Code No. 14789/CBCS

FACULTY OF ENGINEERING

B. E. (Civil)(CBCS) VIII – Semester (Main & Backlog) Examination, July 2021

Subject: Design with Geosynthetics (E-IV)

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. List out the most commonly used polymers in the manufacture of Geosynthetics.
2. What are the applications of Geotextiles?
3. What do you mean by seam strength? What are its requirements.
4. List out the mechanical properties of Geogrids.
5. Define Geonets and state the function served by them.
6. Explain in detail about Melt flow Index.
7. How do you measure the Tear resistance of a geomembrane?
8. What are the steps to be considered while installing Geogrids?
9. How do you measure thickness and stiffness of the geotextiles?
10. Define Transmissivity?

PART – B

Answer any four questions. **(4 x 15 = 60 Marks)**

11. a) What are geo composites? Mention in detail about any two types of Geocomposites.
    b) Define degradation of Geosynthetics and explain in detail about sunlight and oxidation degradation.

12. Write a short note on the following
    a) Shear strength of a geotextile
    b) Applications of Geomembrane

13. a) Summarize the manufacturing process of Genets with a neat sketch.
    b) What is the Design procedure for a geogrid reinforcement of a paved road with a base course.

14. a) How to monitor Water vapor transmission in geomembranes.
    b) What are the 'Wick Drains'? What is the process involved in their installation?

15. a) Explain about the type of geo composites which come under Temporary erosion control revegetation Materials (TERMS).
    b) What is the theoretical concept behind the designing of geonet for drainage?

16. a) How to measure the Tear resistance of a geomembrane.
    b) Write a short note on Puncture resistance of geomembranes.

17. Write a detailed note on the following.
    a) Geo composites used in Containment
    b) Geosynthetic reinforced soil wall

* * *

Code No. 14790/CBCS

FACULTY OF ENGINEERING

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

Subject: Ground Water Management (E-IV)

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 State the law governing the ground water flow with limitations.
2 Explain the advantages of surface geophysical methods.
3 Write about the Theis method of solution for an unsteady radial flow in a confined aquifer.
4 What are image wells?
5 How would you prevent and control sea water intrusion?
6 What are landfill?
7 Define non-aqueous phase liquids (NAPL's).
8 What is diffusion process?
9 In what way, model study helps to achieve cost economy?
10 What are transparent ground water models?

PART – B

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

11 (a) Discuss in detail the importance of groundwater in the hydrologic cycle.
(b) Discuss about the electrical resistivity method of surface geophysical exploration with a sketch.

12 (a) Derive an equation for steady flow in a confined aquifer.
(b) 20-cm well penetrates 30m below static water level (GWT). After a long period pumping at a rate of 1800 lpm, the drawdowns in the observation well at 12m and 36m from the pumped well are 1.2m and 0.5m, respectively. Determine : (i) the transmissibility of the aquifer. (ii) the drawdown in the pumped well assuming R = 300 m.

13 (a) Explain various sources and nature of ground water pollution.
(b) Derive the Ghyben Herzbeg relation. What is salt water wedge?

14 (a) Describe the governing equation of ground water contamination.
(b) Explain the different classifications of ground water contamination.

15 (a) Discuss about the classification of groundwater model studies.
(b) Explain in detail the thermal models in groundwater modelling.

16 (a) Discuss the geological formations in India which have the potential as aquifers.
(b) Derive the basic differential equation of unsteady ground water flow in a confined aquifer. State the assumptions made.

17 (a) Discuss the phenomenon of sea water intrusion and its prevention with the help of a case study.
(b) Explain the principal and working of numerical modelling of groundwater.

*****

Code No. 14791/CBCS

FACULTY OF ENGINEERING

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

Subject: Intelligent Transportation Systems (Elective – IV)

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 ITS and state its needs.
2 List out various methods of data collection.
3 Write about radio waves with its applications.
4 List out applications of Ad Hoc network in transportation system.
5 What do you mean by ITS architecture?
6 How Human factors affects ITS?
7 What are the significance of Sensor plan in ITS?
8 Define ATMS with its effects on ITS.
9 List out various functional requirements of ITS.
10 What are the TMS tools used all over the world for traffic management?

PART – B

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

11 (a) List out various applications of GIS in ITS.
(b) Explain electronic toll collection system.

12 (a) List the historical context of ITS from both public policy and Market economic perspectives.
(b) ITS approach is effective in solving transportation problems. Justify.

13 Explain in detail about ITS with its significance.

14 (a) What are the challenges and opportunities in ITS?
(b) Describe the various data collections techniques in ATIS.

15 (a) What are need of ITS architecture to solve problem in urban area?
(b) Discuss traffic flow sensor technology.

16 (a) Explain the importance of telecommunications in the ITS system.
(b) Explain the responsibilities of Intelligent Transportation System (ITS) in India.

17 Write short notes on:
(a) AVI methods in ITS
(b) Emergency management
(c) Difference between ATMS & APTS
(d) ITS Planning

*****

Code No. 14825/CBCS

FACULTY OF ENGINEERING

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

Subject: Wireless Sensor Networks (E-IV)

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 is the function of controller in sensor node architecture?
2 What are the differences between wireless sensor networks and mobile ad-hoc networks?
3 Write short notes on tiny OS.
4 What are the various tranciever tasks in sensor node architecture?
5 List the applications of wireless sensor networks.
6 What do you mean by clustering in wireless sensor networks?
7 What is the function of gateway node in WSN?
8 What are the performance requirements of MAC protocols in wireless sensor networks?
9 What are the design issues for a routing protocol of WSN?
10 What do you mean by data centric network?

PART – B

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

11 (a) Explain in detail about sensor node architecture.
(b) Explain in detail about any two applications of sensor network.

12 Explain in detail about the sparse topology and energy management protocols of WSN.

13 (a) Explain the requirements and design constraints for wireless MAC protocols.
(b) Explain law duty cycle protocols.

14 (a) Explain the importance of Localization and Positioning procedures in WSNS.
(b) What are the different aspects of topology control algorithms?

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

16 (a) Explain different infrastructure establishment phases of a wireless sensor networks.
(b) Explain Mediation device protocol.

17 (a) Write short notes on GEAR protocol.
(b) Write short notes on Berkeley motes.

*****

Code No. 14826/CBCS

FACULTY OF ENGINEERING

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

Subject: Global Navigational Satellite Systems (E-IV)

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 Differentiae between GPS and UTC time.
2 Differentiate between Solar and Sidereal day.
3 Explain about C/A and P Codes.
4 Explain about UERE.
5 Write briefly about LAAS concept.
6 What are the relative advantages of SBAS and GBAS?
7 What is the frequency allocation of Glonass in different bands?
8 Write briefly on the constellation of COMPASS.
9 What is the difference between global and regional navigation satellite systems?
10 Explain briefly on GPS integration.

PART – B

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

11 (a) Discuss various steps involved in the satellite position determination.
(b) Explain the ECEF Coordinate system.

12 Explain various errors occur in GPS measurement and also the various methods to minimize or overcome those errors.

13 Classify various types of Augmentation Systems and explain.

14 Explain and differentiate between Russian and European Navigation systems.

15 Explain in detail about GPS/GIS and GPS/ Cellular integration techniques.

16 (a) Explain with example about UERE with and without Selective Availability.
(b) Write short notes on DGPS errors.

17 Write short notes on the following:
(a) Spoofing and anti spoofing
(b) EGNOS

*****

Code No. 14842/CBCS

FACULTY OF ENGINEERING

B.E. (M/A.E.) VIII-Semester (CBCS) (Main & Backlog) Examination, July 2021

Subject : Additive Manufacturing Technology (Elective – IV)

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 Describe prototype in the contest of the modern product development.
2 Classify various types of Additive manufacturing processes.
3 Mention the applications of SLA process.
4 Compare FDM process with LOM process.
5 Distinguish between direct and indirect tooling process.
6 List the advantages and disadvantages of SLS process.
7 List the newly proposed file formats in place of STL format.
8 Explain overlapping facets.
9 Name the applications of RP in customized implants and prosthesis.
10 List the applications of RP in aerospace industry.

PART – B

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

11 (a) What are the three types of automated fabricators? Describe them and give two examples each.
(a) With a neat sketch, explain rapid prototyping process chain.

12 (a) Explain the operation of Stereo Lithography Apparatus with neat sketch.
(b) What are solid based Additive Manufacturing systems? Explain Fused Deposit modeling system with a neat sketch.

13 (a) Explain arc spray metal tooling process with a neat diagram.
(b) Using a neat sketch, illustrate the working of a 3-D printing RP process. Also mention the advantages and disadvantages of it.

14 (a) What is the common file format used in AM systems? Describe the format and illustrate with an example. Mention the advantages and disadvantages of this format.
(b) What is meant by valid and invalid model in AM process? Discuss about the consequences of building an invalid model.

15 (a) Discuss the applications of RP in the medical and biomedical engineering.
(b) Describe various applications of RP in Forensic Science.

16 (a) Write the advantages, limitations and applications of SGC process.
(b) Describe the applications of RP (AM) in traditional industries like jewelry and coin.

17 Write short notes on the following.
(a) Historical Evolution of Rapid prototyping.
(b) STL file repair using Generic solution.
(c) 3D keltool process

*****

Code No. 14843/CBCS

FACULTY OF ENGINEERING

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

Subject: Machine Tool Engineering and Design (Elective – IV)

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

Missing data, if any, may be suitably assumed

PART-A

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

1. Differentiate between general purpose and special purpose machine tools.
2. What are drives of machine tools. Classify them.
3. What are the materials used for structure members. Give justification.
4. What is the effect of shape factors on the rigidity of structures.
5. What are the materials used for spindle. Give justification.
6. State the various shapes used for guide ways in machine tools.
7. What is the effect of vibration on machine tool.
8. What are the methods for reducing the vibrations in machine tools.
9. State the difference between hydraulic and pneumatic circuits.
10. What are the various hydraulic controls used in machine tools.

PART-B

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

11. a) Explain in detail about the kinematic schemes of machine tools.
    b) Explain in detail about automatic screw cutting machines.

12. a) Explain about overall compliance of machine tool structure.
    b) Explain in detail about design of columns (design procedure)

13. a) Explain in detail about design of spindles(design procedure)
    b) Explain about hydrostatic and hydrodynamic bearings.

14. a) Explain in detail about machine tool chatter.
    b) Explain about vibrational analysis of machine tool structures.

15. a) Explain in detail with neat diagrams about various positive displacement pumps.
    b) What are the different types of valves used in hydraulic system.

16. a) How the spindle for milling machine is designed and sketch the arrangement? design procedure of milting m/c spindle.
    b) Explain about power screws.

17. Write short notes on the following:
    a) Stepped and speed regulation.
    b) Hydro copying Systems
    c) Comply coefficient.

****

Code No. 14844/CBCS

FACULTY OF ENGINEERING

B. E. (M/P/A/E) (CBCS) VIII – Semester (Main & Backlog) Examination,

July 2021

Subject: Entrepreneurship Development (E-IV)

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 do you mean by industrial environment?
2. Define MSMEs?
3. What is called First generation entrepreneur?
4. List out the types of entrepreneurs.
5. How do finance a project?
6. State about CPM.
7. Tell about Time management.
8. Define leadership.
9. Recall personality of entrepreneur.
10. State the limit of investment on small scale industries.

PART – B

Answer any four questions. **(4 x 15 = 60 Marks)**

11. Explain various types of enterprises.

12. Briefly describe the characteristics of entrepreneurs.

13. What are the strengths and weakness of Time management?

14. How do you assess tax burden in project management?

15. Inter-relate entrepreneurship and economic growth.

16. Elaborate project planning and control using PERT.

17. Narrate the Time management Matrix.

* * *

Code No. 14861/CBCS

FACULTY OF ENGINEERING

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

Subject: Automotive Pollution & Control (E-IV)

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 acid rain, how it occurs?
2. How the Carbon Monoxide effect the Human Health?
3. Define the Flame Quenching.
4. What are the Conditions for Good Combustion?
5. Write short note on Particulate Matter.
6. Mention the Non Exhaust emission?
7. What are the ways to reduce NOx formation?
8. Abbreviate EGR, write its significance?
9. What is meant by ECE test cycle?
10. Define CVS-1.

PART – B

Answer any four questions. **(4 x 15 = 60 Marks)**

11. a) What are the Major Sources of Air Pollution?
    b) Explain about the Emission Standards in detail.

12. a) Explain the Mechanism of Formation of S.I. engines Pollutants
    b) How the CO and HC Emission as the surface temperature increased?

13. a) Explain about the catalytic converter with neat sketch.
    b) How the positive Crank Case Ventilation Classified? Explain detail with neat figure.

14. a) Explain the working of three way catalytic convertor with neat sketch
    b) Write a short note on thermal reactors.

15. a) Explain the working principle of Flame Ionization Detector with neat sketch.
    b) What is use the Chemiluminescent analyzer?

16. a) Write the mechanism of NOX formation in C.I. Engine?
    b) Write short note on shed test.

17. What are the effect of Design and Operating variables on Gasoline engine exhaust emissions.

*** * ***

Code No: 14868/CBCS

FACULTY OF ENGINEERING

BE VIII-Semester (CBCS) (CSE) (Main & Backlog) Examination, July 2021

Subject : Information Retrieval Systems (Elective-IV)

Time: 2 Hours **Max marks: 70**

Missing data, if any, may be suitably assumed

PART - A

Note: **Answers any Five questions**. **(5x2=10 Marks)**

1. Explain about permuterm indexes.
2. List the major steps in inverted index construction.
3. Define the term Precision and Recall.
4. Explain about Inverse Document Frequency.
5. Explain the basic concept of XML DOM.
6. Explain in short the challenges in XML retrieval.
7. Differentiate between Agglomerative and Divisive.
8. Explain in short about Hubs and Authority.
9. Explain the concept of matrix decompositions.
10. What is mutual information method for feature selection.

PART - B

Note: Answers any Four questions. **(4x15=60 Marks)**

11. a) Briefly explain about Tf – idf weighting.
    b) Explain the concept Dynamic Indexing.

12. Briefly explain the concept of postings list with skip pointer.

13. Explain in detail about Single – pas – in memory indexing.

14. Explain Edit distance and k-gram overlap approaches for spelling correction.

15. Explain about Evaluation of XML retrieval.

16. a) Write in detail about K Nearest Neighbor classification.
    b) Define about naïve Bayes text class classification (Bernoulli model) with algorithm.

17. Explain in detail about Low-rank approximations.

****

Code No: 14869/CBCS

FACULTY OF ENGINEERING

BE VIII-Semester (CBCS) (CSE) (Main & Backlog) Examination, July 2021

Subject : Machine Learning (Professional Elective-IV)

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 version space?
2. What is linear separatibility?
3. What are soft margin classifiers?
4. What is the Kernel trick?
5. What is Markov Blanket?
6. Describe Markov Chains
7. Write about any two genetic operators. Give example.
8. Define Factor Analysis of latent variables
9. What is an outlier? How outlier can be detected?
10. Why do you need to use cluster analysis?

PART - B

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

11. Explain ID3 Algorithm used for constructing decision tree with an appropriate example

12. a) Given the following data for the sales (in million dollars) of an Automobile company for 6 consecutive years.

Year	2014	2015	2016	2017	2018	2019
Sales	110	100	250	275	230	300

Based on the above data. Predict the sales for next three consecutive years.

b) How a single perceptron can be used to represent the Boolean functions such as AND, OR.

13. a) Write the Forward Algorithm.
b) Explain Bayes optimal Classifier with example.

14. a) Discuss the Basic Genetic Algorithm with example.
b) Generalize how principal component analysis is carried out to reduce dimensionality of data sets.

15. a) Compare different Clustering Algorithms with its importance.
b) How Clustering Algorithms must be adapted for large database?

16. Explain in detail the concept of Bias-Variance Tradeoff

17. Write notes on
a) Partitional Algorithm
b) Linear Discriminant Analysis

****

Code No. 14880/CBCS

FACULTY OF ENGINEERING

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

Subject: Adhoc and Sensor Networks (E-IV)

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 Differentiate between cellular and Adhoc wireless networks.
2 What is reflection in radio propagation?
3 List the parameters needed to evaluate Adhoc network protocols.
4 Distinguish between proactive and on demand protocols.
5 What is soft stat and hard state approaches for topology maintenance mechanisms?
6 Mention advantages of using probe packets for detection of a new path.
7 What are QOS parameters in Adhoc networks?
8 What is Byzantine attack?
9 Write about MACA.
10 What is idle listening in WSN?

PART – B

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

11 (a) Briefly discuss the applications of MANET.
(b) Discuss about various spectrum allocation methods.

12 (a) Describe position-based routing algorithms.
(b) Is table driven routing protocol suitable for high mobility environments? Justify.

13 (a) Discuss about the TCP-aware cross layered solution.
(b) Explain the classification of multicast protocols for Ad hoc networks.

14 (a) Discuss the intrusion detection techniques for mobile adhoc networks.
(b) Describe the classification of QOS solutions in Adhoc Networks.

15 (a) Give any two applications of wireless sensor networks.
(b) Compare demand based and contention-based MAC protocols for sensor networks.

16 (a) List and explain key features of sensor Node Technology.
(b) Discuss tree based and source-sink applications of WSN.

17 Write notes on:
(a) Vulnerabilities of MANET
(b) Flooding

*****

Code No. 14882/CBCS

FACULTY OF ENGINEERING

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

Subject: Information Storage and Management (Elective – IV)

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 key characteristics of Data centre.
2 How Zoned Bit Recording increases the disk efficiency?
3 Explain striped mirror RAID Configuration.
4 What is LUN Masking?
5 What is Gateway NAS?
6 Write about Fibre channel Arbitrate loop (FC-AL) configuration.
7 What is Business Continuity?
8 What is Virtual tape library?
9 What is Denial of Service attack?
10 Explain Community cloud and Hybrid cloud.

PART – B

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

11 (a) Explain the components and architecture of Flash Drives.
(b) Explain the process of mapping user files to the disk storage subsystem with an LVM.

12 (a) What is Storage Provisioning? Write in detail about Virtual Storage Provisioning.
(b) What are the methods of RAID implementation? Compare different RAID level.

13 (a) Explain the features of CAS in detail.
(b) What is iSCSI? Explain the topologies of iSCSI in detail.

14 (a) What is Zoning? Explain the types of Zoning.
(b) How backup is performed in NAS Environment?

15 (a) Explain Network based local replication in detail.
(b) What is single point of failure? How to resolve single point of failure?

16 (a) Explain the key storage infrastructure management activities performed in a data.
(b) Explain the characteristics and benefits of cloud computing.

17 Write short notes on
(a) Seek Time and Rotational Latency
(b) Nested RAID
(c) Cloud Service Models

*****

Code No: 14802/CBCS

FACULTY OF ENGINEERING

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

Subject : Advanced Control Systems (E – IV)

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

Missing data, if any, may be suitably assumed

PART-A

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

1. State the significance of State Transition Matrix
2. Define controllability
3. Define the concept of State and State Variable
4. What is meant by Sub- Harmonic Oscillation in a non linear system?
5. What is meant by singular point?
6. State the Lyapunov's instability theorem
7. State the behavior of non- linear system
8. State the Fundamental Theorem of the Calculus of Variations

PART-B

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

9. a) State equation of a control system is given by

$$\begin{bmatrix} \dot{x}_1 \\ \dot{x}_2 \end{bmatrix} = \begin{bmatrix} 0 & 1 \\ -5 & 7 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \end{bmatrix}$$

   b) Obtain the state transition matrix

10. Explain in detail about observability test for continuous time invariant system.

11. Convert the following state model into the Jordan cononical form and there from comment on controllability and observability

$$\dot{x}(t) = \begin{bmatrix} 0 & 1 & 0 \\ 0 & 0 & 1 \\ -2 & -4 & -3 \end{bmatrix} x(t) + \begin{bmatrix} 1 & 0 \\ 0 & 1 \\ -1 & 1 \end{bmatrix} u(t), \quad y(t) = \begin{bmatrix} 0 & 1 & -1 \\ 1 & 2 & 1 \end{bmatrix} x(t)$$

12. State and prove the Luapunov's stability theorem? Also explain what the sufficient condition of stability

13. A position control system comprises of a dc servomotor, potentiometer, error detector a relay amplifier and tachogenerator coupled to the motor shaft. The differential equation governing this system is
   a) Reaction torque = $\theta + 0.5\theta$
   b) Drive torque = 3 sign $(e + 0.5\dot{e}); e = \theta_R - \theta$
   c) Draw the block diagram of the system.
   d) Construct a phase trajectory on (e, $\dot{e}$) plane with $\dot{e}(0) = 3$ and comment upon the system stability.

14. Draw a phase plane portrait of the following system.
   $\ddot{\theta} + \dot{\theta} + \sin\theta = 0.$

15. With suitable diagram illustrate the one point fixed end, terminal time t_1 is specified and x(t1) free end problem and derive the necessary condition of Variational Calculus.

****

Code No.14803/CBCS

FACULTY OF ENGINEERING

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

Subject: Electrical Estimation Costing and Safety (E-IV)

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 and discuss about different types of wires

2 What is tendering system and state its necessity

3 State factors for deciding the number of circuits in residential electrification

4 What is the necessity for Earthing of Residential Installation?

5 List design considerations of electrical Installation system for commercial building

6 Explain about protective devices used in electrical installations

7 Draw mounting or arrangement of components in panel board.

8 What is an Electric shock and list the types.

9 What is code of protection? State its necessity.

10 List the Standard Earthing schemes

PART – B

Answer any four questions. **(4 x 15 = 60 Marks)**

11. (a) List various wiring accessories and tools used for Residential Electrification.

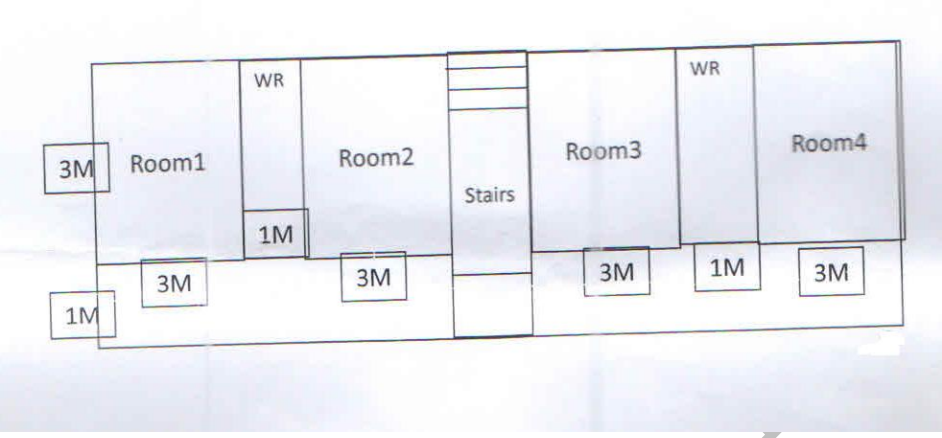
    (b) List different types of wiring system and Compare them.

12. (a) Discuss in detail about procedure to be followed for deciding the number of circuits in residential electrification.

    (b) With a neat sketch discuss about Earth leakage circuit breaker (ELCB).

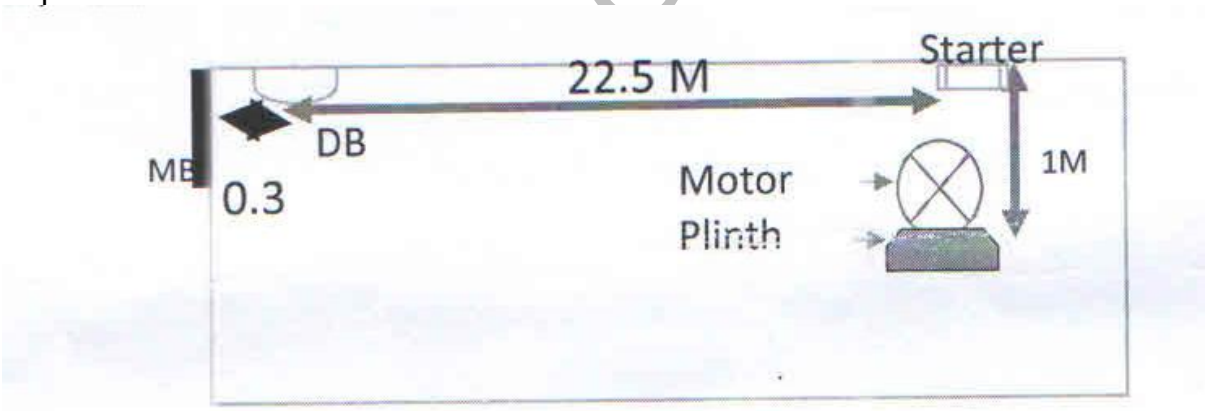
..2

13. A 3 story building with four rooms and two washrooms in each floor as shown in fig below. Each room should have one fan, two lights and one 5A socket connections. Each washroom must have a light connection. The corridor must have two lights and one light on stair case. For the above estimate the wiring cost.



14. (a) Discuss important consideration regarding motor installation wiring.

    (b) The Fig. below shows the plan of workshop. One 15 HP, 3 phase, 415v induction motor is installed. Show the key diagram and estimate quantity of material required.



15. (a) Discuss about any one of standardized earing system with a sketch.

    (b) Discuss about IP code with respect to protection of equipment.

16. (a) What are the two levels of protective measures exist? Explain with examples.

    (b) List various procurement systems and explain tendering system in detail.

17. Write a short notes on

    (i) With respect to wiring, differentiate residential & commercial installations

    (ii) Discuss about selection of Fuse and its rating

    (iii) Define IP & IK code of protection?

* * *

Code No. 14805/CBCS

FACULTY OF ENGINEERING

B. E. VIII – Semester (CBCS) (EEE/Inst.) (Main & Backlog) Examination, July 2021

Subject: Power Quality (Professional Elective – IV)

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 important properties of power quality?
2. What is the purpose of power quality database?
3. What are the causes of voltage sag?
4. Define voltage sage magnitude and sag duration.
5. Write the effect of ASDs on power quality.
6. What are the types of sags and phase angle jumps?
7. Define THD.
8. How do harmonics harm the operation of equipments?
9. What is flicker?
10. What is the need of power quality monitoring?

PART – B

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

11. (a) Explain the following: voltage spikes, surges, swell, voltage fluctuations, interruption.
    (b) Explain short duration voltage variations and long duration variations.

12. (a) Explain voltage sag calculation in meshed systems.
    (b) Explain the magnitude and phase angle jumps for three phase unbalanced sags.

13. (a) Explain Adjustable Speed Drives and their applications.
    (b) Explain the methods of mitigation of harmonics.

14. (a) Explain the effect of harmonics on transformers.
    (b) What are the guidelines for limiting the voltage harmonics?

15. (a) Describe the site surveys regarding power quality.
    (b) Describe transducers.

16. Explain power quality data, data collection, data analysis and data structure.

17. (a) Describe the IEC measurement techniques for harmonics.
    (b) Explain the effect of momentary voltage dip on the operation of induction motor.

******

Code No: 14817/CBCS

FACULTY OF ENGINEERING

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

Subject: Power Plant Design & Safety Management (E-IV)

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

Missing data, if any, may be suitably assumed

PART-A

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

1. Distinguish between Static and Dynamic PSI
2. What is your Opinion about Project management System?
3. Explain Purge System Design Consideration
4. What is meant by Entity Concept?
5. Can you predict the outcome of Training with Documentation?
6. Would you explain about element of Process Safety Management?
7. Can you explain about Digital Certificate in network Security
8. What approach would you use to protect the Network from Viruses?
9. What are Reliability and Scalability?
10. Describe the basic function of the Control System HMI

PART-B

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

11 a) Explain the importance of documentation of map. Draw its block diagram.
   b) Give enumerate the guide lines for Auditing a Plant for Automation system upgrade.

12 a) Can you distinguish between Division and Zone Classification?
   b) With a neat diagram explain Purge Flow Regulator.

13 a) With a net diagram explain about HIPPS Justification.
   b) Explain the function of HAZOP Concept.

14 a) Justify the Public Key Encryption system and explain it's in detail.
   b) Examine the concept of Operating System in Network Security.

15 a) With a neat diagram explain the general design process for New Control Room.
   b) With a neat diagram explain about Classification of Work Station based on Hardware Architecture.

16 a) Explain in detail about the using of the control room design Process
   b) With a suitable example explain about Intrinsic Safety Rules for Field bus Installations.

17 Write a short note on :
   a) Historical Data Storage.
   b) Emergency Response Plan.
   c) Intelligent Alarm Management System

****

Code No: 14347

FACULTY OF ENGINEERING

B.E. 4/4 II-Semester (ECE) (Backlog) Examination, July 2021

Subject : Fuzzy Logic & Applications (E-IV)

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. 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 three questions. **(3x18 = 54 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 four Fuzzification 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

****

Code No. 14373

FACULTY OF ENGINEERING

B.E. 4 /4 II – Semester (Backlog) Examination, July 2021

Subject : Product Design and Process Planning (Elective – III)

Time: 2 Hours **Max marks: 75**

Missing data, if any may be suitably assumed

PART – A

Note: **Answers any Seven questions**. **(7x3=21 Marks)**

1. Differentiate product design and process design.
2. Explain how creativity and innovation are related.
3. Describe Man-Machine interaction.
4. What are the sources of project ideas?
5. Describe the features of intellectual property rights.
6. Explain in brief about copyrights.
7. List out the various steps involved in new product planning.
8. Explain the procedure involved in releasing a new product.
9. What is the importance of value engineering in product design?
10. Explain the role of concurrent engineering in process planning.

PART - B

Note: Answers any Three questions. **(3x18=54 Marks)**

11. a) Discuss the morphology of design in detail.
    b) Define product design and explain various stages of product design.

12. a) How is ergonomics applied to displays and controls? List out the displays and controls used in ergonomics.
    b) Explain the ergonomic considerations in designing a chair and table for a front office.

13. a) Discuss in detail about the research areas for new product development.
    b) Define and differentiate patent and trademarks.

14. Discuss the interaction between the functions of design, manufacture and testing.

15. a) Explain in detail about process planning.
    b) Develop a process sheet for manufacturing a hexagonal bolt.

16. a) Explain in detail about the new product testing and marketing.
    b) Explain the methods used for market evaluation of a product.

17. Write short notes on the following:
    a) Product life cycle.
    b) Brain storming technique.
    c) Selection of a right product.

****

Code No: 14374

FACULTY OF ENGINEERING

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

Subject: Modern Machining & Forming Methods (Elective – III)

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

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

PART – A

Answer any seven questions. **(7x3 = 21 Marks)**

1 Describe the working principle of AJM.
2 What are the functions of 'liquid medium in slurry' used in USM?
3 Enlist the various flushing mechanisms adopted in EDM.
4 Describe briefly the principle of hot machining process.
5 What are the applications of LBM?
6 Distinguish between EBM and PAM.
7 What is the effect of stand -off distance in explosive forming?
8 What are the limitations of High Energy Rate Forming (HERF)?
9 Describe the applications of spinning.
10 Describe the principle of stretch forming.

PART – B

Answer any three questions. **(3x18 = 54 Marks)**

11 (a) Explain the influence of abrasive flow rate and mixing ratio on MRR in AJM process.
(b) Describe the principle of WJM. What are the advantages and disadvantages of water jet machining?

12 (a) Sketch and explain the working principle and operation of Electro Discharge Machine. Mention its applications.
(b) Discuss the limitations and characteristics of ECM.

13 (a) Explain the Electron Beam Machining process with a neat sketch. Give its limitations and applications.
(b) What do you understand transferred and non-transferred arc in PAM? Explain with sketches.

14 (a) Explain principle and working of Guerin and wheel-on forming processes.
(b) Explain the Electro-hydraulic forming process with neat sketch. Give its limitations and applications.

15 (a) Differentiate between backward flow and forward flow spinning.
(b) Explain the working principle, process variables and applications of WHF.

16 (a) Difference between stretch draw forming and rotary stretch forming.
(b) Explain the principle and limitation of contact type of explosive forming process.

17 Write short notes on the following:
(a) Transducers used in USM.
(b) High Speed Machining
(c) Ion Etching

*****