

(2)  
B-Tech- All Branch  
7<sup>th</sup> & 8<sup>th</sup> sem

Shri Balasaheb Mane Shikshan Prasarak Mandal, Ambap's  
**ASHOKRAO MANE GROUP OF INSTITUTIONS**

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**QUESTION PAPER: (B. Tech/M. Tech/MBA)**

Class: B-Tech All Branch Dept: All Branch

Exam date: August - 2022  
/ / 20 Paper Quantity: 13



B-Tech - 7<sup>th</sup> & 8<sup>th</sup> sem

① Mech ② civil ③ ETC ④ CSE ⑤ Electr

## DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular End Semester Examination – Summer 2022

Course: B. Tech. Branch : Civil Engineering

Semester : VIII<sup>th</sup> Semester

Subject Code &amp; Name: BTCESS802C Remote Sensing Essentials

Duration: 3.45 Hr.

Max Marks: 60

Date: 07/07/2022

/Instructions to the Students:/

1. All the questions are compulsory.
2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.
3. Use of non-programmable scientific calculators is allowed.
4. Assume suitable data wherever necessary and mention it clearly.

(Level/CO) Marks

Q.1 Solve Any Two of the following.

- A) What are the different types of electromagnetic waves used in remote sensing?
- B) Explain detailed process of remote sensing with a neat labeled diagram.
- C) Elaborate on the differences between spatial resolution and spectral resolution.

6

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Q.2 Solve Any Two of the following.

- A) Explain Planks Law for study of radiation and its applications in remote sensing.
- B) Explain different applications of Passive Microwave Remote Sensing.
- C) Explain the difference between multi-layered and multispectral images.

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Q.3 Solve Any Two of the following.

- A) Write short notes on various image enhancement techniques.
- B) Write short notes on georeferencing of images.
- C) Explain various types of Image Histograms with their characteristic features.

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Q.4 Solve Any Two of the following.

- A) Explain in detail about workings of LiDAR system.
- B) What is the difference between Unsupervised classification and Supervised classification of digital images?
- C) What are the major characteristic features of Hyperspectral Remote Sensing technique and its applications?

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Q.5 Solve Any Two of the following.

- A) What are the limitations of high spatial resolution satellite images?
- B) What are the applications of Remote Sensing in Earthquake Studies?
- C) What are the limitations of Remote Sensing?

6

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6

\*\*\* End \*\*\*



DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular End Semester Examination – Summer 2022

Course: B. Tech. Branch : CIVIL

Semester : VIII

Subject Code & Name: BTCVSS801D Maintenance and Repairs of Concrete Structures.

Date: 04/07/2022

Max Marks: 60

Duration: 3.45 Hr.

Instructions to the Students:

1. All Questions are Compulsory
2. Draw neat diagram wherever necessary.
3. Figures to right indicates full marks
4. Assume suitable data wherever necessary and mention it clearly

(Level/CO) Marks

Q. 1 Solve Any Two of the following.

- A) Explain chloride induced corrosion.
- B) What are different types of rebars?
- C) Write a short note on ring test for assessing the quality of steel rebars.

06  
06  
06

Q. 2 Solve Any Two of the following.

- A) Explain internal and external Sulphate attack on cementitious systems.
- B) What are precautionary measures to save post tensioned member against corrosion?
- C) Explain in brief cosmetic and structural surface repairs.

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Q. 3 Solve Any Two of the following.

- A) How to prepare the surface for repair of concrete?
- B) Explain electrochemical chloride extraction technique.
- C) Write the ingredients of materials used for repair.

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Q. 4 Solve Any Two of the following.

- A) Explain rapid chloride penetration test.
- B) Explain external post tensioning repair method.
- C) Write causes of cracks in concrete.

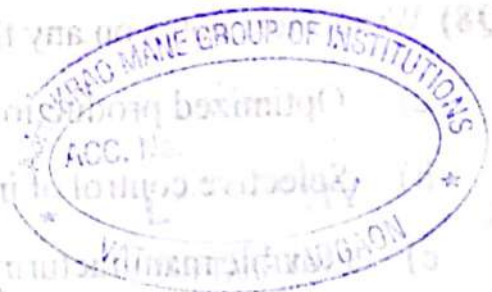
06  
06  
06

Q. 5 Solve Any Two of the following.

- A) Explain expansion joint with shear dowels.
- B) Write flexural strength repair method for beams.
- C) Explain injection grout method for concrete repair.

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06  
06

\*\*\* End \*\*\*



DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Supplementary Semester Examination – Summer 2022

Course: B. Tech.

Branch: Civil Engineering

Semester: VII

Subject Code & Name: BTCVC703 Water Resource Engineering

Max Marks: 60

Date: 22/08/2022

Duration: 3.45 Hrs.

Instructions to the Students:

1. All the questions are compulsory.
2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.
3. Use of non-programmable scientific calculators is allowed.
4. Assume suitable data wherever necessary and mention it clearly.

|                                                                                                      | (Level/CO) | Marks     |
|------------------------------------------------------------------------------------------------------|------------|-----------|
| <b>Q. 1 Solve the following questions.</b>                                                           |            | <b>12</b> |
| A) Explain types of irrigation system.                                                               | CO1        | 06        |
| B) Explain classes of soil water with neat labelled sketches                                         | CO2        | 06        |
| <b>Q.2 Solve Any Two of the following.</b>                                                           |            | <b>12</b> |
| A) Explain forces acting on a gravity dam with neat labelled diagram.                                | CO2        | 06        |
| B) Explain the various levels in reservoir with suitable diagram.                                    | CO2        | 06        |
| C) What are the different modes of failure of gravity/ earthen dam?                                  | CO2        | 06        |
| <b>Q.3 Solve Any Two of the following.</b>                                                           |            | <b>12</b> |
| A) What do you mean by spillways? Why are spillways provided in dams? Enlist the types of spillways. | CO2        | 06        |
| B) Explain cross drainage works in detail.                                                           | CO2        | 06        |
| C) Why should lining be provided in canals? What are the merits and demerits of canal lining?        | CO2        | 06        |
| <b>Q.4 Solve Any Two of the following.</b>                                                           |            | <b>12</b> |
| A) Explain various forms of precipitation.                                                           | CO1        | 06        |
| B) Define the following terms: 1. Specific yield<br>2. Unit Hydrograph<br>3. Aquicludes              | CO1        | 06        |
| C) What are the comparative advantages of well and canal irrigation?                                 | CO 2       | 06        |
| <b>Q.5 Solve the following questions.</b>                                                            |            | <b>12</b> |
| A) How to reclaim the water-logged alkaline sands.                                                   | CO 1       | 06        |
| B) What are the preventive and curative measures of water logging?                                   | CO1        | 06        |

\*\*\* End \*\*\*

## DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Supplementary Semester Examination – Summer 2022

Course: B. Tech.

Branch: Civil Engineering

Semester: VII

Subject Code &amp; Name: BTCVC703 Water Resource Engineering

Max Marks: 60

Date: 22/08/2022

Duration: 3.45 Hrs.

**Instructions to the Students:**

1. All the questions are compulsory.
2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.
3. Use of non-programmable scientific calculators is allowed.
4. Assume suitable data wherever necessary and mention it clearly.

|                                                                                                      | (Level/CO) | Marks |
|------------------------------------------------------------------------------------------------------|------------|-------|
| <b>Q.1 Solve the following questions.</b>                                                            |            | 12    |
| A) Explain types of irrigation system.                                                               | CO1        | 06    |
| B) Explain classes of soil water with neat labelled sketches.                                        | CO2        | 06    |
| <b>Q.2 Solve Any Two of the following.</b>                                                           |            | 12    |
| A) Explain forces acting on a gravity dam with neat labelled diagram.                                | CO2        | 06    |
| B) Explain the various levels in reservoir with suitable diagram.                                    | CO2        | 06    |
| C) What are the different modes of failure of gravity/ earthen dam?                                  | CO2        | 06    |
| <b>Q.3 Solve Any Two of the following.</b>                                                           |            | 12    |
| A) What do you mean by spillways? Why are spillways provided in dams? Enlist the types of spillways. | CO2        | 06    |
| B) Explain cross drainage works in detail.                                                           | CO2        | 06    |
| C) Why should lining be provided in canals? What are the merits and demerits of canal lining?        | CO2        | 06    |
| <b>Q.4 Solve Any Two of the following.</b>                                                           |            | 12    |
| A) Explain various forms of precipitation.                                                           | CO1        | 06    |
| B) Define the following terms: 1. Specific yield<br>2. Unit Hydrograph<br>3. Aquicludes              | CO1        | 06    |
| C) What are the comparative advantages of well and canal irrigation?                                 | CO 2       | 06    |
| <b>Q.5 Solve the following questions.</b>                                                            |            | 12    |
| A) How to reclaim the water-logged alkaline sands.                                                   | CO 1       | 06    |
| B) What are the preventive and curative measures of water logging?                                   | CO1        | 06    |

\*\*\* End \*\*\*



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DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular End Semester Examination – Summer 2022

Course: B. Tech. Branch: Mechanical Engineering

Semester: VIII

Subject Code & Name: BTMECE801A Fundamentals of Automotive Systems

Max Marks: 60

Date: 04/07/2022

Duration: 3.45 Hr.

Instructions to the Students:

1. All the questions are compulsory.
2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.
3. Use of non-programmable scientific calculators is allowed.
4. Assume suitable data wherever necessary and mention it clearly.

|                                                                                                                                    | (Level/CO) | Marks |
|------------------------------------------------------------------------------------------------------------------------------------|------------|-------|
| <b>Q. 1 Solve Any Two of the following.</b>                                                                                        |            |       |
| A) What are the limitations of the supercharging in an IC engine?                                                                  |            | 06    |
| B) Briefly explain the following: (i) time loss factor (ii) heat loss factor (iii) exhaust blowdown factor.                        |            | 06    |
| C) Explain the loop scavenging process in two-stroke engine with neat schematic diagram.                                           |            | 06    |
| <b>Q.2 Solve Any Two the following.</b>                                                                                            |            |       |
| A) Explain the stages of combustion in CI engine?                                                                                  |            | 06    |
| B) Briefly discuss the air–fuel ratio of a petrol engine from no load to full load.                                                |            | 06    |
| C) Explain the exhaust gas recirculation (EGR) method for controlling the emissions from the engine.                               |            | 06    |
| <b>Q.3 Solve Any Two of the following.</b>                                                                                         |            |       |
| A) Explain the engine power–torque vs speed characteristics for actual internal combustion engine with suitable performance curve. |            | 06    |
| B) Explain the working of clutch in automotive with suitable layout.                                                               |            | 06    |
| C) Describe the working of multi speed gear box                                                                                    |            | 06    |
| <b>Q.4 Solve the following.</b>                                                                                                    |            |       |
| A) Explain the hydraulic braking system.                                                                                           |            | 06    |
| B) What is antilock braking system? Explain with suitable diagram.                                                                 |            | 06    |
| <b>Q.5 Solve Any Two of the following.</b>                                                                                         |            |       |
| A) Explain the hydraulic power steering system with suitable schematic diagram.                                                    |            | 06    |
| B) Describe the various types of front suspension systems.                                                                         |            | 06    |
| C) What are the causes of tyre heat and how can it be reduced?                                                                     |            | 06    |

\*\*\* End \*\*\*



## DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular End Semester Examination – Summer 2022

Course: B. Tech.

Branch: Automobile/ Production/Mechanical Engineering.

Semester : VIII

Subject Code: BTMEC801F/ BTAMC801F

Subject Name: Non-Conventional Energy Resources

Max Marks: 60

Date: 07/07/2022

Duration: 3.45 Hr.

## Instructions to the Students:

1. All the questions are compulsory.
2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.
3. Use of non-programmable scientific calculators is allowed.
4. Assume suitable data wherever necessary and mention it clearly.

(Level/CO) Marks

## Q. 1 Solve Any Two of the following.

- A) What is fossil fuel? What are different alternatives for fossil fuel? 6
- B) Explain national energy strategies and National energy plan 6
- C) Explain energy consumption as a measure of prosperity and world energy future. 6

## Q.2 Solve Any Two of the following.

- A) Explain solar energy as alternative energy source. 6
- B) Explain solar energy conversion systems and their applications. 6
- C) Explain with neat sketch solar flat plate collector as solar air heater. 6

## Q.3 Solve Any Two of the following.

- A) Explain the following terms 6
1. Solar constant.
  2. Solar spectrum.
  3. Clarity Index.
  4. Declination angle.
  5. Zenith angle.
  6. Day length hours.
- B) Explain principle of working of a solar cell. 6
- C) Explain various types of commercial solar cells. 6

## Q.4 Solve Any Two of the following.

- A) What is wind data and energy estimation in wind energy? 6
- B) What are various types of rotors in wind mill? Draw a neat labelled sketch of propeller type of wind machine. 6
- C) What is principle of OTEC? Draw neat labelled sketch of open cycle OTEC power plant. 6

## Q.5 Solve Any Two of the following.

- A) Explain principle of MHD power generation. 6
- B) Write design and principle of operation of a fuel cell. 6
- C) Explain with neat sketch working of Lithium ion Batteries. 6

\*\*\* End \*\*\*



**DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE**

**Supplementary Semester Examination – Summer 2022**

**Course: B. Tech. Branch : Mechanical Engineering**

**Semester :VII**

**Subject Code & Name: BTMEC701 & Mechatronics**

**Max Marks: 60**

**Date:13/08/2022**

**Duration: 3.45 Hrs.**

**Instructions to the Students:**

1. All the questions are compulsory.
2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.
3. Use of non-programmable scientific calculators is allowed.
4. Assume suitable data wherever necessary and mention it clearly.

(Level/CO) Marks

**Q.1 Solve Any Two of the following**

- A) What are the elements of a closed loop control system? (CO1) (6)
- B) What are the various static and dynamic characteristics of a sensor? (CO1) (6)
- C) How a tactile sensor works? (CO5) (6)

**Q.2 Solve Any Two of the following**

- A) How a differential amplifier works? (CO3) (6)
- B) What is the specialty of a successive approximations Analog to Digital Converter (ADC)? (CO2) (6)
- C) How a Digital to Analog Converter (DAC) works? (CO2) (6)

**Q.3 Solve Any Two of the following**

- A) Analyse the controlling action of a double-acting cylinder? (CO6) (6)
- B) How the valve bodies are classified? (CO1) (6)
- C) What are the applications of single acting cylinder? (CO1) (6)

**Q.4 Solve Any Two of the following**

- A) Explain the microcontroller with a block diagram? (CO2) (6)
- B) What are the various types of registers and their functions in 8085 microprocessor? (CO5) (6)
- C) What do you mean by Ladder Logic? Design a Ladder Logic for a simple task of your choice? (CO4) (6)

**Q.5 Solve Any Two of the following.**

- A) What do you mean by transfer function? Why derivative controller mode cannot be used alone? (CO6) (6)
- B) Explain the response of a first order system to a step-input? (CO5) (6)
- C) What is the specialty of a PID controller? Design a PID controller for temperature control. (CO6) (6)

**\*\*\* End \*\*\***



**DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE**

**Regular End Semester Examination – Summer 2022**

**Course: B. Tech.**

**Branch : Electrical Engineering**

**Semester : VIII**

**Subject Code & Name: BTEEP801.6 Introduction to Industry 4.0 and Industrial Internet of Things**

**Max Marks: 60**

**Date: 04/07/2022**

**Duration: 3.45 Hr.**

**Instructions to the Students:**

1. All the questions are compulsory.
2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.
3. Use of non-programmable scientific calculators is allowed.
4. Assume suitable data wherever necessary and mention it clearly.

**(Level/CO) Marks**

**Q.1 Solve Any Two of the following.**

**2 x 6**

- A) Define actuators, give its classification and discuss working of electric linear actuator with neat diagram. (L3/CO1)
- B) With the help of protocol diagram discuss working of Message Queue Telemetry Transport system. (L3/CO1)
- C) Discuss emerging issues and their sustainability assessment for IIoT. (L3/CO1)

**Q.2 Solve Any Two of the following.**

**2 x 6**

- A) Define product lifecycle management and discuss its role in Industry 4.0. (L3/CO2)
- B) State merits of industrial Internet and discuss its application in power plant. (L3/CO2)
- C) What do you mean by KUKA? With suitable diagram explain its working. (L3/CO2)

**Q.3 Solve Any Two of the following.**

**2 x 6**

- A) Describe in brief, working of temperature sensor interface circuit using LM35 and DS1621. (L3/CO3)
- B) With the help of block diagram discuss the working of gas sensing system. (L3/CO3)
- C) Write and discuss the transmitter program for Xbee transmitter (L3/CO3)

**Q.4 Solve Any Two of the following.**

**2 x 6**

- A) Describe Machine learning and Deep learning in Industrial Internet of Things analytics. (L3/CO4)
- B) Draw and discuss fog computing architecture for Industrial Internet of Things. (L3/CO4)
- C) With the help of suitable diagram discuss the protocol stack for SD-6TiSCH. (L3/CO4)

**Q.5 Solve Any Two of the following.**

**2 x 6**

- A) Define digital twin and discuss the smart grid in power system with suitable diagram. (L3/CO5)
- B) Discuss the work-flow of oil and gas industry with respect to IoT. (L3/CO5)
- C) Describe the application of UAV in forestry. (L3/CO5)

**\*\*\* End \*\*\***



**DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE**

**Regular End Semester Examination – Summer 2022**

Course: B. Tech.

Branch :Electrical Engineering

Semester :VIIIth

Subject Code & Name: BTEEP801:2

DC Power Transmission System

Max Marks: 60

Date: 07/07/2022

Duration: 3.45 Hr.

**Instructions to the Students:**

1. All the questions are compulsory.
2. The level of question/expected answer, as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.
3. Use of non-programmable scientific calculators is allowed.
4. Assume suitable data wherever necessary and mention it clearly.

|                                                                                                     | (Level/CO) | Marks |
|-----------------------------------------------------------------------------------------------------|------------|-------|
| <b>Q.1 Solve Any Two of the following.</b>                                                          |            | 12    |
| A) Analysis of Graetz circuit with overlap.                                                         | CO1        | 6     |
| B) Explain Choice of Converter Configuration                                                        | CO2        | 6     |
| C) Explain advantages and disadvantages of DC transmission system and applications.                 | CO3        | 6     |
| <b>Q.2 Solve Any Two of the following.</b>                                                          |            | 12    |
| A) Explain Capacitor commutated converter.                                                          | CO1        | 6     |
| B) Explain Converter control characteristics                                                        | CO2        | 6     |
| C) Explain Fourier series, analysis of 6 pulse LCC neglecting overlap                               | CO3        | 6     |
| <b>Q.3 Solve the following.</b>                                                                     |            | 12    |
| A) Analysis of 6 pulse LCC neglecting inductance                                                    | CO1        | 6     |
| B) Explain Extinction angle, Commutation margin angle for normal inverter operation of 6 pulse LCC. | CO2        | 6     |
| <b>Q.4 Solve Any Two of the following.</b>                                                          |            | 12    |
| A) Explain Steady state analysis of a general LCC                                                   | CO1        | 6     |
| B) Explain Types of AC Filters                                                                      | CO2        | 6     |
| C) Explain characteristics and Non-characteristic harmonics.                                        | CO3        | 6     |
| <b>Q.5 Solve the following.</b>                                                                     |            | 12    |
| A) Explain Principles of DC Link Control with neat diagrams and derivation.                         | CO1        | 6     |
| B) Explain Types of MTDC systems with neat diagrams.                                                | CO2        | 6     |

\*\*\* End \*\*\*

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DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Supplementary End Semester Examination – Summer 2022

Course: B. Tech.

Branch : E&TC

Semester : VII

Subject Code & Name: BTETC701 Digital Communication

Max Marks: 60

Date: 13/08/2022

Duration: 3.45 Hr.

Instructions to the Students:

1. All the questions are compulsory.
2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.
3. Use of non-programmable scientific calculators is allowed.
4. Assume suitable data wherever necessary and mention it clearly.

(Level/CO) Marks

Q.1 Solve Any Two of the following.

- A) With neat block diagram, explain basic digital communication system. Level 4/CO3 6
- B) State any six advantages of Digital Communication over Analog Communication. Level 3/CO2 6
- C) Attempt following questions Level 4/CO3 6
- a. State sampling theorem
  - b. What is meant by aliasing effect
  - c. What is meant by a Random Process

Q.2 Solve Any Two of the following.

- A) Given the data stream 101001110010, sketch the transmitted sequence of pulses for each of the following line codes: Level 2/CO2 6
- Unipolar NRZ
- Polar RZ
- Manchester code
- B) State and explain properties of Autocorrelation and Crosscorrelation Level 3/CO2 6
- C) Let  $Y(t)$  be the output of an LTI system with impulse response  $h(t)$ , when  $X(t)$  is applied as input. Show that Level 1/CO2 6
- a)  $R_{XY}(t_1, t_2) = \int_{-\infty}^{\infty} h(\beta) R_{XX}(t_1, t_2 - \beta) d\beta$
  - b)  $R_{YY}(t_1, t_2) = \int_{-\infty}^{\infty} h(\alpha) R_{XY}(t_1 - \alpha, t_2) d\alpha$

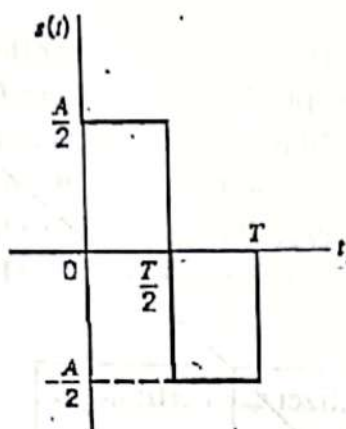
Q.3 Solve Any Two of the following.

- A) Define Mean, Correlation, and Covariance functions. Level 4/CO2 6
- B) Determine the output SNR in a Delta Modulation system for a 1-kHz sinusoid, sampled at 32 kHz, without slope overload, and followed by a 4-kHz post reconstruction filter. Level 2/CO2 6

C) For signal  $s(t)$  shown in the figure

Level 2/CO1

6



- Determine the impulse response of a filter matched to this signal and sketch it as a function of time.
- Plot the matched filter output as a function of time.
- What is the peak value of the output?

Q.4 Solve following questions.

A) With neat block diagram explain Noncoherent Detection of BFSK signals.

Level 3/CO1

6

B) A pseudo random sequence is generated using a feedback shift register of length  $m=4$ . The bit rate is 107 bits per second. Find the following

Level 2/CO1

6

- Pseudo Noise sequence length
- Bit duration of Pseudo Noise sequence
- Pseudo Noise sequence period

Q.5 Solve Any Two of the following.

A) Explain in detail the term Inter symbol Interference

Level 3/CO4

6

B) Draw and explain Frequency Hop Spread Transmitter and Receiver.

Level 4/CO4

6

C) Draw and explain the transmitter and receiver of delta modulation.

Level 3/CO3

6

What is meant by slope overload distortion?

\*\*\* End \*\*\*

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular End Semester Examination – Summer 2022

Course: B. Tech. Branch : Electronics Engineering Semester : VIII

Subject Code & Name: BTETPE801A Introduction To Internet Of Things

Date: 04/07/2022 Max Marks: 60 Duration: 3.45 Hr.

Instructions to the Students:

1. All Questions are Compulsory
2. Draw neat diagram wherever necessary.
3. Figures to right indicates full marks
4. Assume suitable data wherever necessary and mention it clearly

(Level/CO) Marks

Q.1 Solve Any Two of the following.

- A) With the help of a block diagram write a short note on what is Internet of Things. 06
- B) Enlist the characteristics and Advantages of Internet of Things and explain in brief. 06
- C) What are the enabling technologies of IOT [Internet of Things] 06

Q.2 Solve Any Two of the following.

- A) What is cloud computing and what are types of clouds? 06
- B) Write a short note on Actuators in IOT [Internet of Things]. 06
- C) Explain Machine to Machine [M2M] communication in IOT [Internet of Things] with the help of requirements and features 06

Q.3 Solve Any Two of the following.

- A) With the help of a neat diagram explain Software Defined Networks. 06
- B) Write a short note on Fog Computing 06
- C) Explain the Sensor Network architecture in brief. 06

Q.4 Solve Any Two of the following.

- A) What is 6 LOWPAN protocol? 06
- B) Write a short note on Industrial IOT [Internet of Things] 06
- C) Explain the 6 important IOT [internet of Things] communication protocols in short 06

Q.5 Solve Any Two of the following.

- A) Considering the features and benefits, write a short note on Smart Cities using IOT [Internet of Things] 06
- B) Write a short note on IOT [Internet of Things] in Healthcare 06
- C) What is smart Agriculture using IOT [Internet of Things]? 06

\*\*\* End \*\*\*

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular End Semester Examination – Summer 2022

Course: B. Tech. Branch : Electronics and Telecommunication Engineering

Subject Code & Name: Computer Vision and Image Processing (BTETPE802B)

Date: 07/07/2022 Semester : VIII Max Marks: 60

Duration: 3.45 Hr.

Instructions to the Students:

1. All Questions are Compulsory
2. Draw neat diagram wherever necessary.
3. Figures to right indicates full marks
4. Assume suitable data wherever necessary and mention it clearly

(Level/CO) Marks

Q.1 Solve Any Two of the following.

- A) What is Computer Vision and state Important application of Computer vision
- B) Explain CWT for stationary and non-stationary signal
- C) What are the Basic parts of Image Formation Process

06  
06  
06

Q.2 Solve Any Two of the following.

- A) Explain the terms SNR and PNSR for Image Quality Measurement
- B) What are the three types of segmentation? Explain them
- C) Applying the region splitting and merging on the following Image will lead to how many isolated pixels for a threshold value  $\leq 1$

06  
06  
06

|   |   |   |   |
|---|---|---|---|
| 1 | 1 | 1 | 2 |
| 1 | 1 | 1 | 0 |
| 3 | 1 | 6 | 6 |
| 1 | 1 | 5 | 6 |

Q.3 Solve Any Two of the following.

- A) Explain the color feature and explain the concept edge detection
- B) Explain the term Image Scaling
- C) Explain the frequency domain technique for Image Enhancement.

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Q.4 Solve Any Two of the following.

- A) Describe how grey level histograms can be used for Image Segmentation.
- B) What are the steps of Image Analysis? Explain with Diagram
- C) A 3-bit image patch is given below-

06  
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06

|   |   |   |
|---|---|---|
| 1 | 2 | 3 |
| 4 | 5 | 0 |
| 7 | 2 | 1 |

Using bit plane slicing the patch is disintegrate into bit planes and the LSB plane is discarded find the reconstructed image patch.

Q.5 Solve Any Two of the following.

- A) Explain the concept of Texture Analysis in details.
- B) Explain the concept of Video Surveillance System.
- C) What are the Components of Pattern Recognition System?

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\*\*\* End \*\*\*

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular End Semester Examination – Summer 2022

Course: B. Tech. Branch : Computer Engineering

Semester : VIII

Subject Code & Name: BTCOE801 (A): Deep Learning

Date: 04/07/2022

Max Marks: 60

Duration: 3.45 Hr.

Instructions to the Students:

1. All Questions are Compulsory
2. Draw neat diagram wherever necessary.
3. Figures to right indicates full marks
4. Assume suitable data wherever necessary and mention it clearly

|                                                                      | (Level/CO) | Marks |
|----------------------------------------------------------------------|------------|-------|
| <b>Q.1 Solve Any Two of the following.</b>                           |            |       |
| A) Discuss Features of Bayesian learning                             | 6          | 06    |
| B) Explain Linear Classifiers with suitable examples                 | 4          | 06    |
| C) Explain Perceptron Learning Algorithm                             | 4          | 06    |
| <b>Q.2 Solve Any Two of the following.</b>                           |            |       |
| A) Explain Feed Forward Neural Networks                              | 3          | 06    |
| B) Explain Principal Component Analysis and its interpretations.     | 3          | 06    |
| C) Discuss the applications of Machine Learning                      | 6          | 06    |
| <b>Q.3 Solve Any Two of the following.</b>                           |            |       |
| A) Draw and explain the architecture of convolutional network        | 5          | 06    |
| B) Explain Bayesian Learning                                         | 5          | 06    |
| C) Explain Batch optimization.                                       | 5          | 06    |
| <b>Q.4 Solve Any Two of the following.</b>                           |            |       |
| A) Discuss Recent Trends in Deep Learning Architectures              | 6          | 06    |
| B) Explain features of Classical Supervised Tasks with Deep Learning | 6          | 06    |
| C) Explain Skip Connection Network                                   | 5          | 06    |
| <b>Q.5 Solve Any Two of the following.</b>                           |            |       |
| A) Discuss Generative Modeling with Deep Learning                    | 3          | 06    |
| B) Discuss Generative Adversarial Networks                           | 6          | 06    |
| C) Discuss Building blocks of CNN                                    | 6          | 06    |

\*\*\* End \*\*\*

## DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular End Semester Examination – Summer 2022

Course: B. Tech.

Branch: Computer Engineering

Semester: VIII

Subject Code &amp; Name: BTCOE802 (B) Cryptography &amp; Network Security

Max Marks: 60

Date: 07/07/2022

Duration: 3.45 Hr.

Instructions to the Students:

1. All the questions are compulsory.
2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.
3. Use of non-programmable scientific calculators is allowed.
4. Assume suitable data wherever necessary and mention it clearly.

|                                                                                                                                                                                             | (Level/CO) | Marks |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------|
| <b>Q.1 Solve Any Two of the following.</b>                                                                                                                                                  |            |       |
| A) What is Cryptography? Explain The main aspects of cryptography.                                                                                                                          | Remember   | 06    |
| B) Explain What is Block Cipher? How does Block Cipher Works?                                                                                                                               | Remember   | 06    |
| C) Illustrate Remainders and Modular Arithmetic.                                                                                                                                            | Apply      | 06    |
| <b>Q.2 Solve Any Two of the following.</b>                                                                                                                                                  |            |       |
| A) Find the Modular Inverse                                                                                                                                                                 | Evaluate   | 06    |
| i. $A=3, M=7$                                                                                                                                                                               |            |       |
| ii. $A=2, M=6$                                                                                                                                                                              |            |       |
| iii. $A=3, M=11$                                                                                                                                                                            |            |       |
| B) Prove Fermat's little theorem states.                                                                                                                                                    | Apply      | 06    |
| if $p$ is a prime number, then for any integer $a$ , the number $a^p - a$ is an integer multiple of $p$ .                                                                                   |            |       |
| $a^p \equiv a \pmod{p}$ .                                                                                                                                                                   |            |       |
| Special Case: If $a$ is not divisible by $p$ , Fermat's little theorem is equivalent to the statement that $a^{p-1} - 1$ is an integer multiple of $p$ . Here $a$ is not divisible by $p$ . |            |       |
| $a^{p-1} \equiv 1 \pmod{p}$                                                                                                                                                                 |            |       |
| OR                                                                                                                                                                                          |            |       |
| $a^{p-1} \% p = 1$                                                                                                                                                                          |            |       |
| C) Differentiate Symmetric vs. Asymmetric Cryptography                                                                                                                                      | Analyze    | 06    |
| <b>Q.3 Solve Any One of the following.</b>                                                                                                                                                  |            |       |
| A) What is ElGamal Cryptosystem? Write code for implementing ElGamal Cryptosystem                                                                                                           | Evaluate   | 12    |
| B) What is Rabin Cryptosystem? Explain steps in Rabin Cryptosystem.                                                                                                                         | Analyze    | 12    |
| C) Explain in details the classification Process types of Digital Signature.                                                                                                                | Apply      | 12    |
| <b>Q.4 Solve Any Two of the following.</b>                                                                                                                                                  |            |       |
| A) Explain Working of Cryptographic Hash Function.                                                                                                                                          | Analyze    | 06    |
| B) Describe SHA Forms                                                                                                                                                                       | Apply      | 06    |
| C) How does the Digital Signature Standard work?                                                                                                                                            | Apply      | 06    |
| <b>Q.5 Solve Any One of the following.</b>                                                                                                                                                  |            |       |



A) Explain Cryptanalysis techniques for stream ciphers.

Remember 12

B) What is secret sharing? Explain with Example, Also Explain how Shamir's Secret Key Works?

Evaluate 12

C) Describe Types of Side Channel Attack.

Analyze 12

\*\*\* End \*\*\*

