2E3201

Roll No. _____ Total No. of Pages: 3

2E3201

B. Tech. II - Sem. (Main / Back) Exam., - 2024

2FY2-01 Engineering Mathematics - II

Time: 3 Hours **Maximum Marks: 70**

Instructions to Candidates:

Attempt all ten questions from Part A, five questions out of seven questions from Part B and three questions out of five from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used /calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL 2. NIL

PART – A

[10×2=20]

(Answer should be given up to 25 words only)

All questions are compulsory

Q.1 State the rank-nullity theorem.

Q.2 Define orthogonal matrix.

Q.3 Write the Integrating Factor (I.F.) of the following differential equation -

$$(1+y^2)\,dx = (\tan^{-1} y - x)\,dy$$

Q.4 Write the Clairaut's form of ordinary differential equation.

Q.5 Solve : $(D^2 - 3D + 2)\,y = e^x$

Q.6 Define power series.

Q.7 Form the partial differential equation, given that $z = a(x + y) + b$.

Q.8 Solve : $a(p + q) = z$

Q.9 Classify the following equation –

$$\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} + \frac{\partial^2 u}{\partial z^2} = 0$$

Q.10 Write the one dimensional wave equation.

PART – B

[5×4=20]

(Analytical/Problem solving questions)

Attempt any five questions

Q.1 Reduce the matrix –

$$A = \begin{bmatrix} 1 & 2 & 1 & 0 \\ -2 & 4 & 3 & 0 \\ 1 & 0 & 2 & -8 \end{bmatrix}$$

to normal form, and hence find the rank.

Q.2 Solve : $y = 2px + p^2y$

Q.3 Solve : $(D^2 + 3D + 2)\, y = e^{2x} \sin x$

Q.4 Solve : $\sin^2 x \frac{d^2y}{dx^2} - 2y = 0$

Q.5 Solve : $\frac{dx}{z-y} = \frac{dy}{x-z} = \frac{dz}{y-x}$

Q.6 Solve : $9(p^2z + q^2) = 4$

Q.7 Using the method of separation of variables, solve -

$$\frac{\partial u}{\partial x} = 2\frac{\partial u}{\partial t} + u$$

Where $u(x, 0) = 6e^{-3x}$

PART – C

[3×10=30]

(Descriptive/Analytical/Problem Solving/Design Questions)

Attempt any three questions

Q.1 Verify Cayley Hamilton theorem for matrix -

$$A = \begin{bmatrix} 1 & 0 & 2 \\ 0 & 2 & 1 \\ 2 & 0 & 3 \end{bmatrix}$$

and hence find its inverse.

Q.2 Solve -

$$(x^4y^4 + x^2y^2 + xy)\, ydx + (x^4 y^4 - x^2 y^2 + xy)\, xdy = 0$$

Q.3 Apply the method of variation of parameter to solve -

$$\frac{d^2y}{dx^2} - y = \frac{2}{1 + e^x}$$

Q.4 Apply Charpit's method to solve -

$$px + qy = pq$$

Q.5 Discuss the solution of two dimensional Laplace's equation.

5

2E3202

Roll No. _____ Total No. of Pages: 2

2E3202

B. Tech. II - Sem. (Main / Back) Exam., - 2024

2FY2-03 Engineering Chemistry

Time: 3 Hours **Maximum Marks: 70**

Instructions to Candidates:

Attempt all ten questions from Part A, five questions out of seven questions from Part B and three questions out of five questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used /calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL 2. NIL

PART – A

[10×2=20]

(Answer should be given up to 25 words only)

All questions are compulsory

Q.1 What is hardness of water? [2]

Q.2 Write down the relationship between various units of hardness. [2]

Q.3 What is Calorific value of fuel? [2]

Q.4 What is Calgon conditioning? [2]

Q.5 What is galvanization? [2]

Q.6 Role of gypsum in cement. [2]

Q.7 Properties of good quality glass. [2]

Q.8 What is Octane number? [2]

Q.9 What is fire and flash points of lubricants? [2]

Q.10 Write down chemical reaction for the preparation of Aspirin. [2]

PART – B

[5×4=20]

(Analytical/Problem solving questions)

Attempt any five questions

Q.1 Discuss EDTA method for the determination of temporary, permanent and total hardness of water. [4]

Q.2 What is foaming in boilers? How the formation of foaming is prevented and discuss the impact of foaming on boilers. [1+3=4]

Q.3 What is Coke? Describe the manufacturing of coke by Otto-Hoffmann's method. [1+3=4]

Q.4 Differentiate between solid, liquid and gaseous fuel. [4]

Q.5 What is galvanic corrosion? Explain galvanic corrosion by suitable example. [1+3=4]

Q.6 Discuss the property of setting and hardening of cement. [4]

Q.7 Discuss the determination of viscosity by Redwood viscometer No.1 with diagram. [4]

PART – C

[3×10=30]

(Descriptive/Analytical/Problem Solving/Design Questions)

Attempt any three questions

Q.1 What is softening of water? Describe softening of water by zeolite process with diagram. [3+7=10]

Q.2 Describe determination of Calorific value of gaseous fuel by Junker's Calorimeter. [10]

Q.3 What is dry corrosion? Discuss Pilling Bedworth's rule for dry corrosion. [4+6=10]

Q.4 Draw labelled diagram of Rotatory Kiln and describe the manufacturing process of cement. [3+7=10]

Q.5 What is paracetamol drug? Discuss manufacturing process, properties and uses of paracetamol. [2+8=10]

7

2E3203

Roll No. _____ Total No. of Pages: 3

2E3203

B. Tech. II - Sem. (Main / Back) Exam., - 2024

2FY2-02 Engineering Physics

Time: 3 Hours **Maximum Marks: 70**

Instructions to Candidates:

Attempt all ten questions from Part A, five questions out of seven questions from Part B and three questions out of five questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used /calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL 2. NIL

PART – A [10×2=20]

(Answer should be given up to 25 words only)

All questions are compulsory

Q.1 Why Newton's rings are circular in shape?

Q.2 Define matter waves.

Q.3 Write two differences between spatial and temporal coherence.

Q.4 Mention the units of Einstein's coefficients of spontaneous emission and stimulated emission.

Q.5 Write Expression for Fermi-Dirac distribution function.

Q.6 Mention two properties of metallic bond.

Q.7 State physical significance of curl of static magnetic field.

Q.8 Write expression for Bio-Savart's Law in vector form.

Q.9 Express Bragg's condition for X-ray diffraction.

Q.10 The coherence time for sodium light of wavelength 5896 $\mathring{A}$ is 10^{-10} sec. What is the maximum thickness of the film that could be measured using interference of sodium light?

PART – B

[5×4=20]

(Analytical/Problem solving questions)

Attempt any five questions

Q.1 Michelson interferometer experiment is performed with a source which have two wavelength 5882 $\mathring{A}$ and 5886 $\mathring{A}$. By what distance, does the mirror have to be move between two positions of disappearance of fringes?

Q.2 Derive time independent Schrodinger's wave equation.

Q.3 Two wave-trains overlaps 40% of their length. If the maxima in the resulting interference pattern receives 20 units of light, how much do the minima receives?

Q.4 Explain the essential requirement for production of laser action.

Q.5 Derive an expression for Hall coefficient. Mention two applications of Hall effect.

Q.6 Deduce the expression for Poynting vector and explain its physical meaning.

Q.7 A parallel beam of sodium light is incident normally on a plane transmission grating having 4250 lines /cm and a second order spectral line is observed at an angle 30°. Determine the wavelength of light.

PART – C

[3×10=30]

(Descriptive/Analytical/Problem Solving/Design Questions)

Attempt any three questions

Q.1 Describe Fraunhofer diffraction due to a single slit. Deduce the position of maximas and minimas.

Q.2 Show that energy of an electron confined in a 1D potential well of length 'L' and infinite depth is quantized. Is the electron allowed to have zero energy? Comment.

Q.3 What are the basic requirements of semi-conductor laser? With the help of energy band diagram explain working of semi-conductor laser.

Q.4 (a) Explain clearly the propagation of an electromagnetic wave inside an optical fibre.

(b) An optical fibre has NA of 0.20 and a cladding refractive index of 1.59. Determine the acceptance angle for the fibre in water which has a refractive Index of 1.33.

Q.5 Deduce the expressions for Maxwell's Equations in integral and differential form. Also discuss their physical significance.

2E3205

Roll No. _____ Total No. of Pages: 3

2E3205

B. Tech. II - Sem. (Main / Back) Exam., - 2024

2FY1-04 Communication Skills

Time: 3 Hours **Maximum Marks: 70**

Instructions to Candidates:

Attempt all ten questions from Part A, five questions out of seven questions from Part B and three questions out of five questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used /calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL 2. NIL

PART – A

[10×2=20]

(Answer should be given up to 25 words only)

All questions are compulsory

Q.1 Name the different types of communication.

Q.2 How can you improve interpersonal communication?

Q.3 Explain the concept of reported speech.

Q.4 What is the purpose of using conditional sentences?

Q.5 What do you know about a curriculum vitae?

Q.6 Give a comprehensive definition of a paragraph.

Q.7 Name two components of a business letter.

Q.8 Name two characters form "How Much Land Does a Man Need?"

Q.9 What is the message of "No Men Are Foreign" by James Kirkup?

Q.10 Recall one important event from "Luncheon" by Somerset Maugham.

PART – B

[5×4=20]

(Analytical/Problem solving questions)

Attempt any five questions

Q.1 Define communication and explain why it is essential for effective human interaction?

Q.2 Compare and contrast formal and informal communication channels in a corporate setting. Discuss when each type is proper to use?

Q.3 Fill-in-the-blank questions for each grammar topic -

Passive Voice -

1. The cake _____ (was/were) baked by my mother yesterday.
2. The window _____ (is/are) opened every morning by the janitor.
3. The letter _____ (has/have) been sent by the secretary already.
4. English _____ (is/are) spoken in many countries around the world.

Reported Speech-

1. She said, "I am going to the market." She said that she .....(go/went) to the market.
2. He said, "I will meet you tomorrow." He said that he..... (will/would) meet me the next day.
3. They said, "We have finished the project." They said that they ..... (have/had) finished the project.
4. She said, "I can swim very well." She said that she ..... (can/could) swim very well.

Q.4 Write a paragraph describing your favorite hobby or activity. Include details about why you enjoy it and how it benefits you personally?

Q.5 What is a report? Explain the purpose and types of report writing.

Q.6 Discuss the relevance of the themes of patriotism and freedom in "Where the Mind is Without Fear" by Rabindranath Tagore.

Q.7 Summarize the plot of "The Night Train at Deoli" by Ruskin Bond. Discuss the central themes explored in the story.

PART – C

[3×10=30]

(Descriptive/Analytical/Problem Solving/Design Questions)

Attempt any three questions

Q.1 Explain two different types of media employed in Communication and discuss their roles in disseminating information.

Q.2 The following sentences have one error each, correct the errors -

1. The letter was send by the secretary yesterday.
2. She said that she will come to the party tomorrow.
3. If he will study harder, he can pass the exam.
4. They may finish the project by next week if they works diligently.
5. He is tired so he did go to the party last night.
6. I am going to the market if it will not rain.
7. If I have enough money, I can buy a new car.
8. She said, "I can't speak English very well."
9. He prefer tea over coffee in the morning.
10. The book was write by the famous author.

Q.3 What is the plot of "Luncheon" by Somerset Maugham?

Q.4 Interpret the central message of "If" by Rudyard Kipling. Discuss how the poem reflects the values of determination and resilience?

Q.5 Imagine you're in charge of making recycling better at school. Write a report about how recycling is going now, What problems there are, and how we can do it better?

13

2E3204

Roll No. _____ Total No. of Pages: 2

2E3204

B. Tech. II - Sem. (Main / Back) Exam., - 2024

2FY1-05 Human Values

Time: 3 Hours **Maximum Marks: 70**

Instructions to Candidates:

Attempt all ten questions from Part A, five questions out of seven questions from Part B and three questions out of five questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used /calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL 2. NIL

PART – A

[10×2=20]

(Answer should be given up to 25 words only)

All questions are compulsory

Q.1 What do you mean by value crisis?

Q.2 Differentiate between belief and understanding.

Q.3 What do the abbreviations SVDD, SSDD and SSSS signify?

Q.4 What does justice means?

Q.5 What are the comprehensive human goals?

Q.6 What does the holistic technology mean?

Q.7 What are the four orders in nature?

Q.8 Differentiate between animal consciousness and human consciousness.

Q.9 Define the term natural acceptance.

Q.10 How is wealth different from prosperity?

14

PART – B

[5×4=20]

(Analytical/Problem solving questions)

Attempt any five questions

Q.1 How can you say that Right Understanding provides the basis for Ethical Human Conduct?

Q.2 There is recyclability and self-regulation in nature. Explain.

Q.3 What are the basic guidelines for value education?

Q.4 How are activities of I different from activities of body?

Q.5 Explain the feelings of care, guidance, glory and gratitude.

Q.6 What are the problems that we face today due to preconditioned desires, thoughts and selections?

Q.7 Suggest programs that we can follow to improve our health.

PART – C

[3×10=30]

(Descriptive/Analytical/Problem Solving/Design Questions)

Attempt any three questions

Q.1 Explain the relevance of value education in technical institutes.

Q.2 Critically examine the difference between units and space.

Q.3 Discuss the broad holistic criteria for evaluation of technologies, production systems and management models.

Q.4 Discuss fully the concept of self-exploration.

Q.5 'Respect' for human being is based on the evaluation on the basis of I. Discuss.

15

2E3206

Roll No. _____ Total No. of Pages: 2

2E3206

B. Tech. II - Sem. (Main / Back) Exam., - 2024

2FY3-07 Basic Mechanical Engineering

Time: 3 Hours **Maximum Marks: 70**

Instructions to Candidates:

Attempt all ten questions from Part A, five questions out of seven questions from Part B and three questions out of five questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used /calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL 2. NIL

PART – A

[10×2=20]

(Answer should be given up to 25 words only)

All questions are compulsory

Q.1 State Zeroth Law and First Law of Thermodynamics.
Q.2 What is forging?
Q.3 Name different types of power plant.
Q.4 Distinguish between a heat engine and a refrigerator.
Q.5 Write different types of gears.
Q.6 Write the difference between Brazing and Soldering.
Q.7 Classify the IC engines.
Q.8 What is the application of boiler in industry?
Q.9 Write difference between manufacturing engineering and design engineering.
Q.10 Define any two 'mechanical properties' of materials.

PART – B

[5×4=20]

(Analytical/Problem solving questions)

Attempt any five questions

Q.1 Write the differences between 2 stroke and 4 stroke engines.

Q.2 Explain the process in brief -

(a) Gas welding

(b) Arc welding

Q.3 Explain the working principle of centrifugal pump with a neat sketch.

Q.4 Explain any two in brief -

(a) Rolling (b) Extrusion (c) Drawing

Q.5 Write the applications of refrigeration and air-conditioning.

Q.6 What do you mean by heat treatment of steel? Explain in brief.

Q.7 Define system, surrounding and boundary in thermal engineering (with neat and clean diagram).

PART – C

[3×10=30]

(Descriptive/Analytical/Problem Solving/Design Questions)

Attempt any three questions

Q.1 Explain the working of 4 stroke SI engine (petrol engine). Also write all component of SI engine (with neat and clean diagram).

Q.2 Write classification and types of refrigeration systems and air-conditioning. Also explain the working of domestic refrigerator (with neat and clean diagram).

Q.3 Explain the Metal Casting Process in detail. Also explain any 5 tools used in the casting process.

Q.4 Derive the expression for length of the cross-belt transmission.

Q.5 Classify steam boilers. Explain the construction details and working of Cochran boiler with neat sketch.

2E3207

Roll No. _____ Total No. of Pages: 4

2E3207

B. Tech. II - Sem. (Main / Back) Exam., - 2024

2FY3-06 Programming for Problem Solving

Time: 3 Hours **Maximum Marks: 70**

Instructions to Candidates:

Attempt all ten questions from Part A, five questions out of seven questions from Part B and three questions out of five from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used /calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL 2. NIL

PART – A

[10×2=20]

(Answer should be given up to 25 words only)

All questions are compulsory

Q.1 What is the stored-program concept and why is it important?

Q.2 What Input devices? Give four examples.

Q.3 Differentiate between assembly and low level languages.

Q.4 How do digital computers store numbers, letters and other characters?

Q.5 Convert the $(11001)_2$ binary numbers into equivalent decimal numbers.

Q.6 Convert the hexadecimal number $(2C4)_{16}$ to the decimal number system.

Q.7 Differentiate between the = symbol and == symbol.

Q.8 What are pre-processor directives?

Q.9 Differentiate between functions getch() and getche().

Q.10 What would be the output of the following programs?

```
main( )
{
        char c[2] = "A";
        printf ( "\n%c", c[0]);
        printf ("\n%s", c);
}
```

PART – B

[5×4=20]

(Analytical/Problem solving questions)

Attempt any five questions

Q.1 Differentiate among Random, Direct and Sequential access methods to access storage.

Q.2 Make the flowchart for the problem of printing odd numbers less than a given number. It should also calculate their sum and count.

Q.3 What is the value of a radix-r number? Assume a radix-32 arbitrary number system with 0-9 and A-V as its basic digits. Express the mixed binary number $(110101.001)_2$ in this arbitrary number system.

Q.4 Perform the following operations using 2's complement method

(i) Subtract $(0111\ 0101)_2$ from $(0111\ 1100)_2$

(ii) Add $(1100\ 0001)_2 + (0110\ 1110)_2$

Q.5 Write a C program to obtain the sum of the first and last digit of a four-digit number.

Q.6 Write the output from the following program -

```
#include <stdio.h>
void main() {
    int a[] = {22, 19, 17, 36, 12, 15, 28, 35, 66, 43};
    int i, j, n = sizeof(a)/sizeof(int);

    for(i = 0; i <n; ++i)
        for(j = 0; j <i; ++j)
            if (a[i] > a[j]) {
                a[i] = a[i] + a[j];
                a[j] = a[i] – a[j];
                a[i] = a[i] – a[j];
            }
    for(i = 0; i <n; ++i)
            printf("%d", a[i]);
    printf("\n");
}
```

Q.7 Explain the following in the context of file handling -

(i) fprintf ( )

(ii) fscanf ( )

(iii) fread ( )

(iv) fwrite ( )

(v) sprintf ( )

PART – C

[3×10=30]

(Descriptive/Analytical/Problem Solving/Design Questions)

Attempt any three questions

Q.1 Define the term RAM and ROM with their merits, demerits and area of applications.

Q.2 What are the ASCII codes? Write binary coding for the word BOY in ASCII-7. How many bytes are required for this representation?

Q.3 What id bound checking of array in C programming? Explain with the example.

Q.4 Differentiate the following with the help of examples -

(a) break and continue statement

(b) while and do-while loop

Q.5 An automobile company has serial number for engine parts starting AA0 to FF9. The other characteristics of parts to be specified in a structure are- Year of manufacture, material and quantity manufactured.

(a) Specify a structure to store information corresponding to a part.

(b) Write a program to retrieve information on parts with serial numbers between BB1 and CC6.

21

2E3209

Roll No. _____ Total No. of Pages: 4

2E3209

B. Tech. II - Sem. (Main / Back) Exam., - 2024

2FY3-08 Basic Electrical Engineering

Time: 3 Hours **Maximum Marks: 70**

Instructions to Candidates:

Attempt all ten questions from Part A. All five questions from Part B and three questions out of five questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used /calculated must be stated clearly.

Use of following supporting material is permitted during examination. (As mentioned in form No. 205)

1. NIL 2. NIL

PART – A

[10×2=20]

(Answer should be given up to 25 words only)

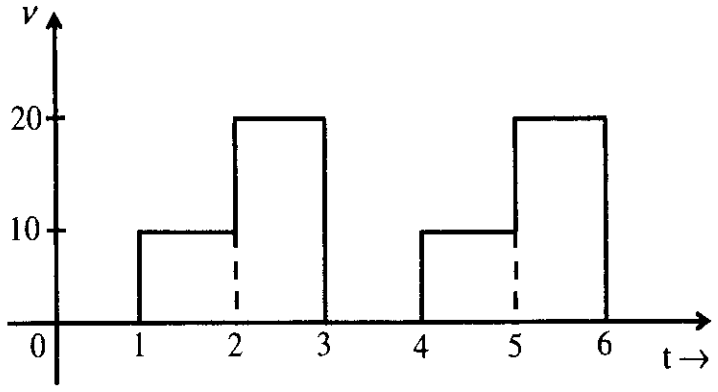
All questions are compulsory

Q.1 State and Explain Kirchhoff s' laws.

Q.2 State and Explain Norton s' theorem.

Q.3 If the length of a wire of resistance R is uniformly stretched to 'n' times its original value, then what is the value of its new resistance?

Q.4 Find the RMS & Average value of the waveform shown in the Figure below:



Q.5 Derive the condition for resonance in a series circuit.

Q.6 State the relationship between phase and line quantities (voltage, current & power) in the circuit of a 3-phase delta-connected system.

Q.7 Explain the working principle of a Transformer.

Q.8 Define voltage regulation and write its expression for a transformer.

Q.9 Explain how BJT works as an amplifier.

Q.10 What is the function of a commutator?

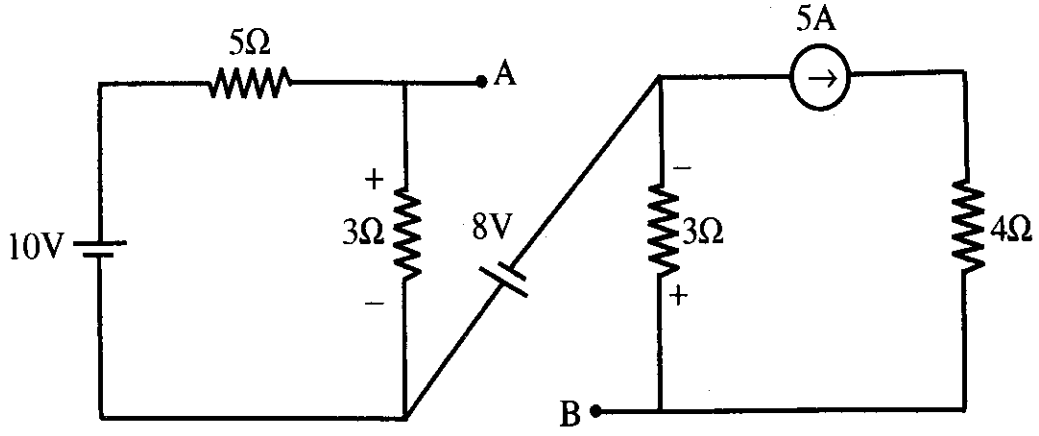
PART – B

[5×4=20]

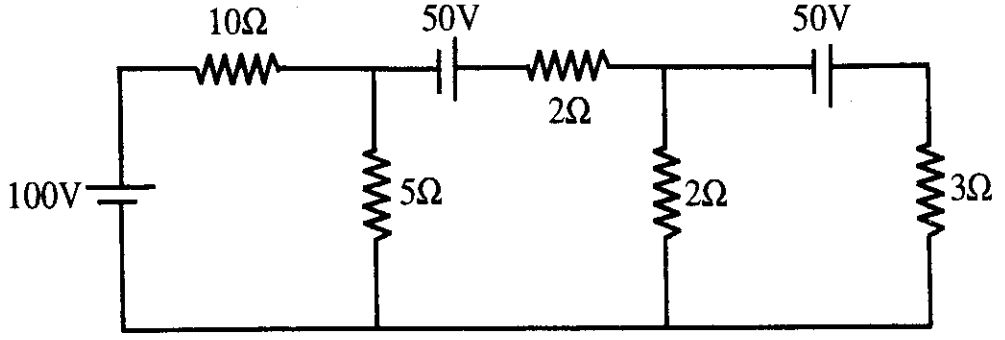
(Analytical/Problem solving questions)

Attempt any five questions

Q.1 Find the voltage of point A w.r.t point B.



Q.2 Find the current through the 5 ohm resistance using Thevenin's theorem.



Q.3 Show that current through pure inductance lags behind the applied voltage by 90 degrees. Also, prove that pure inductance does not consume any power. Draw voltage, current, and power waveforms.

Q.4 Explain and draw the phasor diagram for a single-phase transformer for the lagging power factor.

Q.5 The load of the household consists of 8 lamps of 20W each, 4 fans of 75W each, 1 T.V of 40W, 1 refrigerator of 150W, 1 A.C of 1500W, 1 electric heater of 1800W, and 1 washing machine of 900W. If the supply is 230V and fixed monthly meter charge is ₹ 150/- then for average loading of 50% throughout a day, what will be the electric bill for 1 month? Assume the cost per unit for 1st 800 units be ₹ 4/- for next 500 units be ₹ 5/- and after that ₹ 6/- .

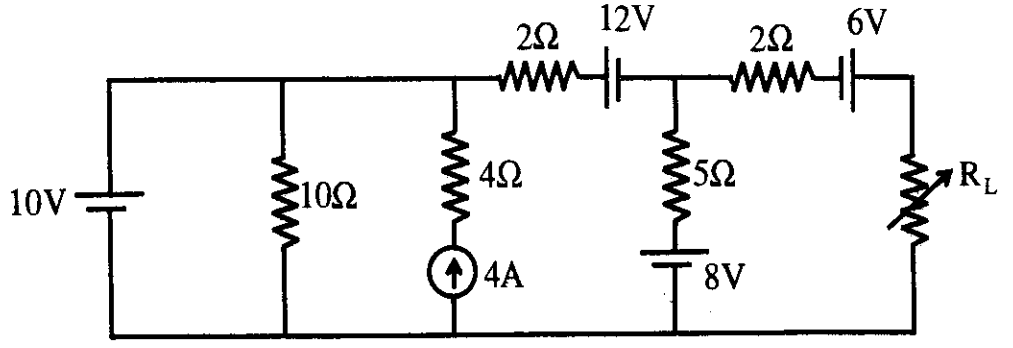
PART – C

[3×10=30]

(Descriptive/Analytical/Problem Solving/Design Questions)

Attempt any three questions

Q.1 For the circuit shown, find the value of the resistance RL for maximum power and calculate maximum power.



Q.2 Write short notes on :

(a) SFU

(b) MCCB

(c) ELCB

(d) Types of Earthing

Q.3 Explain Insulated Gate Bipolar Transistor (IGBT) construction, working and its characteristics in detail.

Q.4 A 100 ohm resistance is connected in series with a choke coil. When a 400V, 50Hz supply is applied to this combination, the voltage across the resistance and the choke coil are 200V and 300V respectively. Find the power consumed by the choke coil. Also, calculate the power factor of the choke coil and the power factor of the circuit.

Q.5 Explain the construction and working principle of three Phase Synchronous Motor.

25

2E3208

Roll No. _____ Total No. of Pages: 2

2E3208

B. Tech. II - Sem. (Main / Back) Exam. - 2024

2FY3-09 Basic Civil Engineering

Time: 3 Hours **Maximum Marks: 70**

Instructions to Candidates:

Attempt all ten questions from Part A, five questions out of seven questions from Part B and three questions out of five questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used /calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL 2. NIL

PART – A

[10×2=20]

(Answer should be given up to 25 words only)

All questions are compulsory

Q.1 Explain the term plinth area and carpet area.

Q.2 Write down the principles of surveying.

Q.3 Explain the term contour and contour maps.

Q.4 Differentiate between fore bearing and back bearing.

Q.5 What do you understand by floor space index?

Q.6 Define Building Byelaws.

Q.7 What is rain water harvesting?

Q.8 What do you mean by Ecosystem?

Q.9 What do you mean by 'Geodetic Surveying'?

Q.10 Define benchmark and reduced level.

PART – B

[5×4=20]

(Analytical/Problem solving questions)

Attempt any five questions

Q.1 What is Site Plan? Which is the information to be included in a site plan?

Q.2 What is Water Pollution? What are its sources and effects?

Q.3 Explain the methods to control noise pollution.

Q.4 Draw any five traffic signs and explain the meaning of each.

Q.5 In a levelling work, sum of the back sight & fore sight have been found to be 4.055 & 6.155 respectively. If the reduced level of the starting station is 100m, then the reduced level (in m.) of the last station is?

Q.6 Discuss the preventions for noise pollution.

Q.7 Convert the following quadrantal bearings to whole circle bearing -

(i) N 39° 29'E

(ii) S 73° 15'W

(iii) S 49° 49'E

(iv) N 11° 19'W

(v) N 41° 15'W

PART – C

[3×10=30]

(Descriptive/Analytical/Problem Solving/Design Question)

Attempt any three questions

Q.1 Explain various tape corrections.

Q.2 Explain the types and characteristics of various modes of transportation.

Q.3 Draw and label the different parts of 'Dumpy Level'.

Q.4 The following readings are taken from a level –
0.655, 1.335, 2.555, 0.345, 0.920, 1.885, 2.955, 0.610, 1.795 & 2.855. Instrument is shifted after second, fourth & ninth reading. Compute the reduced level of all stations using rise and fall method. The first reading was taken on benchmark of 100m.

Q.5 Write short notes on the following -

(a) Nitrogen Cycle & Carbon Cycle

(b) Environmental Engineering
