.
- 6 Give the two methods to improve reliability of a computing system.
- 7 Define parallel simulation.
- 8 Explain software redundancy.
- 9 Obtain the expression for reliability of an NMR system.
- 10 Explain observability with suitable illustrations.

PART – B

Answer any four questions.

(4x15 = 60 Marks)

- 11 For the given bridging fault find the all the input combinations for which the circuit behaves as (i) oscillator (ii) asynchronous sequential circuit



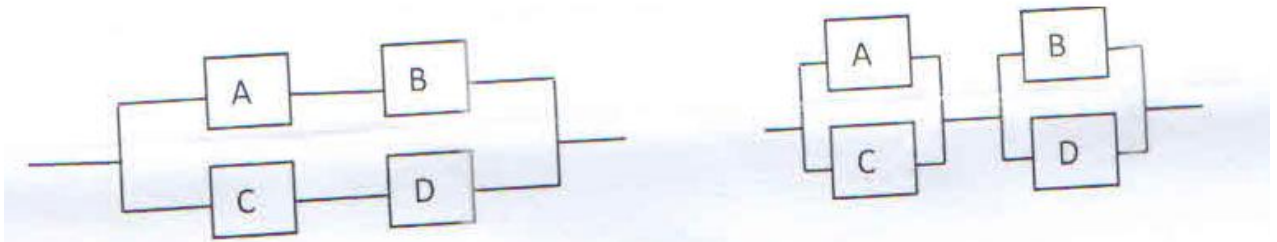
- 12 Explain in detail the static redundancy schemes for incorporating fault tolerance in digital systems.
- 13 Explain in detail the following practical fault tolerant systems (i) FTMP (ii) AXE
- 14 (a) Explain in detail the steps to generate a k-out-of-2k code for a general m-out-of-n code. Illustrate using 2-out-of-5 code.
 (b) Explain checker bit generation in Berger codes.

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- 15 Explain the Reed-Muller expansion technique. For the given function design a testable circuit using Reed-Muller expansion technique.

$$F(W, X, Y) = WX + W'Y + X'Y'$$

- 16 (a) For the given series to parallel and parallel to series network find the overall reliability if the reliability of each block is R.



Find the reliability if $r = 0.8, 0.9$ and 0.95 . What can we conclude?

- (b) What do you understand by fault diagnosis in digital systems?

- 17 Write short notes on
 (a) Dynamic Redundancy
 (b) Partition theory
 (c) Built in test

FACULTY OF ENGINEERING

B.E. (M/P/AE) VIII Sem. (CBCS) (Main & Backlog) Examination, July 2021

Subject: Energy Conservation and Management (PE-V)

Time: 2 hours

Max. Marks: 70

Note: Missing data, if any, may be suitably assumed.

PART – A

Answer any five questions.

(5 x 2 = 10 Marks)

1. Define the principle of Energy Conservation in ECM.
2. What is energy maximum cost effectiveness in ECM?
3. How the quality of steam is calculates?
4. Define the concept and calculation of power in ECM.
5. How do you calculate the losses of electrical energy in ECM?
6. How do you calculate the losses of thermal energy in ECM?
7. What is the process for identifying energies in ECM?
8. Mention the applications of CECP?
9. How data is prepared in Industrial energy conservation modeling?
10. How verification and data validation is carried out Industrial energy conservation modeling?

PART – B

Answer any four questions.

(4 x 15 = 60 Marks)

11. a) State the types of energy storages and explain any one with sketch.
b) Explain the potential sources of energy losses in detail.
12. a) Explain the Recuperators in detail.
b) Explain the modes of mechanical energy transport ECM.
13. Explain the various methods used for combustion of diesel in ECM.
14. Explain with a neat sketch the working principle of any one motor related to electrical energy.
15. a) Explain the procedure for Comprehensive Energy Conservation Planning in ECM.
b) Evaluate and Synthesize, optimization the alternative conservation measures in ECM.
16. Explain the Flow Chart of organization's functions in CECP.
17. Write short notes on the following:
 - a) Mathematical Programming of conservation modeling.
 - b) Calculation of efficiency of generators.
 - c) Calculation of power in pumps.

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FACULTY OF ENGINEERING

B.E. VIII Sem. (CBCS) (M/P/AE) (Main & Backlog) Examination, July 2021

Subject: Advanced Propulsion & Space Science

Time: 2 hours

Max. Marks: 70

Note: Missing data, if any, may be suitably assumed.

PART – A

Answer any five questions.

(5 x 2 = 10 Marks)

- 1 What is normal shock wave?
- 2 What are the applications of shock wave?
- 3 Write the expression for specific impulse with its units?
- 4 What is propulsive efficiency?
- 5 Indicate all the forces on a rocket structure during its flight in atmosphere?
- 6 What is a coasting flight?
- 7 What is the time taken for earth to rotate around itself?
- 8 What is astronomical triangle?
- 9 What are nuclear processes in sun?
- 10 What are the uses of remote sensing satellites?

PART – B

Answer any four questions.

(4 x 15 = 60 Marks)

11. a) What is difference between Normal shock and oblique shock flow?
b) Differentiate between Mach angle, Mach cone and Mach waves?
12. a) Explain the principle and working of solid rocket motor?
b) What are the different types of propellant systems used in rockets?
13. a) Explain briefly about Nuclear thermal rocket system?
b) Explain different types of nozzles used in rockets?
14. a) Explain briefly about celestial coordinate system?
b) Explain about the Kepler's laws?
15. a) Explain briefly about solar wind and its interaction with earth's magnetic field?
b) Explain about Remote sensing satellite?
16. a) Explain about total impulse, Specific Impulse, Propellant Mass fraction & Thrust.
b) What is hybrid rocket Engine. Explain its working with Neat sketch?
17. Derive expression for rocket Equation?

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FACULTY OF ENGINEERING

B.E. (M/P/AE) VIII Sem. (CBCS) (Main & Backlog) Examination, July 2021

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

Time: 2 hours

Max. Marks: 70

Note: (Missing data, if any, may be suitably assumed)

PART – A

Answer any five questions.

(5 x 2 = 10 Marks)

1. How to develop a waste heat recovery system?
2. What is meant by quality and quantity of waste heat?
3. List some of the direct and indirect benefits of waste heat recovery systems.
4. What is the advantage of 'ceramic recuperators' over 'metallic recuperators'?
5. Mention the NTU methods.
6. What factors required for selection of cogeneration system?
7. Define Peclet number, superficial velocity of recuperators.
8. Why cogeneration is required for industry?
9. Explain the term heat-to-power ratio.
10. What is meant by FUA of cogeneration system?

PART – B

Answer any four questions.

(4 x 15 = 60 Marks)

11. a) Explain the Continuous and Intermittent Utilization of Waste Heat.
b) Explain the various forms of waste heat available energies.
12. a) Explain the design of heat exchanger for number of tubes.
b) Discuss on Pressure drop considerations of LMTD.
13. a) Explain Ceramic, metallic and reradiant recuperators with sketch.
b) Explain any one high temperature recuperators with sketch.
14. a) Explain the potential benefits and costs of cogeneration.
b) Discuss on industrial application of cogeneration.
15. a) Explain Gas turbine based cogeneration system with neat sketch.
b) Explain cogeneration of reciprocating engine cycle with neat sketch.
16. Discuss on legislative, environment and institutional constraints for use of waste heat.
17. Write short notes on:
 - a) Cogeneration system of Power Plant.
 - b) Applications towards power generation.
 - c) Thermodynamics of recuperator.

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FACULTY OF ENGINEERING
B.E. (CSE) VIII-Semester (CBCS) (Main & Backlog) Examination, July 2021

Subject: Cloud Computing (Elective – V)

Time: 2 hours

Max. Marks: 70

Note: Missing data, if any, may be suitably assumed.

PART – A

Answer any five questions.

(5x2 = 10 Marks)

- 1 List the benefits of cloud computing.
- 2 Define load balancing in cloud computing.
- 3 Differentiate between database and cloud.
- 4 Describe the portability issues in cloud.
- 5 List the popular cloud services.
- 6 What are the two characteristics of public and hybrid cloud?
- 7 What is resource pooling?
- 8 How is multi-tenancy advantageous to the success of cloud computing?
- 9 List the advantages of communication as a service (CaaS).
- 10 Distinguish analytics from search in cloud.

PART – B

Answer any four questions.

(4x15 = 60 Marks)

- 11 Explain the cloud deployment models in detail and outline their benefits and limitations while implementing an application.
- 12 What is virtualization in cloud computing? Outline the characteristics of server virtualization and application virtualization.
- 13 Explain the evolution of cloud computing. Explain the advantages of cloud.
- 14 Explain infrastructure as a service (IaaS).
- 15 What are layered components of Platform as a service (PaaS)?
- 16 What is SOA and develop enterprise architecture?
- 17 (a) Describe the service provided by AWS.
(b) Demonstrate the components of cloud computing.

FACULTY OF ENGINEERING**BE VIII-Semester (CSE) (CBCS) (Main & Backlog) Examination, July 2021****Subject : Human Computer Interaction (Elective-V)****Time: 2 Hours****Max marks: 70****Missing data, if any, may be suitably assumed****PART – A****Note: Answer any Five questions.****(5x2=10 Marks)**

1. Define the Term Usability?
2. What is user centered design?
3. Write short notes on mapping.
4. What are the two basic interaction styles in web navigation?
5. Explain Mouse Three-State model With diagram?
6. What is WYSIWYG web development environment?
7. What is WIMP Interface?
8. Write about Novice User?
9. What is the pop-up window?
10. Define low – fidelity prototyping

PART - B**Note: Answer any Four questions.****(4x15=60 Marks)**

- 11.a) Explain Execution / Evaluation Action cycle in detail?
b) What is Interaction Frame work?
- 12 Explain in detail about Interaction Design Models and discuss how it is helpful in Interaction Design Process.
- 13 a) What is screen complexity? How to reduce its complexity?
b) Explain the Phases of Usability Test.
- 14 a) Explain Tabbed Document Interface (TDI)
b) Explain the ways in which Color can be integrated into an interface to support the user interface.
- 15 a) Explain the factors that affect reading performance in Screens.
b) Explain using Haptic Technologies in Interaction Design for user benefits.
- 16 a) Explain different GOMS models?
b) What is semantic Network? Explain How to create a semantic network based on text.
- 17 Write notes on
a) Three-State Model b) Nielsen's Heuristics.

FACULTY OF ENGINEERING

B.E. VIII Sem. (CBCS) (I.T.) (Main & Backlog) Examination, July 2021

Subject: Cloud Computing (Elective-V)

Time: 2 hours

Max. Marks: 70

Note: (Missing data, if any, may be suitably assumed)

PART – A

Answer any five questions.

(5 x 2 = 10 Marks)

1. Explain the type of hardware virtualization.
2. Define resource pooling and on-demand.
3. Define load balancing in cloud.
4. List types of Scaling in cloud.
5. Explain multitenant software in cloud.
6. List some open source cloud computing platform database.
7. What is portability issue of cloud.
8. Examine the platforms which are used for large-scale cloud?
9. Construct the cloud enterprise architecture.
10. Distinguish analytics from search in cloud?

PART – B

Answer any four questions.

(4 x 15 = 60 Marks)

11. a) What is cloud? Explain features, services & development models?
b) What is Virtualization? Describe the benefits of mechanism used for virtualization?
12. a) How load balance is done in cloud computing in detail?
b) Explain the scaling strategies in cloud computing?
13. a) What are the internal security bracles in cloud computing of implement the steps to reduce the cloud computing.
b) How contant Delivery Network operates in cloud and its advantages?
14. a) Construct the different Cloud Services Models.
b) What is Cloud Services Management? Identify the inter operatabily issue in cloud computing.
15. a) Identify the risk associated with cloud computing?
b) Construct workflow and business process of any organization using cloud Computing?
16. a) Demonstrate the basic component of cloud computing?
b) Discuss the service provided by Amazon web services?
17. a) Experimental different cloud development models?
b) How the cloud differs from grid? Explain the evaluation of cloud computing?

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FACULTY OF ENGINEERING**B.E (EE/ Inst) VIII-Semester (CBCS) (Main & Backlog) Examination, July 2021****Subject : Energy Management Systems and SCADA****Time: 2 Hours****Max marks: 70****Missing data, if any, may be suitably assumed****PART - A****Note: Answer any Five questions.****(5x2=10 Marks)**

1. What are the objectives of automatic generation control?
2. Draw the structure of EMS.
3. What is capacity interchange?
4. Draw the flowchart of production cost program.
5. What are the general features of SCADA?
6. Write the applications of SCADA.
7. What are the components of RTU?
8. What are the configurations of SCADA?
9. Define Modbus.
10. Define IEC 60870-5.

PART - B**Note: Answer any Four questions.****(4x15=60 Marks)**

11. a) Explain unit commitment and hydro fuel constraints.
b) What is the basic architecture and recent development in energy management system.
12. a) Describe the generation scheduling with limited energy.
b) Explain different types of Interchangers in operation
13. Explain in detail SCADA functions and applications.
14. Explain SCADA in power system automation. With a example of substatic
15. Explain DNP3 protocol in detail. With relevant examples.
16. a) Explain the working of EMS.
b) Explain distributed SCADA system.
17. a) Explain single master multiple RTU.
b) Write about SCADA communication requirement.

FACULTY OF ENGINEERING
B.E. (EEE) VIII-Semester (CBCS) (Main & Backlog) Examination, July 2021

Subject: Special Electrical Machines (E-V)

Time: 2 hours

Max. Marks: 70

Note: Missing data, if any, may be suitably assumed.

PART – A

Answer any five questions.

(5x2 = 10 Marks)

- 1 Advantages of synchronous reluctance motor.
- 2 Application of synchronous reluctance motor.
- 3 Name the various mode of excitation in stepper motor.
- 4 State some application of stepper motor.
- 5 State the principal operation of switched reluctance motor.
- 6 Rotor position in of switched reluctance motor.
- 7 Compare DC motor with PMSM motor.
- 8 Write the features of PMSM motor.
- 9 Construction features of LIM.
- 10 Application of LMS control.

PART – B

Answer any four questions.

(4x15 = 60 Marks)

- 11 Explain the various modes of operations of variable reluctance motor.
- 12 (a) Explain with neat sketch construction of Switched Reluctance motor.
(b) Explain the working of switched reluctance motor.
- 13 (a) Explain about machine configuration of SPM of permanent magnetic synchronous motor.
(b) What are the disadvantages of PMSM motor?
- 14 (a) Explain the drive operation of inverter of Brushless DC Motor.
(b) Write about application of Brushless DC motor.
- 15 (a) Write about principle and types of LSM.
(b) Explain about equivalent circuit of linear induction motor.
- 16 (a) Explain open loop and close loop of stepper motor.
(b) Explain construction of Brushless DC motor.
- 17 (a) Explain about the Rotor position sensor of SRM.
(b) Describe the permanent magnetic synchronous motor with their characteristic.

FACULTY OF ENGINEERING**B.E. VIII - Semester (EEE) (CBCS) (Main& Backlog) Examination, July 2021****Subject: Power Electronics Applications to Renewable Energy (E-V)****Time: 2 Hours****Max marks: 70****Missing data, if any, may be suitably assumed****PART - A****Note: Answer any Five questions.****(5x2=10 Marks)**

- 1 What is the current scenario of Wind and Solar Energy?
- 2 How Non-Conventional sources of energy differ from Conventional sources of energy?
- 3 Draw I-V and P –V characteristic of PV cell?
- 4 Distinguish between buck and boost converters?
- 5 Discuss Interleaved Converters.
- 6 Discuss different types of issues related to grid connection?
- 7 List different control schemes related to the grid connected inverters
- 8 What is the difference between doubly fed induction generator and permanent magnet-based generators?
- 9 Draw basic block diagram of a typical wind power system
- 10 Differentiate between AC and DC Microgrids

PART - B**Note: Answer any Four questions.****(4x15=60 Marks)**

- 11 a) Discuss different types of MPPT Schemes.
b) With neat schematic diagram explain the operation of Stand-alone PV system?
- 12 a) Explain CUK Converter for Photo Voltaic Energy with a neat Circuit diagram and relevant wave forms.
b) Explain multi-input converters for PV Applications?
- 13 a) Draw the schematic diagram of Buck-Boost converter and explain the operation in detail.
b) Explain with neat diagram the philosophy of operation of a solar source fed boost converter.
- 14 Explain about Different types of Modular multilevel inverter with schematic diagram
- 15 Explain the operation of synchronous generator with back to back controlled converter.
- 16 Explain about grid integrated PMSG based Wind Energy Power Systems?
- 17 Discuss
 - (a) Islanding
 - (b) insulation,
 - (c) temperature and
 - (d) shading effects on efficiency of PV Power Generation

FACULTY OF ENGINEERING

B.E. (CBCS) (EEE) VIII - Semester (Main & Backlog) Examination July 2021

Subject : Electrical Substation Design and Equipment (P E - V)

Time: 2 Hours

Max marks: 70

Missing data, if any, may be suitably assumed

PART - A

Note: Answer any Five questions.

(5x2=10 Marks)

1. List the components of GIS
2. Give the limitation of AIS
3. What is different between feeder and busbar?
4. Define Breaker and a Half Scheme
5. List the major parts of Insulation Coordination?
6. Discuss about BIL in power system insulation coordination
7. Write the need for an SRS (single reference system)
8. What is meant by Soil Resistivity?
9. Write few points on substation Automation.
10. Explain about Shunt capacitor

PART - B

Note: Answer any Four questions.

(4x15=60 Marks)

- 11.a) List the components of GIS
b) Explain the components of GIS
- 12.a) Briefly explain the Advantage of GIS over AIS
b) Intercept the main features of substation.
13. Different types of substation switching schemes in GIS. Explain any two
14. Draw and explain typical layout of GIS
15. Evaluate the effects and requirement of fault Calculation
- 16.a) List the standard values of Bils as per IEC and explain
b) How will you show the insulation strength for short duration impulses
- 17.a) Explain about HT and LT circuit breaker
b) Explain about Selection and Sizing of lightning protection
