

H.T No:

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R18

Course Code: A30211



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech V Semester Regular/Supplementary Examinations December-2022

Course Name: **POWER SYSTEMS-II**

(Electrical & Electronics Engineering)

Date: 05.12.2022 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all **TEN** questions (Compulsory)

Each question carries **TWO** marks.

10x2=20M

- | | | |
|-----|---|-----|
| 1. | What is the need of transposition of conductors? | 2 M |
| 2. | What is effect of ground on capacitance? | 2 M |
| 3. | What are the limitations and applications of nominal Π and give its applications? | 2 M |
| 4. | What are reflected and refracted waves, explain? | 2 M |
| 5. | Why rigorous solution method is required for long transmission lines? | 2 M |
| 6. | Classify line insulators. | 2 M |
| 7. | Write a short notes on capacitance grading of line insulators. | 2 M |
| 8. | What are the main components of overhead lines? | 2 M |
| 9. | What is the need for grading of cables and explain? | 2 M |
| 10. | Classify Under Ground cables. | 2 M |

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). i) Clearly explain what do you understand by GMR and GMD of a transmission line? 5M
 ii) Calculate the capacitance per phase of a three phase, three wire system, when the conductors are arranged in a horizontal plane with spacing $D_{12}=D_{23}=3.5\text{m}$, and $D_{13}=7\text{m}$. The conductors are transposed and each has a diameter of 2.0cm. 5M

OR

11. B). i) What are ACSR conductors? Explain the advantages of ACSR conductors when used for overhead lines. 5M
 ii) Calculate the capacitance per phase of a three phase, three wire system by considering earth effect, when the conductors are arranged in a horizontal plane with spacing of $D_{12}=D_{23}=3.2\text{m}$, and $D_{31}=7\text{m}$. The conductors are transposed and each has a diameter of 2.0cm. Assume the transmission line is 4m above the ground level. 5M
12. A). i) Derive A,B,C and D constants of long line. 5M
 ii) A three-phase line delivers 3600kW at a power factor 0.8lagging to a load. If the receiving end voltage is 33kV, determine i) receiving end voltage ii) line current iii) transmission efficiency. The resistance and reactance of each conductor is 5.31Ω and 10Ω respectively. 5M

(P.T.O..)

OR

12. B). i) Explain in detail about wave length and velocity of propagation of a long transmission line. 5M
ii) A 3-phase has a series impedance of $300 \angle 75^\circ$ ohms per phase and shunt admittance of $25 \times 10^{-4} \angle 90^\circ$ Siemens per phase. The voltage at the receiving end is 220kV but there is no load at receiving end. A load of 100MW at UPF is connected at the midpoint of the line. Using nominal- π method, find sending end voltage. 5M

13. A). i) Explain about corona parameters of transmission lines. 5M
ii) A 132 kV line with 2cm diameter is built so that corona takes place if the line voltage is 220kV (r.m.s). If the value of potential gradient at which ionization occurs can be taken as 30kV per cm (peak). Find the spacing between the conductors. 5M

OR

13. B). i) Explain about factors effecting corona of transmission lines. 5M
ii) Find the disruptive critical voltage and visual corona voltage (local corona as well as general corona) for a 3 phase 220kV line consisting of 22.26mm diameters conductors spaced in a 6 meters delta configuration. The following data can be considered. Temperature 25°C , Pressure 73cm of mercury, surface factor 0.84, irregularity factor for local corona is 0.72, irregularity factor for general corona is 0.82m. 5M

14. A). i) Explain how sag is determined for an overhead line conductor taking into account the effects of wind and ice loading. 5M
ii) Each of the three insulators forming a string has a self-capacitance of 'C' Farads. The shunting capacitance of the connecting metal work of each insulator is 0.3C to earth and 0.2C to the line. A guard ring increases the capacitance to the line of the metal work of the lowest insulator to 0.5C. Calculate the string efficiency of this arrangement with the guard ring. 5M

OR

14. B). i) Derive the expression for sag and tension when the supports are at unequal heights. 5M
ii) A string of eight suspension discs is fitted with a grading ring. Each pin to earth capacitance is C. If the voltage distribution is uniform find the values of line to pin capacitances. 5M

15. A). i) Derive the expression for capacitance of single cored belted cables. 5M
ii) Give the comparison between underground cables and overhead transmission lines on various factors? 5M

OR

15. B). i) A single core cable has a conductor diameter of 1cm and insulation thickness of 0.4cm. If the specific resistance of insulation is 5×10^{14} ohms-cm, calculate the insulation resistance for a 2km length of the cable. 5M
ii) Derive the dielectric stress in a single core cable. 5M

H.T No:

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R18

Course Code: A30209



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech V Semester Regular/Supplementary Examinations December-2022

Course Name: CONTROL SYSTEMS

(Electrical & Electronics Engineering)

Date: 07.12.2022 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks.

10x2=20M

1. Define open loop and closed loop control system. 2 M
2. Compare block diagram and signal flow graph methods. 2 M
3. What do you mean by time response of a control system? 2 M
4. What are type-0, type-1 and type-2 systems? 2 M
5. How can you determine the relative stability of a system by using the Routh stability criterion? 2 M
6. What are the advantages of the root locus? 2 M
7. State the Nyquist stability criterion. 2 M
8. What is a lag compensator? When is it preferred? 2 M
9. Write the expression to find state transition matrix. 2 M
10. When do we say that the system is completely state controllable? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Write the differential equations governing the Mechanical rotational system shown in fig.1. Find the transfer function $\frac{\theta_2(s)}{T(s)}$. 10M

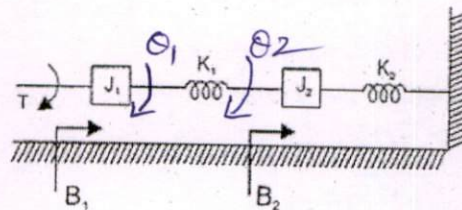


Fig.1

OR

11. B). Find the transfer function for the block diagram shown in fig.2 10M

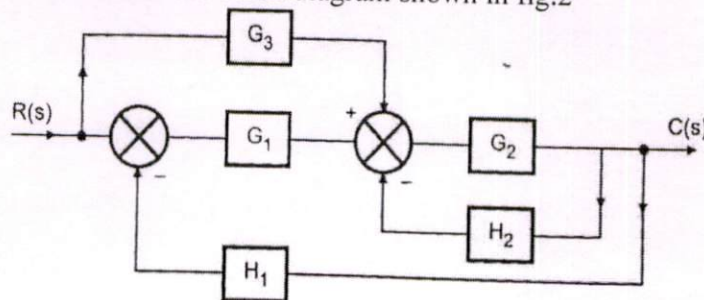


Fig.2

(P.T.O..)

12. A). Derive the expression for time domain specification of a under damped second order system to a step input. 10M

OR

12. B). For a unity feedback system whose open loop transfer function is $G(s) = \frac{50}{(1+0.1s)(1+2s)}$ 10M
determine the position, velocity & acceleration error Constants.

13. A). i) Summarize the necessary conditions to have all the roots of characteristics equation in the left half of s-plane? 5M
ii) Examine the stability of the given characteristic equation using Routh's method 5M
 $S^6 + 2S^5 + 8S^4 + 12S^3 + 20S^2 + 16S + 16 = 0$

OR

13. B). Construct the root locus for the control system whose open loop transfer function is given 10M
by $G(s) = \frac{K}{S(S+6)(S^2+4S+13)}$.

14. A). The open loop transfer function of a unity feedback system is given 10M
 $G(s) = \frac{1}{S(1+S)(1+2S)}$. Sketch the polar plot and determine the gain margin and phase margin.

OR

14. B). Derive the expression for the transfer function of a lead compensator 10M

15. A). i) Explain the concepts of state, state variables and state model. 4M
ii) Determine the state model of the system characterized by the differential equation 6M
 $(S^4 + 8S^3 + 2S^2 + 4S + 3)Y(s) = 10U(s)$

OR

15. B). i) Summarize the properties of state transition matrix. 3M
ii) Test the system represented by the following equations for state controllable and observable. 7M

$$[\dot{x}] = \begin{bmatrix} -2 & 0 \\ 0 & -1 \end{bmatrix} [x] + \begin{bmatrix} 3 \\ 1 \end{bmatrix} u, y = [1 \quad 0] \begin{bmatrix} x_1 \\ x_2 \end{bmatrix}$$

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R18

Course Code: A30212



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech V Semester Regular/Supplementary Examinations December-2022

Course Name: **POWER SYSTEM PROTECTION**

(Electrical & Electronics Engineering)

Date: 09.12.2022 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks.

10x2=20M

- | | |
|--|-----|
| 1. What is RRRV? | 2 M |
| 2. What do you mean by current chopping? | 2 M |
| 3. List any two applications of differential relay. | 2 M |
| 4. Name the different kinds of over current relays. | 2 M |
| 5. What are the uses of Buchholz's relay? | 2 M |
| 6. What are the main types of stator winding faults? | 2 M |
| 7. What is electrical Earthing? | 2 M |
| 8. What are the different types of electrical Earthing? | 2 M |
| 9. What are switching over voltages? | 2 M |
| 10. What are the chief causes of over voltages in electric power system? | 2 M |

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- | | |
|---|-----|
| 11.A). i) What is resistance switching? | 3M |
| ii) Derive the expression for critical resistance. | 7M |
| OR | |
| 11. B). Explain in detailed about Minimum Oil Circuit Breaker with neat diagrams. | 10M |
| 12. A). Explain the working principle of distance relays. | 10M |
| OR | |
| 12. B). What are the various types of over current relays? Discuss their area of application. | 10M |
| 13. A). What type of a protective device is used for the protection of an alternator against overheating of its (i) stator (ii) rotor? Discuss them in briefly. | 10M |
| OR | |
| 13. B). What is incipient fault? Explain how Buchholtz relay protects transformer form incipient faults with neat diagram. | 10M |
| 14. A). Discuss in detail the different methods of Neutral Grounding Schemes. | 10M |
| OR | |
| 14. B). Explain the following: | |
| i) Arcing Ground | 5M |
| ii) Grounding practices | 5M |
| 15. A). Discuss in detail about the protective measures to be taken against lightning over voltages. | 10M |
| OR | |
| 15. B). Describe the phenomenon of lightning. | 10M |

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R18

Course Code: A30210



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech V Semester Regular/Supplementary Examinations December-2022

Course Name: **POWER ELECTRONICS**

(Electrical & Electronics Engineering)

Date: 12.12.2022 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks.

10x2=20M

1. Write one example of unidirectional uncontrolled device and one voltage controlled power semiconductor device. 2 M
2. What are the advantages of Power IGBT? 2 M
3. Define firing angle and extinction angle. 2 M
4. What do you mean by phase angle control? 2 M
5. What are the control strategies adopted in Choppers? 2 M
6. What is Duty cycle? 2 M
7. Define pulse width modulation. 2 M
8. Write the various advantages of the PWM techniques. 2 M
9. Draw the symbol of Triac. 2 M
10. What is cyclo converter? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain the switching characteristics of SCR with necessary waveforms. 10M
- OR**
11. B). Analyze the switching characteristics of Power MOSFET with necessary diagrams. 10M
12. A). Explain the operation of a single phase fully controlled converter feeding an resistive and inductive load (RL) with neat waveforms. 10M
- OR**
12. B). Examine the single phase dual converter with necessary conditions and diagrams. 10M
13. A). Examine the operation of a Boost Chopper circuit with neat waveforms. 10M
- OR**
13. B). Explain the four-quadrant operation of chopper. 10M
14. A). Explain PWM techniques in details. 10M
- OR**
14. B). Infer the operation of three phase inverter operating with 120° mode conduction. Plot the necessary phase and line voltages. 10M
15. A). Explain single phase AC Voltage controller with resistive (R) load and explain its operation. 10M
- OR**
15. B). Illustrate the operation of a single phase to single phase midpoint type cyclo converter to step-up the output frequency with R loads. 10M

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Course Code: A30213



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech V Semester Regular/Supplementary Examinations December-2022

Course Name: ELECTRICAL MEASUREMENTS

(Electrical & Electronics Engineering)

Date: 14.12.2022 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks.

10x2=20M

- | | |
|--|-----|
| 1. List out the applications of AC potentiometers. | 2 M |
| 2. Write the procedure of standardization in measurements. | 2 M |
| 3. What are the advantages of Carey Foster's bridge? | 2 M |
| 4. What are the disadvantages of Kelvin's double bridge? | 2 M |
| 5. Write the applications of Anderson's bridge. | 2 M |
| 6. Compare Wien's and Schering bridges. | 2 M |
| 7. What is the working principle of flux meter? | 2 M |
| 8. What is the area of hysteresis loop in magnetic specimen indicates? | 2 M |
| 9. Explain the function of digital multimeter. | 2 M |
| 10. List the applications of True RMS meters. | 2 M |

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain about the following applications of D.C. potentiometers
- | | |
|---------------------------|----|
| i) Calibration of ammeter | 5M |
| ii) Measurement of power | 5M |

OR

11. B). During the measurement of a low resistance using a potentiometer the following readings were obtained: 10M
- Voltage drop across the low resistance under test = 0.4221 V,
Voltage drop across a 0.1 ohm standard resistance = 1.0235 V.
Calculate the value of unknown resistance, current and the power lost in it.

12. A). List out the examples of measurement of high resistance. Explain any two methods in detail. 10M

OR

12. B). A four terminal resistor of approximately 50 $\mu\Omega$ resistance was measured by means of a Kelvin bridge having the following component resistances: 10M
- Standard resistor = 105 Ω ; Inner ratio arms = 105 Ω and 205 Ω ; outer ratio arms = 103 Ω and 200.5 Ω ; resistance of link connecting the standard and the unknown resistance = 725 $\mu\Omega$. Calculate the unknown resistance to the nearest 0.01 $\mu\Omega$.

(P.T.O.)

13. A). The arms of a four arm bridge abcd, supplied with sinusoidal voltage, have the following values: 10M
Arm ab : A resistance of 200Ω in parallel with a capacitance of $1\mu\text{F}$.
Arm bc : 400Ω resistance.
Arm cd : 1000Ω resistance.
Arm da : A resistance R_2 in series with a $2\mu\text{F}$ capacitance.
Determine the value of R_2 and the frequency at which the bridge will balance.

OR

13. B). Explain and draw the phase diagram of Schering Bridge. 10M

14. A). Sketch the neat diagram and explain the construction and working principles of ballistic galvanometer. 10M

OR

14. B). i) Explain the following methods to measure iron losses in magnetic materials 4M
a) Bridge method
b) Potentiometer method
ii) Explain the determination of BH loop of reversals six point method. 6M

15. A). Explain the construction and working principle of digital storage oscilloscope. 10M

OR

15. B). Explain the construction of clamp on meter with neat diagram. 10M

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Course Code: A30233



CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech V Semester Regular/Supplementary Examinations December-2022

Course Name: **ELECTRIC SMART GRID TECHNOLOGIES**

(Electrical & Electronics Engineering)

Date: 16.12.2022 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks.

10x2=20M

1. What is smart grid? 2 M
2. What are the key features of the smart grid? 2 M
3. Write the necessity of renewable energy in smart grid. 2 M
4. Write short on smart meter and its features. 2 M
5. What is hybrid electric vehicle? 2 M
6. Write any two barriers of implementation of smart grid. 2 M
7. What is load flow? 2 M
8. What are the challenges in load flow studies? 2 M
9. List any two functions of wide area measurement system (WAMS). 2 M
10. What is power line communication? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Distinguish between conventional grid and smart grid. 10M
- OR**
11. B). i) Describe the desirable features and characteristics of an ideal smart grid. 5M
ii) Distinguish between the resilience grid and self healing grid. 5M
12. A). i) Explain functions of smart grid components 5M
ii) Discuss the challenges of renewable integration in smart grid technologies 5M
- OR**
12. B). Discuss the transmission automation technology for smart grid. 10M
13. A). i) Illustrate the operation of plug in hybrid electric vehicles. 5M
ii) Discuss the operation of super capacitors in distribution energy technologies. 5M
- OR**
13. B). i) Discuss various types of batteries in distribution energy technologies. 5M
ii) Describe the operation of fly wheel mechanism in distributed generation technologies. 5M

(P.T.O..)

14. A). i) Illustrate the load flow studies in smart grid technologies 5M
ii) Discuss the challenges to load flow in smart grid. 5M

OR

14. B). Describe DSOPF load flow algorithms for smart grid design. 10M

15. A). What is phasor measurement unit? Explain its features and applications of PMU in power system. 10M

OR

15. B). Discuss the operation of wide area measuring system for smart grid with necessary diagram. 10M

H.T No:

R18

Course Code: A30232



CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech V Semester Regular/Supplementary Examinations December-2022

Course Name: **ELECTRICAL INSTRUMENTS**

(Electrical & Electronics Engineering)

Date: 16.12.2022 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks.

10x2=20M

1. How can you extend the range of an ammeter? 2 M
2. Calculate the value of the multiplier resistance on the 100 V range of a DC voltmeter that uses a 100-mA meter movement with an internal resistance of 100Ω . 2 M
3. Write Ratio and phase angle errors in potential transformers. 2 M
4. Mention the types of Power factor meters and frequency meters. 2 M
5. Draw the circuit diagram for measurement of three phase reactive power. 2 M
6. Draw the circuit diagram for measurement of three phase active power by using three-watt meter method. 2 M
7. Why lag adjustment is provided in induction type single phase energy meter? 2 M
8. What is meant by creeping in an energy meters? 2 M
9. Classify the Transducers. 2 M
10. What are the main characteristics the transducers? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain the construction and operating principle of permanent magnet moving coil instrument. Derive the expression for deflection of PMMC. 10M

OR

11. B). Analyze the working of attraction type and repulsion type of moving iron instrument with the help of neat diagrams. 10M

12. A). Draw the phasor diagram of a current transformer. Derive the expressions for ratio and phase angle errors. 10M

OR

12. B). Explain about the types of frequency meters with neat sketch. 10M

13. A). Analyze the Measurement of three phase power by using Two-watt meter method with neat sketch & also derive the expression for power factor angle in terms of two wattmeter readings. 10M

OR

13. B). Explain the construction and working principle of a single-phase dynamometer type wattmeter, what are the errors present in it. 10M

(P.T.O.)

14. A). Analyze the construction and theory of a single-phase induction type energy meter. Show that number of revolutions in time t is proportional to energy supplied. 10M

OR

14. B). i) If an energy meter makes 5 revolutions in 100 seconds, when a load of 225W is connected. Find the meter constant. 4M

ii) Discuss about the errors and compensation in single phase energy meter. 6M

15. A). i) What is an LVDT? Explain its working principle with necessary diagrams and characteristics. 5M

ii) Describe with suitable diagrams the working principle of strain gauges. 5M

OR

15. B). i) Explain the working principle of Thermistors, mention advantages and applications of them. 5M

ii) Describe the principles of operation of capacitive transducers and mention their applications. 5M

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R18

Course Code: A30555



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech V Semester Regular/Supplementary Examinations December-2022

Course Name: INTRODUCTION TO DATABASE MANAGEMENT SYSTEMS
(Common for EEE, MECH & ECE)

Date: 19.12.2022 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks.

10x2=20M

1. What is E-R Model? 2 M
2. Write the advantages of DBMS. 2 M
3. Write the SQL command to create an index. 2 M
4. Write about any 6 SQL data types. 2 M
5. Write a query to display average salary of Employee using aggregate functions. 2 M
6. Write a query to display employee details from Employee table where salary greater than Rs 50,000 and less than RS 90,000. 2 M
7. List any two PL/SQL Exceptions 2 M
8. What will you get by the cursor attribute SQL%ROWCOUNT? 2 M
9. What is the purpose of normalization? 2 M
10. What is Update Anomaly? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Compare File based systems with database management system. 10M
- OR**
11. B). Explain in detail about set operations, grouping, aggregation operations. 10M
12. A). Write suitable examples for creating Primary Key, Foreign Key, Not Null, Unique, Check constraints. 10M
- OR**
12. B). Write in detail about Views and Indexes. 10M
13. A). List and explain with suitable examples SQL Comparison Operators. 10M
- OR**
13. B). Explain with suitable examples Group BY and Having Clause. 10M
14. A). Explain with suitable examples Packages in PL/SQL. 10M
- OR**
14. B). Discuss in detail about Control Statements in PL/SQL. 10M
15. A). Explain in detail second Normal Form with suitable examples. List few disadvantages of Normalization. 10M
- OR**
15. B). Explain Insert, delete, update anomalies. 10M

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R18

Course Code: C30165



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech V Semester Regular/Supplementary Examinations December-2022

Course Name: **BASICS OF INSURANCE & TAXATION**

(Common for EEE, ECE, CSE, IT & CSM)

Date: 19.12.2022 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks.

10x2=20M

1. What are different personal general insurance products? 2 M
2. Discuss pensions and annuities. 2 M
3. Examine claim management. 2 M
4. What is third party administration? 2 M
5. Outline direct and indirect taxes. 2 M
6. Distinguish between tax planning and tax evasion. 2 M
7. What is income exempt u/s 10 of the I.T. Act? 2 M
8. What are permissible deductions under chapter VI of I.T ? 2 M
9. Define advance payment of tax. 2 M
10. What is tax collection at source? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain the principles of life insurance. 10M
- OR**
11. B). Interpret clauses and covers of different personal general insurance products. 10M
12. A). Examine legal framework of claim management as well claim settlement. 10M
- OR**
12. B). Summarize re-insurance in life insurance, retention limits and methods of re-insurance. 10M
13. A). Discuss tax structure and its role in Indian economy. 10M
- OR**
13. B). Appraise fundamental principles of income tax and concepts. 10M
14. A). Examine income from business, income from house property and income from other sources. 10M
- OR**
14. B). What is income act? Explain exemptions and deductions under the income tax act. 10M
15. A). Interpret computation of income in individuals with types of assessment. 10M
- OR**
15. B). Examine filing of return, e-filing and advance payment of tax. 10M

H.T No:

R18

Course Code: A36635



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech (Minors in AI&ML) V Semester Regular Examinations December-2022

Course Name: **FOUNDATIONS OF ARTIFICIAL INTELLIGENCE**

(Common for CIVIL, EEE, MECH, ECE, IT & CSC)

Date: 19.12.2022 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks.

10x2=20M

1. Define Artificial Intelligence. 2 M
2. Label the syntax for predicate logic. 2 M
3. Name the three types of classification problems in machine learning. 2 M
4. Compare supervised learning and unsupervised learning. 2 M
5. How to choose step size adaptively in Gradient descent method? 2 M
6. Suggest a real time example for linear regression. 2 M
7. Show the cost function for logistic regression. 2 M
8. Can we use logistic regression for multiple classes? How? 2 M
9. List out the applications of cluster analysis. 2 M
10. Mention the task of clustering. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Compare the procedural knowledge with declarative knowledge. 10M
- OR**
11. B). List out and explain any five mostly used artificial intelligence techniques. 10M
12. A). Analyze the role of matrix theory and statistics for machine learning. 10M
- OR**
12. B). Interpret the idea of machines learning from data with examples. 10M
13. A). Find the linear regression equation for the following set of data 10M
- | | | | | |
|---|---|---|---|----|
| X | 2 | 4 | 6 | 8 |
| Y | 3 | 7 | 5 | 10 |
- OR**
13. B). Demonstrate the functionality of Gradient descent method for linear regression. 10M
14. A). Examine the problem of overfitting with a suitable example. 10M
- OR**
14. B). Define classification. Illustrate the usage of logistic regression for performing classification. 10M
15. A). Show and interpret the how can we classify the Clustering algorithm. 10M
- OR**
15. B). Inspect the implementation of agglomerative hierarchical clustering. 10M
