V.S.B. ENGINEERING COLLEGE, KARUR

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR 2018-2019(EVEN SEMESTER)

ASSIGNMENT QUESTION BANK

CLASS I YEAR/II SEMESTER

HS8251- TECHNICAL ENGLISH

1	Write a set of eight Instructions to improve fluency in English.
2	Write a set of eight Instructions to keep your vehicle in good condition.
3	Write a set of eight Instructions for your friend who is planning to stay in his college hostel.
4	Write a set of eight Instructions that are to be followed by students in college library.
5	Write a set of eight Instructions to be followed to maintain laptops in good condition.
6	Write a set of eight Instructions that could be followed by students to the examination hall.
7	Write a set of eight Instructions for operating the ticket vending machine at a railway station.
8	Write a set of eight Instructions for using your cell phone safely.
9	Write a set of eight Instructions for safety while using welding equipment.
10	Write a set of eight Instructions that could be followed to reduce pollution.
11	Write a set of eight Instructions that must be followed as safety measures in a chlorine plant.
12	Write a set of eight Instructions that must be followed in a chemical engineering lab.
13	As the Maintenance Engineer of Software Company, give a set of eight instructions that are to be followed by the lab assistants while handling sophisticated equipment.
14	Write a job application letter to the following advertisement published in the “The Hindu” for the post of Deputy Manager, Design and Development, with resume to the personnel Manager, Lucas-TVS, Hosur, India.
15	Write a letter to the HRD Manager of Karur Vysya Bank, Anna Salai, Chennai-600 017, applying for the post of System Manager. Add a separate resume to your covering letter.
16	Write a set of eight Instructions to make your city clean and green.
17	Write a set of eight Instructions advising your younger sister on how to prepare for her Board exams.
18	Write a set of eight Instructions on road safety.
19	Write a set of eight recommendations for safety measures in a chlorine plant.
20	Write a set of eight Instructions to save petrol.

21	Write a set of eight recommendations to keep your country peaceful from war.
22	Write a set of eight recommendations that should be followed to preserve our water resources.
23	Write a set of eight recommendations for the proper maintenance of two-wheelers.
24	Write a set of eight recommendations to keep the city free of air pollution.
25	Write a set of eight recommendations for safety measures in nuclear power plants.
26	Write a set of eight recommendations to a group of students from Europe who have come to spend their one month's vacation in India.
27	Write a set of eight recommendations for water storage in your home.
28	Write a set of eight recommendations for traffic congestion in your area.
29	Write a set of eight recommendations for global warming.
30	Write a set of eight recommendations to control air pollution.
31	Write a set of eight recommendations to control noise pollution.
32	Write a set of eight recommendations to stop corruption.
33	Write a set of eight recommendations to stop malpractice in Examinations.
34	Write a set of eight recommendations to avoid accidents on highways.
35	Write a set of eight recommendations to control unemployment.
36	Write a set of eight recommendations for avoiding fire accidents in public meetings.
37	Write a set of eight recommendations for maintaining a four wheeler.
38	Write a set of eight recommendations for growing a garden.
39	Write a letter of application for the post of Junior Engineer with resume to the HRD Manager, Doshi Constructions Pvt. Ltd., 14, Greams Road, Chennai – 600 002.
40	Write a set of eight recommendations that should be followed by the public to make the green environment.
41	Write a set of eight recommendations that should be followed at the time of natural disaster.
42	Write a set of eight recommendations to enhance the communication skills of the students.

43	Write a set of eight recommendations to stay away from the spreader disease like malaria.
44	Write a set of eight Instructions that are to be followed by all pedestrians.
45	What instructions would you give your tourist friend from the USA, to make his trip to Chennai, a pleasant one? Give a list of eight of eight important instructions pertaining to food, stay, travel, etc.
46	Write a set of eight recommendations to control water pollution in Chennai.

ENGINEERING MATHEMATICS-II

Sl. No.	Questions
1.	Find the Eigenvalues and Eigenvectors of $\begin{bmatrix} 2 & -2 & 3 \\ 1 & 1 & 1 \\ 1 & 3 & -1 \end{bmatrix}$.
2.	Find the Eigenvalues and Eigenvectors of $\begin{bmatrix} -9 & 2 & 6 \\ 5 & 0 & -3 \\ -16 & 4 & 11 \end{bmatrix}$.
3.	Find the Eigenvalues and Eigenvectors of $\begin{bmatrix} 11 & -4 & -7 \\ 7 & -2 & -5 \\ 10 & -4 & -6 \end{bmatrix}$.
4.	Find the Eigenvalues and Eigenvectors of $\begin{bmatrix} 2 & 2 & -7 \\ 2 & 1 & 2 \\ 0 & 1 & -3 \end{bmatrix}$.
5.	Find the Eigenvalues and Eigenvectors of $\begin{bmatrix} 2 & 2 & 1 \\ 1 & 3 & 1 \\ 1 & 2 & 2 \end{bmatrix}$.
6.	Find the Eigenvalues and Eigenvectors of $\begin{bmatrix} 2 & -2 & 2 \\ 1 & 1 & 1 \\ 1 & 3 & -1 \end{bmatrix}$.
7.	Find the Eigenvalues and Eigenvectors of $\begin{bmatrix} 2 & 0 & 1 \\ 0 & 2 & 0 \\ 1 & 0 & 2 \end{bmatrix}$.
8.	Find the Eigenvalues and Eigenvectors of $\begin{bmatrix} 1 & 1 & 3 \\ 1 & 5 & 1 \\ 3 & 1 & 1 \end{bmatrix}$.
9.	Find the Eigenvalues and Eigenvectors of $\begin{bmatrix} 2 & 0 & 1 \\ 0 & 3 & 0 \\ 1 & 0 & 2 \end{bmatrix}$.
10	Find the Eigenvalues and Eigenvectors of $\begin{bmatrix} 6 & -2 & 2 \\ -2 & 3 & -1 \\ 2 & -1 & 3 \end{bmatrix}$.
11	Find the Eigenvalues and Eigenvectors of $\begin{bmatrix} 3 & -1 & 1 \\ -1 & 5 & -1 \\ 1 & -1 & 3 \end{bmatrix}$.
12	Verify Cayley – Hamilton Theorem and find its inverse of the following matrix

	$\begin{bmatrix} 4 & 3 & 1 \\ 2 & 1 & -2 \\ 1 & 2 & 1 \end{bmatrix}$.
13	Verify Cayley – Hamilton Theorem and find its inverse of the following matrix $\begin{bmatrix} 1 & 3 & 7 \\ 4 & 2 & 3 \\ 1 & 2 & 1 \end{bmatrix}$.
14	Verify Cayley – Hamilton Theorem and find its inverse of the following matrix $\begin{bmatrix} 3 & 1 & 1 \\ -1 & 5 & -1 \\ 1 & -1 & 3 \end{bmatrix}$.
15	Verify Cayley – Hamilton Theorem and find its inverse of the following matrix $\begin{bmatrix} 7 & 2 & -2 \\ -6 & -1 & 2 \\ 6 & 2 & -1 \end{bmatrix}$.
16	Verify Cayley – Hamilton Theorem and find its inverse of the following matrix $\begin{bmatrix} 1 & 0 & -2 \\ 2 & 2 & 4 \\ 0 & 0 & 2 \end{bmatrix}$.
17	If A = $\begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix}$, then prove that $A^3 - 3A^2 - 9A - 5I = 0$. Hence, find A^4.
18	Given that A = $\begin{bmatrix} 1 & 2 & 1 \\ 0 & 1 & -1 \\ 3 & -1 & 1 \end{bmatrix}$, Express $A^6 - 5A^5 + 8A^4 - 2A^3 - 9A^2 + 35A + 6I$ as a linear polynomial in A, using Cayley Hamilton Theorem.
19	Obtain the matrix $A^6 - 25A^2 + 122A$ where A = $\begin{bmatrix} 0 & 0 & 2 \\ 2 & 1 & 0 \\ -1 & -1 & 3 \end{bmatrix}$.
20	Given that A = $\begin{bmatrix} 1 & 0 & 3 \\ 2 & 1 & -1 \\ 1 & -1 & 1 \end{bmatrix}$, compute the value of $A^6 - 5A^5 + 8A^4 - 2A^3 - 9A^2 + 351A - 36I$, using Cayley Hamilton Theorem.

21	Diagonalise the following matrix by suitable transformations A = $\begin{bmatrix} 7 & -2 & 0 \\ -2 & 6 & -2 \\ 0 & -2 & 5 \end{bmatrix}$, Also find A^4.
22	Diagonalise the following matrix by suitable transformations A = $\begin{bmatrix} 11 & -4 & -7 \\ 7 & -2 & -5 \\ 10 & -4 & -6 \end{bmatrix}$, Also find A^5.
23	Reduce the quadratic form $8x_1^2+7x_2^2+3x_3^2 - 12x_1x_2 - 8x_2x_3+4x_3x_1$ to the canonical form through an orthogonal transformation and hence, show that it is positive semi-definite.
24	Reduce the quadratic form $x_1^2+5x_2^2+x_3^2+2x_1x_2 +2x_2x_3+6x_3x_1$ to the canonical form through an orthogonal transformation.
25	Write down the quadratic form, whose associated matrix is $\begin{bmatrix} 3 & 1 & 1 \\ 1 & 0 & 2 \\ 1 & 2 & 0 \end{bmatrix}$ and reduce it to its canonical form.
26	Reduce the quadratic form $10x_1^2+2x_2^2+5x_3^2 - 4x_1x_2 +6x_2x_3 - 10x_3x_1$ to the canonical form by orthogonal reduction. Find a set of values of x_1, x_2, x_3 which will make the form vanish.
27	Reduce the quadratic form $2x_1^2+6x_2^2+2x_3^2 +8x_1x_3$ to the canonical form by orthogonal reduction. Find also the nature of the quadratic form.
28	Reduce the quadratic form $2x_1^2+5x_2^2+3x_3^2 +4x_1x_2$ to the canonical form by orthogonal transformation. Also find the rank, index and signature of the quadratic form.
29	Reduce the quadratic form $3x_1^2-3x_2^2-5x_3^2 - 2x_1x_2 - 6x_2x_3 - 6x_3x_1$ to the canonical form by orthogonal transformation. Also find the rank, index and signature of the quadratic form.

30	Obtain an orthogonal transformation which will transform the quadratic form $2x_1^2+2x_2^2+2x_3^2 - 2x_1x_2 - 2x_2x_3 +$ $2x_3x_1$ into sum of squares form and find also the reduced form.
31	When $\phi = x^3 + y^3 + z^3 - 3xyz$, find $\nabla\phi, \nabla.\nabla\phi$ and $\nabla\times\nabla\phi$ at $(1,2,3)$.
32	Find $\nabla.\vec{F}$ and $\nabla\times\vec{F}$ of the vector point function $\vec{F} = xz^3\,\vec{i} - 2x^2yz\,\vec{j} + 2yz^4\,\vec{k}$ at $(1,-1,1)$.
33	Show that the vector $\vec{F} = (2xy - z^2)\,\vec{i} - (x^2 + 2yz)\,\vec{j} + (y^2 - 2zx)\vec{k}$ is irrotational and find its scalar potential.
34	Show that the vector $\vec{F} = (3x^2 + 2y^2 + 1)\,\vec{i} + (4xy - 3y^2z - 3)\,\vec{j} + (2 - y^3)\vec{k}$ is irrotational and find its scalar potential.
35	Show that the vector $\vec{F} = (y^2 + 2xy^2)\,\vec{i} + (2xy - z)\,\vec{j} + (2x^2z - y + 2z)\vec{k}$ is irrotational and find its scalar potential.
36	Show that $\vec{F} = (y^2 - z^2 + 3yz - 2x)\,\vec{i} + (3xz + 2xy)\,\vec{j} + (3xy - 2xz + 2z)\vec{k}$ is both solenoidal and irrotational.
37	Evaluate $\iint_S \vec{f}.\hat{n}\,dS$, where $\vec{f} = (x + y^2)\,\vec{i} - 2x\,\vec{j} + 2yz\,\vec{k}$ and S is the surface of the plane $2x + y + 2z = 6$ in the first octant.
38	Evaluate $\iiint_V \nabla.\vec{F}\,dV$, where $\vec{F} = (2x^2 - 3z)\,\vec{i} - 2y\,\vec{j} - 4xz\,\vec{k}$ and V is bounded by the planes $x = 0, y = 0, z = 0$ and $2x + 2y + z = 4$.
39	Verify Green's theorem in the plane for $\int_C \left[(x^2 - xy^3)\,dx + (y^2 - 2xy)\,dy\right]$, where C is

	the square with vertices (0,0),(2,0),(2,2) and (0,2).
40	Evaluate by Green's theorem in the plane $\int_C \left[\left(x^2-\cosh y\right)dx+\left(y+\sin x\right)dy\right]$, where C is the rectangle with Vertices $(0,0),(\pi,0),(\pi,1)$ and (0,1).
41	Verify the divergence theorem for the function $\vec{A}=x^2\,\vec{i}+z\,\vec{j}+yz\,\vec{k}$ over the cube $x=\pm1, y=\pm1, z=\pm1$.
42	Verify the divergence theorem for the function $\vec{F}=4xz\,\vec{i}-y^2\,\vec{j}+yz\,\vec{k}$ over the cube $x=0, \mathrm{x}=1, \mathrm{y}=0, y=1, z=0, z=1$.
43	Verify the divergence theorem for the function $\vec{F}=\left(2x-z\right)\vec{i}+x^2y\,\vec{j}-xz^2\,\vec{k}$ over the cube $x=0, \mathrm{x}=1, \mathrm{y}=0, y=1, z=0, z=1$.
44	Verify the divergence theorem for the function $\vec{F}=xy^2\,\vec{i}+yz^2\,\vec{j}+-zx^2\,\vec{k}$ over the cube $x=0, \mathrm{x}=1, \mathrm{y}=0, y=2, z=0, z=3$.
45	Verify Stoke's theorem $\vec{A}=\left(2x-y\right)\vec{i}-yz^2\,\vec{j}-y^2z\,\vec{k},$ where S is the upper half of the sphere $x^2+y^2+z^2=1$ and C is its boundary in the xy plane
46	Evaluate $\iiint \nabla.\vec{F}\,dV$ where $\vec{F}$ = $2x^2y\,\vec{i}-y^2\,\vec{j}+4xz^2\,\vec{k}$ and V is the region in the first octant bounded by the cylinder y^2+z^2 = 9 and x = 2.

PH8253 - PHYSICS FOR ELECTRONICS ENGINEERING

Sl. No.	Assignment questions
1	What are the electrical properties of cancer cells vs normal cells?
2	How to operate LCR Meter? Give the applications on it.
3	Why do 2D materials show higher electrical and thermal conductivity than their bulk counterpart?
4	How does current density impact on electrode polarization effects in low-frequency imp. spectroscopy?
5	How many classes of insulating materials are there?
6	Any one of example for piezo-electric material ? explain.
7	Any one ferroelectric material detail explain
8	Spark plug makes use of which of the following materials for insulation?
9	How many crystal systems available, and explain.
10	What type of material is obtained when an intrinsic semiconductor is doped with pentavalent impurity?
11	What type of material is obtained when an intrinsic semiconductor is doped with trivalent impurity?
12	How is the resistance of semiconductor classified? Explain.
13	What are the charge carriers in semiconductors? Explain.
14	Who is developing the new broadband optical
15	What type of material is obtained when an intrinsic semiconductor is doped with pentavalent impurity?
16	How is charge carriers produced in intrinsic semiconductors?
17	What type of material is obtained when an intrinsic semiconductor is doped with trivalent impurity?

18	What is a signal? Sketch and explain different types of signals.
19	Explain the differences among conductors, insulators and semiconductors using theEnergy Band diagrams.
20	Define (i) Mass action law (ii) Mobility and (iii) Conductivity
21	Explain how conduction takes place in intrinsic semiconductor
22	What is doping? Explain how N and P-type semiconductors are formed
23	Explain how conductivity changes with doping.
24	What is Fermi level? Explain the effect of doping and temperature on Fermi level.
25	What is the process of producing electric dipoles inside the dielectric by an external electric field?
26	Which property helps a material to absorb lubricants?
27	Where can you find literature on how to fabricate a switch using optical material?
28	How to get the complex refractive index expression of Au, Graphene and so on?
29	materials that will support hyperspectral sensors?
30	What is the best method for fixing optical fibre to copper?
31	Why does the density of defect states increases on prolonged exposure of light in case of chalcogenide glasses?
32	How to do molecular modelling of liquid crystals ?
33	How can we collimate an LED (which is an extended source) using a plano convex lens?
34	Any one Applications of Fresnel Half Period Zone? Explain
35	What are Optical properties of Metals? Explain.
36	What is the Miller effect? How does it work and how does it affect the character of a CMOS gate?
37	The dielectric sample has the high impedance in the high frequency range. Will it behave like a

	pure inductor or pure capacitor?
38	What is the relation between imaginary part of electric permittivity and loss of electric energy?
39	What is the cleaning procedure for Ge layer? How to remove its oxide, roughness and other contaminants?
40	Why an ordinary transistor is called bipolar? Explain
41	Give the advantages, disadvantages and properties of tunnel diode.
42	Why is BJT is called current controlled device? Given it detail.
43	Compare JFET with BJT
44	Compare N channel MOSFET with P channel MOSFET
45	Give the any one applications of schottky diode.
46	What is a TRIAC? Give the symbol and structure of TRIAC

BE 8252 BASIC CIVIL AND MECHANICAL ENGINEERING

1. Explain in detail about the practical application of Geotechnical Engineering and Water Resources Engineering in Civil Engineering.
2. What are the advanced branches of Civil Engineering and explain the applications?
3. Explain with neat sketch prismatic compass and principles of compass surveying.
4. Explain with neat sketch 20m chain and principles of chain surveying.
5. List the six important points to be considered while selecting a site for construction of Dam.
6. Explain differential leveling with a neat sketch.
7. Explain with neat sketch the different types of piles.
8. List out the different types of bond in brick wall and explain.
9. Draw a neat sketch of a reinforced cement concrete column and explain.
10. Explain the types of floor suitable for residential and commercial building.
11. Explain briefly the different types of pitched roof coverings.
12. What are the requirements of good building stone & state important varieties of Building stones?
13. Explain the various purposes of Dam?
14. What are the different types of cement? Explain the properties and uses?
15. What are the different types of steel? Explain the properties and uses?

GE8291 ENVIRONMENTAL SCIENCE AND ENGINEERING

S.No	Assignment Questions
	1. Effects of Gaja cyclone in Tamilnadu 2. Compare tropical rain forest and temperate rain forest 3. Compare any two ecosystems. 4. Case study of keystone species 5. Case studies on Human-wildlife conflicts 6. Write a case study on Taj trapezium case 7. Fukushima nuclear accident. A case study 8. Case study of groundwater pollution in India 9. Pollution problem in dyeing industries in Karur District –A case study. 10. Pollution on Indian Ocean. A review 11. Case study of Sterlite Industrial problem in Tuticorin. 12. Any two case study on soil pollution 13. Discuss oxygen cycle with diagram 14. Any two case studies on marine pollution 15. Discuss methods used for sterilizing water 16. Explain application of green Chemistry 17. A study on Thermal pollution by nuclear power plant 18. Case study on renewable energy resources-A World scenario. 19. Explain nitrogen cycle with diagram 20. Case study on global warming 21. War over water-Conflicts of water in India-A case study 22. Land for Land-Tribal's problem 23. Explain the impacts of modern agriculture with case study 24. Case study of energy conversion process. 25. A review on alternate energy resources utilization in Tamilnadu State 26. Case study on renewable energy resources-A World scenario 27. Discuss phosphorous cycle with diagram 28. Case study on land degradation 29. Case study on Methane gas in delta areas 30. Resettlement and rehabilitation of Tribal people- A study 31. Wasteland reclamation process- A case study 32. Write the importance of biological hazard in the environment. 33. What do you understand about the sustainable use on rain water harvesting 34. A case study on AIDS in developing countries 35. Women and child welfare programmes- A National view 36. Mention the importance of family planning programs 37. How information technology helps in protecting the Environment? Explain with case study. 38. Self help group in Tamilnadu- A case study 39. A case study on biomedical waste 40. A case study of Electrical and Electronic waste

	41. Quality of domestic water Supply in India 42. Compare role of TNPCB and central pollution control board 43. Effects of population growth in India 44. Discuss importance of ecomark 45. Discuss mitigation and adaptation measures with regard to climate change 46. How will you calculate rain water harvesting potential for your house 47. Compare the physical and chemical characteristics of Marine water and terrestrial water

EE8251- **CIRCUIT THEORY**

Sl. No.	Assignment questions
1	Statement of Compensation theorem
2	Statement of substitution theorem
3	Statement of tellegen theorem
4	Laplace transform of common forcing function
5	Initial and final value theorem for circuit analysis
6	Step and impulse response of RL series circuit
7	Step and impulse response of RC series circuit
8	Step and impulse response of RLC series circuit
9	Explain the network element for circuit theory
10	Discuss the Hybrid parameters
11	Expression for input and output impedance in terms of two port network
12	Explain the different types of interconnections of two port network
13	Explain the ladder network
14	Discuss the Circuit modeling for ideal transformer
15	Explain the Properties of Tree in graph
16	Discuss the Terminology used in network graph
17	Explain the fundamental tie-set matrix
18	Discuss the network equilibrium equations
19	Explain the basic types of special signals
20	Explain the impedance matching filter
21	Discuss the crystal filter

22	Explain the LPF filter with RC and RL circuit
23	Discuss the concept of network synthesis
24	Explain the LC network synthesis
25	Explain the HPF filter with RC and RL circuit
27	Describe the dot conversion in coupled circuits
28	Explain the Double tuned circuits
29	Discuss the time displacement theorem
30	Explain the electrical equivalents of magnetically couplet circuits
31	Discuss the Z parameters
32	Discuss the Y parameters
33	Discuss the ABCD parameters
34	Explain the image impendence in terms of ABCD parameters
35	Discuss the modeling of Network components
36	Explain the formation of Incidence matrix
37	Explain the Reactive network
38	Explain the composite filter
39	Discuss the Tie –Set matrix
40	Explain the principle of Duality
41	Discuss the Concepts of Pole and zero in a Network functions
42	Explain the Laplace transformation of special signal waveforms
43	Discuss the Gate function for special signals
44	Discuss the recurrent network in two port network analysis
45	Discuss the theory of Active filters

46	Discuss the band pass filter
47	Explain the Graph in network