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Question Paper Code : A1001



VARDHAMAN COLLEGE OF ENGINEERING
(AUTONOMOUS)

B. Tech I Semester Supplementary Examinations July - 2014

(Regulations: VCE-R11A)

MATHEMATICS-I

(Common to All Branches)

Date: 03 July, 2014

Time: 3 hours

Max Marks: 75

Answer ONE question from each Unit

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

Unit - I

1. a) Solve $\cos^2 x \frac{dy}{dx} + y = \tan x$ 7M
- b) Find the orthogonal trajectories of the family of coaxial circles $x^2 + y^2 + 2\lambda y + c = 0$ 8M
Where λ is a parameter?
2. a) Solve $\left[y \left(1 + \frac{1}{x} \right) + \cos y \right] dx + [x + \log x - x \sin y] dy = 0$ 8M
- b) The temperature of a cup of coffee is 92°C , when freshly poured, the room temperature being 24°C . In one minute it has cooled to 88°C . How much time must elapse before the temperature of the cup becomes 65°C ? 7M

Unit - II

3. a) Solve $(D^2 + 3D + 2)y = e^x \sin x$ 7M
- b) Solve $(D^2 - 6D + 9)y = \left(\frac{e^{3x}}{x} \right)$ by the method of variation of parameters. 8M
4. Determine q and i in an LCR circuit with $L=0.5\text{H}$, $R=6\Omega$, $C=0.02$, $e = 24 \sin 10t$ and initial condition $q = i = 0$ 15M

Unit - III

5. a) If m and n are positive integers, verify Rolle's theorem for the function 8M
 $f(x) = (x-a)^m (x-b)^n$ in $[a, b]$
- b) If $x = u(1-v)$, $y = uv$, prove that $JJ^1 = 1$ 7M
6. a) Verify Cauchy's Mean value theorem for the function $f(x) = e^x$; $g(x) = e^{-x}$ in 8M
 $[a, b]$
- b) Obtain the Radius of curvature of the curve asteroid $x^{2/3} + y^{2/3} = a^{2/3}$ at the point 7M
(0,1)

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Unit - IV

7. a) Obtain Laplace transforms of the following $\frac{e^{-t} \sin t}{t}$ 7M
b) If $f(t)$ is a periodic function with period T , show that 8M
- $$L\{f(t)\} = \frac{1}{1 - e^{-sT}} \int_0^T e^{-st} f(t) dt$$
8. Solve by the method of transforms, the equation $y''' + 2y'' - y' - 2y = 0$ given 15M
 $y(0) = y'(0)$ and $y''(0) = 6$

Unit - V

9. a) If $\vec{F} = \text{grad}(x^3y + y^3z + z^3x - x^2y^2z^2)$, find $\text{div.} \vec{F}$ and $\text{curl } \vec{F}$ at $(1, 2, 3)$ 8M
b) Prove that $F = (z - e^{-x} \sin y)\vec{i} + (1 + e^{-x} \cos y)\vec{j} + (x - 8z)\vec{k}$ is conservative and find 7M
scalar potential ϕ such that $F = \nabla \phi$
10. Verify Green's theorem in the plane $\oint_C (3x^2 - y^2) dx + (4y - 6xy) dy$ where C is the region 15M
bounded by $y = \sqrt{x}$ and $y = x^2$

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Question Paper Code : A1002



VARDHAMAN COLLEGE OF ENGINEERING
(AUTONOMOUS)

B. Tech I Semester Supplementary Examinations July - 2014

(Regulations: VCE-R11A)

ENGINEERING PHYSICS

(Common to Electronics and Communication Engineering, Electrical and Electronics Engineering & Mechanical Engineering)

Date: 04 July, 2014

Time: 3 hours

Max Marks: 75

Answer ONE question from each Unit

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

Unit - I

1. a) Explain with a suitable graph the variation of potential energy with interatomic distance. 9M
Derive an expression for cohesive energy of a diatomic molecule.
- b) What are the general properties of ionic bonds? With suitable examples, distinguish between ionic and covalent bonds. 6M
2. a) Calculate the atomic packing fraction of f.c.c. and diamond crystal structures with schematic diagrams. 9M
- b) Distinguish between unit cell and primitive cell. Explain the structure of ZnS. 6M

Unit - II

3. a) Outline the procedure for determining Miller indices of a crystal plane. With neat diagram obtain an expression for inter planar spacing of an orthogonal crystal system. 9M
- b) Explain powder crystal method for determination of crystal structures. 6M
4. a) What is the importance of surface to volume ratio in nano scale. Explain how the properties depend on the S/V ratio. 7M
- b) Discuss Sol-gel method for nano material synthesis. What are its advantages? 8M

Unit - III

5. a) Explain De Broglie's hypothesis. Derive an expression for Schrodinger's time independent wave equation. 10M
- b) 10 keV electrons are passed through a thin film of a metal for which atomic spacing is 5.5×10^{-11} m. Calculate the glancing angle for the first order maximum. 5M
6. a) State Bloch's theorem. What are the salient features of Kronig Penney model? How does this model explain the energy band formation in solids? 10M
- b) What are the characteristics of a wave function representing matter waves? Explain the physical significance of the wave function. 5M

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Unit - IV

7. a) What is the origin of internal fields in dielectric materials? Derive the Clausius-Mossotti equation for a dielectric. 8M
- b) Define dielectric polarization and susceptibility. Two parallel plates have equal and opposite charges and are separated by 5mm thick, of dielectric constant 3. The area of the plates is 1 cm^2 and a potential difference of 5kV is applied between the plates. Calculate the capacitance of capacitors and electric field intensity. 7M
8. a) Explain BCS theory of super conductors. 9M
- b) Explain Meissner effect. Mention three applications of super conductors. 6M

Unit - V

9. a) Explain absorption, spontaneous emission, stimulated emission and population inversion with schematic diagrams. 8M
- b) Explain with principle, the working of Ruby laser. 7M
10. a) Define acceptance angle and numerical aperture of an optical fiber. Derive an expression for numerical aperture of an optical fiber. 9M
- b) An optical fiber has core and cladding refractive indices of 1.578 and 1.563 respectively. Calculate the numerical aperture and acceptance angle of an optical fiber. 6M

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Question Paper Code : A1003



VARDHAMAN COLLEGE OF ENGINEERING
(AUTONOMOUS)

B. Tech I Semester Supplementary Examinations July - 2014

(Regulations: VCE-R11A)

ENGINEERING CHEMISTRY

(Common to Electronics and Communication Engineering, Electrical and Electronics Engineering & Mechanical Engineering)

Date: 05 July, 2014

Time: 3 hours

Max Marks: 75

Answer ONE question from each Unit

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

Unit - I

1. a) Explain the construction and working of H₂- O₂ fuel cell. What are the advantages and disadvantages of this cell. 9M
- b) Define Kohlrausch's law. Discuss a method of determining equivalent conductance of an electrolyte at infinite dilution. 6M
2. a) Derive Nernst equation for single electrode potential. 6M
- b) Explain the following terms mentioning their units: 9M
 - i. Specific Conductance
 - ii. Equivalent conductance
 - iii. Molar conductance

Unit - II

3. a) Define temporary and permanent hardness of water with units for water hardness and interconversion amongst them. 7M
- b) Explain the zeolite process of softening of water with regeneration reactions. 8M
4. a) Write a short note on ion-exchange process of purification of water. 7M
- b) Explain the process of reverse osmosis with a neat diagram. What is the main advantage of reverse osmosis over ion-exchange process? 8M

Unit - III

5. a) Differentiate between thermoplastic and thermosetting resins with examples. 6M
- b) Write the synthesis, properties and one engineering application of the following polymers: 9M
 - i. Teflon
 - ii. Buna-s
 - iii. Polyethylene
6. a) Mention the optical properties of colloids with examples. Add a note on the conditions of Tyndall effect 8M
- b) Mention two electrical properties of colloids. Describe electrophoresis process. 7M

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Unit - IV

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|----|--|----|
| 7. | a) Discuss proximate analysis of coal with significance. | 8M |
| | b) Differentiate chemical fuels based on their physical state with examples. | 7M |
| 8. | a) What is flue gas? Describe analysis of flue gas by ORSAT apparatus. | 8M |
| | b) What is synthetic petrol? Discuss Bergius process of synthesis of petrol. | 7M |

Unit - V

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|-----|--|----|
| 9. | a) State Gibb's phase rule. Define and explain the terms involved in it by giving a suitable example. | 7M |
| | b) Describe in brief the phase diagram of water, with the help of a neat labeled diagram. | 8M |
| 10. | a) Explain the dry and wet processes in the context of manufacture of Portland cement. Mention the role of gypsum in the formation of cement clinkers. | 8M |
| | b) What are lubricants? Classify with examples the different types of lubricants based on their physical states. | 7M |



VARDHAMAN COLLEGE OF ENGINEERING
(AUTONOMOUS)

B. Tech I Semester Supplementary Examinations July - 2014

(Regulations: VCE-R11A)

ENVIRONMENTAL SCIENCE

(Common to Computer Science and Engineering, Information Technology,
Aeronautical Engineering & Civil Engineering)

Date: 05 July, 2014

Time: 3 hours

Max Marks: 75

Answer ONE question from each Unit

All Questions Carries Equal Marks

All parts of the question must be answered in one place only

Unit - I

1. a) What are the effects of deforestation on environment? 8M
b) Differentiate between renewable and non-renewable resources. Give examples for both renewable and non-renewable resources. 7M
2. a) List and explain the environmental effects of extracting and using mineral resources. 8M
b) Enumerate the effects of:
i. Fertilizer problems
ii. Pesticide problems 7M

Unit - II

3. a) Define ecosystem and explain in detail about ecological pyramids. 7M
b) What is a hot spot? Name two biodiversity hot spots in India. 8M
4. a) Define biodiversity and explain various conservation methods of biodiversity in detail. 8M
b) Explain in detail about the structure of an ecosystem with examples. 7M

Unit - III

5. a) Substantiate the statement "Air pollution is one of the most dangerous forms of environmental pollution in current times" 8M
b) What is meant by sustainable development? What are the measures to obtain sustainability? 7M
6. a) Explain the various sources, causes of noise pollution and list the control methods. 8M
b) What is meant by Rain Water Harvesting and mention its advantages to conserve water? 7M

Unit - IV

7. a) Explain green building practices to save environment. 8M
b) Write short notes on:
i. Clean Development Mechanism
ii. Carbon Credits
iii. Carbon sequestration
8. Discuss the scope, importance and benefits of ISO 14000 environment management standard. 15M

Unit - V

9. a) Explain conceptual facts, operational aspects and prediction of various impacts through Environmental impact assessment? 8M
b) Write briefly about environmental management plan. 7M
10. a) Write the summary of Water (Prevention and Control of Pollution) Act, 1974. 8M
b) Write briefly about Forest Conservation Act. 7M

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Question Paper Code : A1005



**VARDHAMAN COLLEGE OF ENGINEERING
(AUTONOMOUS)**

B. Tech I Semester Supplementary Examinations July - 2014
(Regulations: VCE-R11A)

PROBABILITY, STATISTICS AND COMPUTATIONAL TECHNIQUES

(Common to Computer Science and Engineering & Aeronautical Engineering)

Date: 07 July, 2014

Time: 3 hours

Max Marks: 75

Answer ONE question from each Unit

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

Unit - I

1. a) A committee consists of 9 students, two of which are from 1st year, three from 2nd year and four from 3rd year. Three students are to be removed at random. What is the chance that 8M
 - i. The three students belong to different classes
 - ii. Two belong to the same class and the third to different class
 - iii. The three belong to the same class
- b) State the axioms of probability and define the following terms: 7M
 - i. Random experiment
 - ii. Sample space
 - iii. Event
2. State characteristics of normal distribution and prove any four of them. 15M

Unit - II

3. a) Explain the procedure to test significance and goodness of fit. 9M
- b) From a random sample of 10 pigs fed on diet A, the increases in weight in a certain period were 10, 6, 16, 17, 13, 12, 8, 14, 15, 9 pounds. For another random sample of 12 pigs fed on diet B, the increase in the same period were 7, 13, 22, 15, 12, 14, 18, 8, 21, 23, 10, 17 lbs. Test whether diets A and B differ significantly as regards their effect on increase in weight. 6M
4. a) Two samples of size 9 and 8 gives the sum of squares of the deviations taken from the means as 160 inch² and 91 inch² respectively. Can this be regarded as drawn from the same population? 6M
- b) Measurements on the length of a copper wire were taken in 2 experiments A and B as under. Test whether B's measurement are more accurate than A's. (The readings in both the cases being unbiased). 9M

A's measurements:	12.29	12.25	11.86	12.13	12.44	12.78	12.77	11.90	12.47
B's measurements:	12.39	12.46	12.34	12.22	11.98	12.46	12.23	12.06	

Unit - III

5. a) Find a positive root of $3x - \sqrt{1 + \sin x} = 0$ by iteration method. 7M
 b) For the following data, using Newton's divided difference interpolation formula obtain an interpolating polynomial $f(x)$ and hence find $f(6)$. 8M

x	1	2	7	8
$f(x)$	1	5	5	4

6. a) Compute $f'(x)$ and $f''(x)$ at $f = 16$ for the following data 7M

x	15	17	19	21	23	25
$y = \sqrt{x}$	3.873	4.123	4.359	4.583	4.796	5.8

Compare with exact value.

- b) Find a real root of the equation $2x - \log_{10} x - 7 = 0$ by Newton - Raphson method. 8M

Unit - IV

7. a) Derive an equation for Trapezoidal rule. 10M
 b) State the applications of Simpson's rule. 5M
8. a) Derive an equation for Simpsons 3/8 rule. 7M
 b) Use Simpson's 1/3 rule to evaluate $\int_0^{0.6} e^{-x^2}$ by taking $n=6$. 8M

Unit - V

9. a) By using modified Euler's method, solve $y' = \log(x + y)$, $y(1) = 2$ at $x = 1.2$ and at $x = 1.4$. 7M
 b) By R-K method of 4th order solve $y' = 3x + \left(\frac{y}{2}\right)$ with $y(0) = 1$ for $y(0.2)$ taking $h=0.1$. 8M
10. Use Milne's method, to find $y(0.3)$ from $y' = x^2 + y^2$, $y(0) = 1$ after computing $y(-0.1)$, $y(0.1)$ and $y(0.2)$ by Taylor's series method. 15M

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Question Paper Code : A1008



VARDHAMAN COLLEGE OF ENGINEERING
(AUTONOMOUS)

B. Tech I Semester Supplementary Examinations July - 2014

(Regulations: VCE-R11A)

TECHNICAL ENGLISH

**(Common to Computer Science and Engineering, Information Technology,
Aeronautical Engineering & Civil Engineering)**

Date: 04 July, 2014

Time: 3 hours

Max Marks: 75

Answer ONE question from each Unit

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

Unit - I

1. a) C.V. Raman's contribution to the field of science is indeed significant. Elaborate the statement in your own words. 10M
- b) Do as directed: 5M
- i. Write the antonym of the word: regard
 - ii. Write the synonym of the word: enormous
 - iii. Write one word substitute: Showing feeling of pity
 - iv. Use this phrasal verb in your sentence: Look into
 - v. Correct the error: I am knowing him for the past ten years
2. a) Discuss the services of Mother Teresa to mankind. 10M
- b) Do as directed: 5M
- i. Write the antonym of the word: visible
 - ii. Write the meaning of the idiom: a black sheep
 - iii. Write one word substitute: present every where
 - iv. Use the correct option: He is my _____ (elder/older) brother
 - v. Correct the error: She is my cousin sister

Unit - II

3. a) Do you think Miss Krishna is a 'connoisseur'? Justify. 10M
- b) Do as directed: 5M
- i. Pick the demonstrative: Where did he get that spanner
 - ii. Write the synonym for the word: tranquil
 - iii. Write the antonym for the word: reliable
 - iv. Frame a sentence with the phrase: break down
 - v. Choose the right word: I should focus on my _____ (carrier/career)
4. a) Pitroda avers, "It is not about software experts or internet access, but a whole way of doing things" – substantiate the statement in regard to his contributions to Indian Telecom. 10M
- b) Do as directed: 5M
- i. Give the synonym for the word : hurdle
 - ii. Give the meaning for the phrase: run out of
 - iii. Choose the right word: Water finds its _____ (coarse/course)
 - iv. Pick the quantifier: There is little food left over
 - v. Correct the error: He couldn't cope up with the new environment

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Unit - III

5. a) What kind of suspense did the writer bring out in the 'the bubbling well road'. 10M
b) Do as directed: 5M
i. Write one word substitute: art of hand writing
ii. Write the synonym for the word: consensus
iii. Use proper question tag: you are tired _____?
iv. Use this phrasal verb in your sentence: break into
v. Correct the sentence: I have two daughter in laws
6. a) Summarize the key statements that Martin Luther King tried to exhort in his historical speech at Lincoln Memorial. 10M
b) Do as directed: 5M
i. Give one word substitute : belief that there is God
ii. Use question tag : you've got a camera, _____?
iii. Write a synonym for the word : ghetto
iv. Use a prefix to form a new word to : large
v. Correct the sentence : she stays besides the town hall

Unit - IV

7. a) Assume that you are the head of an institution. Draft a memo to an employee asking for explanation for delay in works assigned. 8M
b) Write a letter to the Bank Manager, Vijaya Bank, asking him for a new ATM card as you have misplaced it somewhere. Assume details. 7M
8. a) Write a letter of complaint to the General Manager of a reputed car show room about your disappointment with the customer relation office in the rendering information in time. 8M
b) Write a job application letter for the post you wish to apply. 7M

Unit - V

9. Imagine you are the general secretary of your college student union. Write a report on the works undertaken in the current year. 15M
10. Imagine that you are in the secretary of the state Educational Board. Draft a report on the status of common education in the start after SSC. 15M



VARDHAMAN COLLEGE OF ENGINEERING
(AUTONOMOUS)

B. Tech I Semester Supplementary Examinations July - 2014
(Regulations: VCE-R11A)

BASIC ELECTRICAL ENGINEERING

(Common to Information Technology, Electronics and Communication Engineering & Electrical and Electronics Engineering)

Date: 07 July, 2014

Time: 3 hours

Max Marks: 75

Answer ONE question from each Unit

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

Unit - I

1. a) State and explain Kirchoff's laws. 7M
- b) Find all branch currents in the network shown in Fig. 1 by network reduction technique. 8M

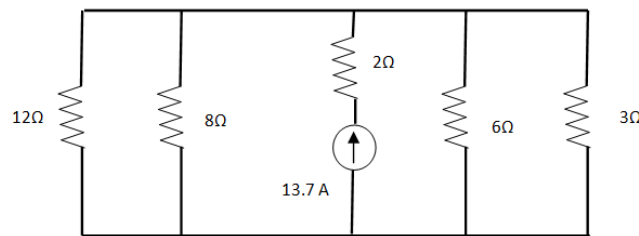


Fig.1

2. a) Find the voltage V_{ab} in the network shown in Fig.2. 7M

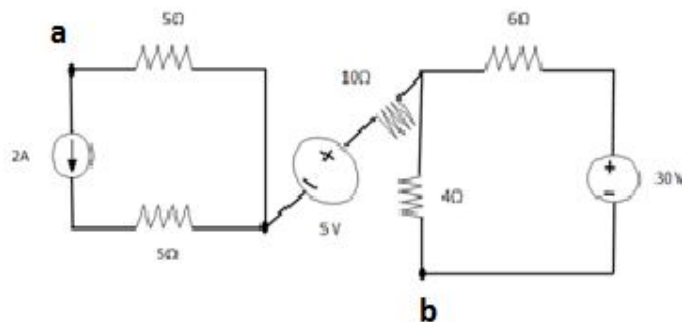


Fig.2

- b) Use source transformation method to compute power consumed by 4 Ω resistor in the circuit shown in Fig.3. 8M

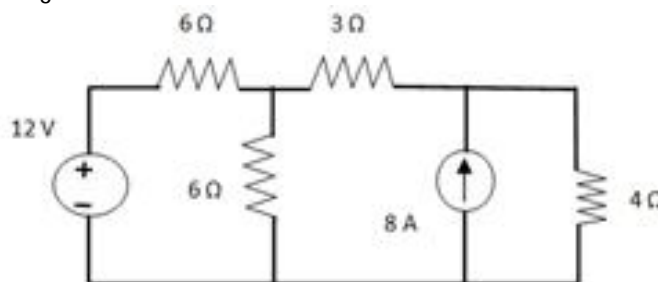


Fig.3

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Unit - II

3. a) Apply mesh analysis to evaluate the three unknown mesh currents in the network shown in Fig.4 7M

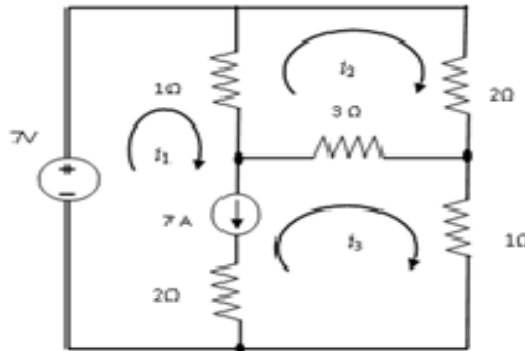


Fig.4

- b) Find the equivalent resistance between terminals $a-b$ in the resistive network of Fig. 5. 8M

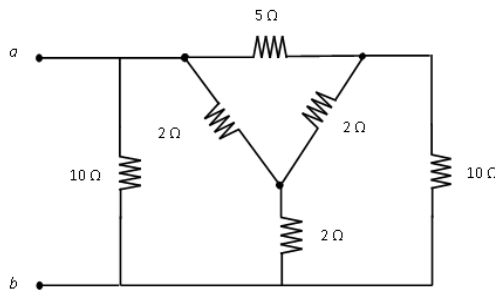


Fig.5

4. a) Find the current in 10 Ω resistor, using nodal analysis method for the circuit shown in Fig. 6. 7M

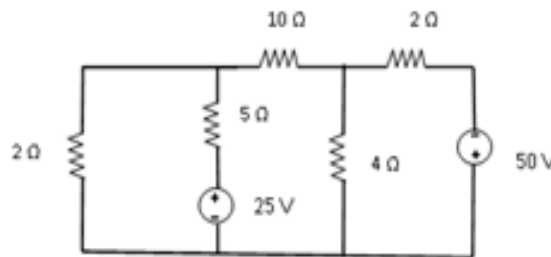


Fig.6

- b) Compute the power absorbed by the 10 Ω resistor in the circuit below Fig.7, using any method 8M

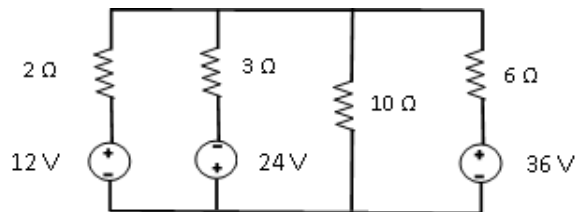


Fig.7

Unit - III

5. a) The current in a circuit is given by $(5+j10)A$ when the applied voltage is $(225+j150)V$. Determine: 8M
- i. The complex expression for the impedance stating whether it is inductive or capacitive
 - ii. Power
 - iii. Phase angle between current and voltage
- b) Define active and reactive power. Mention their units. Also explain the importance of power factor in an ac circuit. 7M
6. a) Compare series and parallel resonance. 7M
- b) A choke coil having a resistance of 10Ω and inductance of $0.05 H$ is connected in series with condenser of $100\mu F$. The whole circuit has been connected to $200V, 50Hz$ supply. Calculate: 8M
- i. Impedance
 - ii. Current
 - iii. Power factor
 - iv. Power input
 - v. Apparent and reactive power of the circuit

Unit - IV

7. a) Two coupled coils have self-inductances $L_1=10 mH$ and $L_2=20 mH$. The coefficient of coupling (K) being 0.75 in the air, find voltage in the second coil and the flux of first coil provided the second coil has 500 turns and the circuit current is given by $i_1=2 \sin 314t A$. 7M
- b) A closed magnetic circuit of cast steel contains a $6 cm$ long path of cross-sectional area of $1 cm^2$ and a $2 cm$ path of cross-sectional area $0.5 cm^2$. A coil of 200 turns is wound around the $6 cm$ length of the circuit and a current of $0.4 A$ flows. Determine the flux density in the $2 cm$ path, if the relative permeability of the cast steel is 750 . 8M
8. a) Starting from the basics of self inductance and mutual inductance, derive an expression for the coefficient of coupling K of two coils 7M
- b) A mild steel ring has a radius of $50 mm$ and a cross-sectional area of $400 mm^2$. A current of $0.5 A$ flows in a coil wound uniformly around the ring and the flux produced is $0.1 mWb$. If the relative permeability at this value of current is 200 find (i) the reluctance of the mild steel and (ii) the number of turns on the coil. 8M

Unit - V

9. a) Define: 8M
- i. Graph
 - ii. Tree and co-tree
 - iii. Cut set and tie-set matrices with the help of an example
- b) Draw the dual circuit of Fig.8. 7M

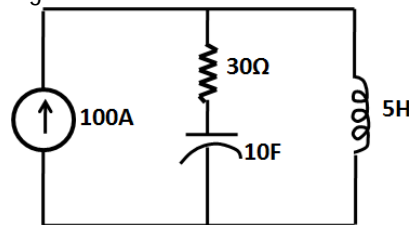


Fig.8

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10. a) Obtain the dual of Fig.9

8M

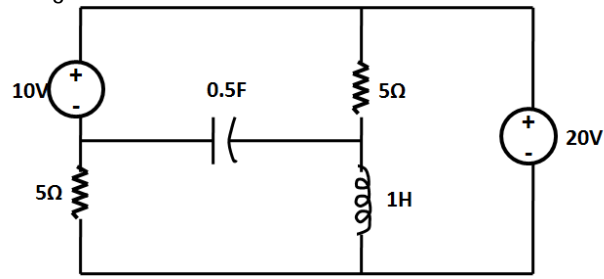


Fig.9

b) Explain the properties of cut set matrix.

7M

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Question Paper Code : A1202



VARDHAMAN COLLEGE OF ENGINEERING
(AUTONOMOUS)

B. Tech I Semester Supplementary Examinations July - 2014
(Regulations: VCE-R11A)

BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

(Common to Mechanical Engineering & Civil Engineering)

Date: 07 July, 2014

Time: 3 hours

Max Marks: 75

Answer ONE question from each Unit

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

Unit - I

1. a) State and explain Kirchoff's laws. 8M
- b) State and explain faraday's Laws of electromagnetic induction 7M
2. a) Use current division to find I_1 , in the circuit shown in Fig.1. 8M

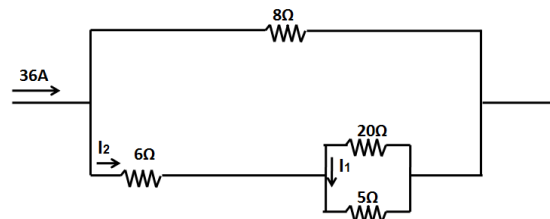


Fig.1

- b) Explain the energy band diagram of Conductors, Insulators, and semiconductors? 7M

Unit - II

3. a) Derive an expression for impedance for a series RC circuit along with the phasor diagram. 7M
- b) A circuit consists of resistance of 20Ω and an inductance of 0.05Henry connected in series. Supply of 230Volts and 50Hz is applied across the circuit. Find the current, power factor, power consumed by the circuit. Draw the vector diagram. 8M
4. a) Define the following terms with respect to a single phase ac circuits: 8M
 - i. Average value
 - ii. Form factor
 - iii. Peak factor
 - iv. RMS value
- b) Derive an expression for impedance for series RL circuit along with phasor diagram. 7M

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Unit - III

5. a) Derive the expression for the deflection in an electrostatic deflection system. 8M
b) Explain the working principle of PMMC instruments. 7M
6. a) State and prove Thevenin's theorem. 7M
b) Determine current I in the circuit shown in Fig.2 by superposition theorem. 8M

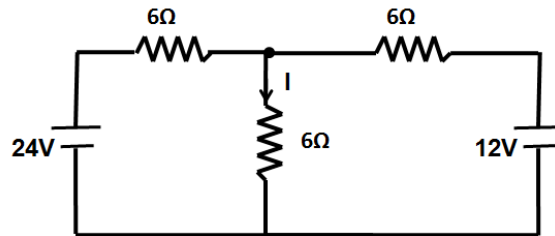


Fig.2

Unit - IV

7. a) Explain the various breakdown mechanisms present in a p-n junction when a reverse bias is applied. 6M
b) With a neat diagram explain the working principle of a full wave bridge rectifier. 9M
8. a) Explain the working of a half wave rectifier with its output waveforms. 8M
b) Explain the working principle of a full wave rectifier with neat diagrams. 7M

Unit - V

9. a) Find the relationship between the current gain α and β . Find β when $\alpha=0.98$. 8M
b) Obtain the output characteristics of transistor in Common emitter mode. 7M
10. a) Explain the working of P-N-P transistor? 8M
b) Explain forward and reverse bias with respect to an NPN transistor function. 7M

Hall Ticket No:

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Question Paper Code : A1303



VARDHAMAN COLLEGE OF ENGINEERING
(AUTONOMOUS)

B. Tech I Semester Supplementary Examinations July - 2014

(Regulations: VCE-R11A)

ENGINEERING DRAWING

(Common to Mechanical Engineering, Aeronautical Engineering & Civil Engineering)

Date: 09 July, 2014

Time: 3 hours

Max Marks: 75

Answer ONE question from each Unit

All Questions Carries Equal Marks

All parts of the question must be answered in one place only

Unit - I

1. a) On a Russian map, a scale of versts is shown. On measuring it with a metric scale, 150 versts are found to measure 15 cm. construct comparative scales for the two units to measure upto 200 versts and 200 km respectively. Take 1 verst = 1.067 km. 8M
- b) A theodolite has main scale plate of 240 mm diameter graduated to 0° to 360° with the vernier scale to read degree and minute. The main scale can read to accuracy of 0.5° and the vernier is to read one minute. Draw the scale. 7M
2. A circular disc of 40mm diameter rolls outside another circle of 120mm diameter for one revolution. Draw the path traced by a point, which is at a distance 25mm from the centre of the rolling circle. 15M

Unit - II

3. The front view of a straight line AB is 60 mm long and is inclined at 60° to the reference line xy. The end point A is 15 mm above HP and 20 mm in front of VP. Draw the projections of the line AB if it is inclined at 45° to VP and is situated in the first quadrant. Determine its true length and inclination with HP. 15M
4. A straight road going uphill from a point A, due east to another point B, is 4 km long and has a slope of 15°. Another straight road from B, due 30° east of north, to a point C is also 4 km long but is on ground level. Determine the length and slope of the straight road joining the points A and C. Take scale, 10 mm = 0.4 km. 15M

Unit - III

5. A square ABCD of 50 mm side has its corner A in HP, its diagonal AC inclined at 30° to HP and the diagonal BD inclined at 45° to VP and is parallel to HP. Draw its projections. 15M
6. A pentagonal prism is resting on one of the corners of its base on the HP. The longer edge containing that corner is inclined at 45° to the HP. and the vertical plane containing that edge and the axis are inclined at 30° to the VP. Take the side of base 45mm and height 70mm. Draw the projections of the solid. 15M

Unit - IV

7. A pentagonal prism, side of base 25mm and axis 60mm long, rests with one of the edges of its base on HP. Its axis is inclined at 30° to HP and parallel to VP. It is cut by a horizontal section plane passing through the highest corner of the base. Draw the sectional top view. 15M
8. A cone base 50mm diameter and axis 65mm long, rests with its base on HP. It is cut by a section plane perpendicular to VP, inclined at 45° to HP and passing through a point on the axis 35mm above the base. Draw the sectional top view and the true shape of section. 15M

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Unit - V

9. A cone, base 54mm diameter and height 72mm, rests with its base on HP. A section plane perpendicular to HP and inclined at 25° to VP cuts the cone at a distance of 13.5 mm from the axis. Draw the sectional front view and develop the lateral surface of the remaining portion of the cone. 15M
10. Draw the development of the lateral surfaces of a cone of base diameter 60 mm and axis 70 mm long when it is resting with its base on HP. It is cut by a section plane which is perpendicular to VP and inclined at 45° to HP and bisects the axis. 15M

Hall Ticket No:

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Question Paper Code : A1501



VARDHAMAN COLLEGE OF ENGINEERING
(AUTONOMOUS)

B. Tech I Semester Supplementary Examinations July - 2014

(Regulations: VCE-R11A)

COMPUTER PROGRAMMING

(Common for All Branches)

Date: 08 July, 2014

Time: 3 hours

Max Marks: 75

Answer ONE question from each Unit

All Questions Carries Equal Marks

All parts of the question must be answered in one place only

Unit - I

1. a) Explain briefly steps in creating and running programs. 7M
b) What is a constant? Explain briefly three ways of using constants in C with a suitable example. 8M
2. a) C uses small integers internally to represent each different character. The set of characters a computer uses and the corresponding integer representations for those characters is called that computer's character set. Write a C program that prints the integer equivalents of some uppercase letters, lowercase letters, digits and special symbols. As a minimum, determine the integer equivalents of the following: A B C a b c 0 1 2 \$ * + / and the blank character. 7M
b) What is type conversion? List four situations where type conversion is done in C. 8M

Unit - II

3. a) Explain briefly the following control structures of C: 7M
i. Switch
ii. Do-while
- b) Write a C program to perform matrix addition using arrays. 8M
4. a) Define a function called hypotenuse that calculates the length of the hypotenuse of a right triangle when the other two sides are given. Use this function in a program to determine the length of the hypotenuse for each of the following triangles. The function should take two arguments of type double and return the hypotenuse as a double. 7M
b) Explain briefly command line arguments in C with a suitable example. 8M

Unit - III

5. a) Explain predefined string handling functions with examples. 8M
b) Explain pointer arithmetic with examples. 7M
6. a) Write a C program to check whether the given string is palindrom or not? 6M
b) Describe any three functions associated with dynamic memory management in C. 9M

Cont...2

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Unit - IV

7. a) What are nested structures and how are they defined? Demonstrate them giving suitable example. 7M
- b) Define a structure with the following fields: title of book, author name, number of pages, and publisher's name. Write a C program to read 10 books data and print the details. 8M
8. a) What is union? Illustrate how a union member is accessed and also differentiate structure and union giving suitable example. 7M
- b) Write a C program using a pointer to structure illustrating the initialization of the members in the structure. 8M

Unit - V

9. a) Design a C program to create a file called emp.txt and store information about an employee like name, age and salary. 7M
- b) What is a file? Describe the terms text file and binary file with respect to C. 8M
10. a) Explain briefly fseek() with suitable examples. 7M
- b) Write a program to display file contents 20 lines at a time. The program should pause after displaying 20 lines until the user presses either Q to quit or Return to display the next 20 lines. The filename should be accepted from user and then process the file. 8M