

Code : 17SH1101

B.TECH. DEGREE EXAMINATION, NOVEMBER 2018

I B.Tech. I Semester**FUNCTIONAL ENGLISH****(Common to All Branches)**

Time : 3Hrs

Max. Marks : 60

*Answer six questions choosing ONE from each section
All questions carry equal marks.*

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SECTION - I

1. (a) Write a short paragraph on "My Mother".
- (b) Correct the errors in the given sentences by following the rules of subject- verb agreement
 1. Your father as well as you have been invited.
 2. Each of them were rewarded. .
 3. A large number of students has failed. .
 4. The dacoit together with his followers have been killed.
2. (a) Write a short paragraph on "Swachha Bhatat".
- (b) Name the part of speech of each underlined word in the following sentences
 1. Oh! look at the moon, She is shining up there.
 2. Someone left their cell.
 3. She was completely unaware of the crying kittens.
 4. Please place the papers on top of the desk or in the drawer.

SECTION - II

3. (a) Write a letter to your friend, telling him how you spent your summer vacation in your village.
- (b) Correct the errors in the given sentences following the rules of pronoun agreement.
 1. One should always respect his superiors.
 2. Each contributed what they could.
 3. Either Rama or his friends lost his books.
 4. The two sisters loved one another.
4. (a) Write a letter to the sub-inspector of police of your area reporting the theft of your motorcycle.
- (b) Fill up the blanks with suitable articles.
 1. She is ___ untidy girl..
 2. Let us discuss-----matter..
 3. Benaras is -----holy city.
 4. Kalidasa is called ----- Shakespeare of India.

SECTION - III

5. (a) Write a short dialogue between a teacher and a student who is preparing for GATE Examination.
- (b) Fill up the blanks with suitable verb forms
 1. I saw an accident while I ----- (cross) the road.
 2. The girls ----- (attend) music classes since Monday.
 3. He ---- (leave) for Delhi day before yesterday.
 4. If she had studied well, she ----- (get) good grades,

6. (a) Write a short dialogue between a dealer of computers and a customer. The dealer apologizing to the customer for selling him a laptop that doesn't work.
- (b) Identify the following underlined words as (gerund, participle, infinitive and finite)
1. The children's singing and laughing woke me up
 2. A broken heart will mend over time.
 3. I believe that laughing is the best calorie burner
 4. I made them run.

SECTION - IV

7. (a) You would like to take an admission in M.Tech under Management Quota (self-financing courses) in Andhra University. Write a telephonic conversation between the Admissions In charge and you.
- (b) Fill up the blanks with suitable prepositions.
1. I apologized ----- my friend
 2. She has been dancing ----- 5 O'clock..
 3. I congratulated him ----- his success.
 4. Many people have died ----- hunger.
8. (a) You want a transfer to a new branch of the company. Write a telephonic conversation between H R Manager and you, requesting him to transfer you to the new branch.
- (b) Write the following as directed
1. She came yesterday. (Add question tag)
 2. He works hard. (Add question tag)
 3. Mount Everest is the highest mountain in the world. (Change into comparative degree)
 4. Very few kings were as great as Akbar. (Change into superlative degree)

SECTION - V

9. (a) Construct a story from the following outlines.
- A cap seller - going to market - felt tired - slept under a tree - a basket - caps for sale - monkeys on the tree - came down - opened the basket - took the caps - wore them - started making noise - Cap seller woke up - no cap in the basket - looked up in wonder - monkeys wearing caps - tried several methods to collect the caps - failed - out of frustration threw his cap - monkeys also threw the caps - Cap seller collected the caps and went away happily.
- (b) Rewrite the following as directed.
1. The mother said to her son, "Where did you stay last night?"
(Change into Indirect speech)
 2. He said to me, "What a lovely car you have"
(Change into Indirect speech)
 3. Raju said "I am unwell today"
(Change into Indirect speech)
 4. she said to her daughter" I have often told you not to go outside alone"
(Change into Indirect speech)

10. (a) Construct a story from the following outlines.

A wood cutter - cutting wood - dropped his axe in the pond - started weeping - god appeared - asked what the matter was - brought a golden axe from the pond - wood cutter did not accept - brought a silver axe - not accepted - brought an iron axe - accepted - pleased with the honesty of the poor wood cutter - offered all the axes to him.

- (b) Rewrite the following as directed.

1. Somebody has stolen her bag. (Begin with 'Her umbrella')
2. I did not present him the cell phone. (Begin with 'He')
3. Who wrote the Mahabharata? (Begin with 'By whom')
4. Can you drive the car (Begin with 'Can the car')

SECTION - VI

11. (a) You are elected as the secretary of a voluntary organization which campaigns the need of abolition of child labour. Draft a speech to address a gathering in your village/town.

- (b) Rewrite the following as directed.

1. you must run fast to catch the train. (Change it into compound sentence)
2. I saw a man who was deaf (Change it into simple sentence)
3. He is cunning like a fox. (Change it into complex sentence)
4. The boat sank in the deep water (Change it into complex sentence)

12. (a) You are invited as the chief guest to a college anniversary. Draft a speech to address the students.

- (b) Rewrite the sentences with right parallelism.

1. The summer program includes courses in cooking, sewing, and paint.
2. The safest way to lose weight is by eat less and by exercising more..
3. The witness testified calmly and clear.
4. The price includes delivery and installing.

Code: 17SH1104

B.TECH. DEGREE EXAMINATION, NOVEMBER 2018

I B.Tech. I Semester

NUMERICAL ANALYSIS

(Common to All Branches)

Time: 3Hrs

Max. Marks: 60

Answer SIX Questions Choosing ONE Question from each section

All Questions carry equal marks

SECTION - I

1. a) Applying Bisection method, estimate an approximate root for the equation $x \log_{10} x = 1.2$ correct to two decimal places.
b) Develop a recurrence formula for finding \sqrt{N} using Newton-Raphson method and hence compute $\sqrt{5}$ to four decimal places.
2. Find a real root of the equation $x^3 - 2x - 5 = 0$ by the method of false position correct to three decimal places.

SECTION - II

3. a) Apply Gauss-Jordan method to solve the equation $x + y + z = 9$; $2x - 3y + 4z = 13$; $3x + 4y + 5z = 40$.
b) Solve the system of non-linear equations $x^2 + y = 11$, $y^2 + x = 7$ using Newton-Raphson method.
4. Apply Gauss-Seidel iteration method to solve the equations $20x + y - 2z = 17$; $3x + 20y - z = -18$; $2x - 3y + 20z = 25$

SECTION - III

5. a) Estimate the population for the year 1925 from the data given below.

Year x	1891	1901	1911	1921	1931
Population y (in lakhs)	46	66	81	93	101

- b) Using Lagrange's formula, express the function $\frac{3x^2 + x + 1}{(x-1)(x-2)(x-3)}$ as a sum of partial fractions.
6. Derive Gauss forward and backward interpolation formulae. Find $f(22)$ from the Gauss forward formula.

x	20	25	30	35	40	45
$f(x)$	354	332	291	260	231	204

SECTION – IV

- 7 A slider in a machine moves along a fixed straight rod. Its distance x cm along the rod is given below for various values of the time t seconds. Obtain the velocity and acceleration of the of the slider when $t=0.3$ seconds.

t(sec)	0	0.1	0.2	0.3	0.4	0.5	0.6
x(cm)	30.13	31.62	32.87	33.64	33.95	33.81	33.24

- 8 a) Apply Simpson's $1/3^{\text{rd}}$ rule to find $\int_0^{0.6} e^{-x^2} dx$ by taking seven ordinates.
- b) Evaluate $\int_0^9 \frac{dx}{1+x^3}$ by using Simpson's $3/8^{\text{th}}$ rule correct to four decimal places.

SECTION – V

- 9 a) Solve by Taylor's series method the equation $\frac{dy}{dx} = x^2y - 1, y(0) = 1$ for $y(0.1)$ and $y(0.2)$.
- b) Using modified Euler's method, find an approximate value of y when $x=0.3$, given that $\frac{dy}{dx} = x + y$ and $y=1$ when $x=0$.
- 10 Apply Runge-Kutta method to find an approximate value of y for $x=0.2$ in steps of 0.1 , if $\frac{dy}{dx} = x + y^2$, given that $y(0) = 1$.

SECTION – VI

- 11 a) Fit a second degree parabola to the following data:

x	0	1	2	3	4
y	1	1.8	1.3	2.5	6.3

- b) The equations of two regression lines obtained in correlation analysis are $3x + 12y = 19$, $3y + 9x = 46$. Find (i) coefficient of correlation (ii) Mean values of x and y .
- 12 Three judges A, B, C give the following ranks. Find which pair of judges has common approach.

A	1	6	5	10	3	2	4	9	7	8
B	3	5	8	4	7	10	2	1	6	9
C	6	4	9	8	1	2	3	10	5	7

Code :17EE1101

B.TECH. DEGREE EXAMINATION, NOVEMBER 2018

I B.Tech. I Semester

BASIC ELECTRICAL SCIENCES

(Common to EEE, ECE, CSE & IT)

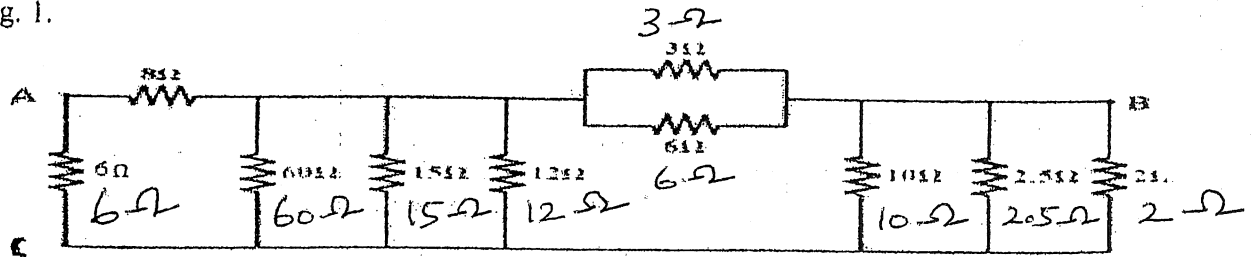
Time : 3Hrs

Max. Marks : 60

Answer SIX Questions Choosing ONE Question from each section
All Questions carry equal marks

SECTION - I

1. a) Write about KVL and KCL.
b) Calculate R_{AC} , the equivalent resistance seen at terminals A and C for the circuit shown in Fig. 1.



2. a) Find the current flowing through each resistors of 5Ω and 8Ω connected in parallel to a current source of 12 A.
b) The current in an $6\mu\text{H}$ inductor is given by $i(t) = 5t + 3$ A. What is the value of the inductor's voltage at $t = 4$ s?

SECTION - II

3. a) Obtain the peak factor and form factor values of voltage for a sinusoidal waveform.
b) Derive the expressions for energy stored in an inductor and capacitor.
4. a) An alternating voltage is expressed as $v = 14.14 \sin 314t$. Determine rms voltage, frequency and instantaneous voltage at $t = 20\text{ms}$.
b) Two impedances $(20 + j40)$ and $(2 - j5)$ are connected in parallel. Determine the equivalent impedance in both rectangular and polar forms.

SECTION - III

5. A sine wave generator supplies a 500 Hz, 10 V rms signal to a $5\text{K}\Omega$ resistor in series with a $0.1\mu\text{F}$ capacitor. Determine the total impedance Z , current I , phase angle θ , capacitive voltage and resistor voltage.
6. A sinusoidal voltage $V = 50 \sin \omega t$ is applied to a series RL circuit. The current in the circuit is given by $I = 4 \sin(\omega t - 53^\circ)$. Determine a) Apparent power b) power factor c) Average power

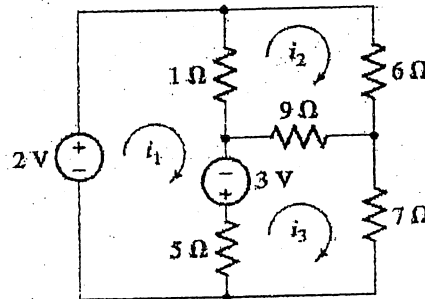
SECTION - IV

- 7 (a) Define i) Twig ii) Link iii) Cut-set iv) Tie set.
 (b) Draw the oriented graph of a network with fundamental cut-set matrix as shown below : Also find number of cut-sets and draw them.

Twigs				Links		
1	2	3	4	5	6	7
1	0	0	0	-1	0	0
0	1	0	0	1	0	1
0	0	1	0	0	1	1
0	0	0	1	0	1	0

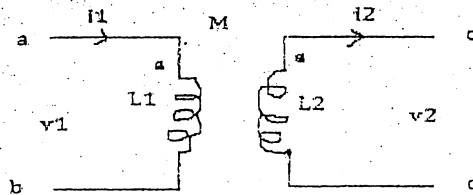
8

Determine numerical values for each of the three mesh currents as labeled in the circuit diagram of figure below :



SECTION - V

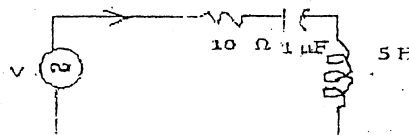
- 9 In the below figure $L_1 = 4 \text{ H}$, $L_2 = 9 \text{ H}$, $K = 0.5$, $i_1 = 5 \cos(50t - 30^\circ) \text{ A}$, $i_2 = 2 \cos(50t - 30^\circ) \text{ A}$. Find the values of a) v_1 b) v_2 and c) the total energy stored in the system at $t = 0$.



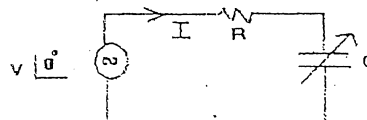
- 10 a) Write about Faradays laws of Electromagnetic Induction and dot convention in coupled circuits.
 b) The core has a radius of 0.01 m and a length of 0.2 m. Determine the number of turns required for a current of 1 A to produce a magnetic flux density of 0.1 T in the core. When the core material is a) air b) iron having relative permeability of 1200.

SECTION - VI

- 11 a) Define resonant frequency, bandwidth and quality factor of resonant circuits.
 b) Determine the impedance at resonant frequency, 10 Hz above resonant frequency, and 10 Hz below resonant frequency.



- 12 a) What are advantages of locus diagrams
 b) Plot the locus of current vector when C is varied



LB

Code : 17SH1102

B.TECH. DEGREE EXAMINATION, NOVEMBER 2018

I B.Tech. I Semester

ENGINEERING PHYSICS
(Common to EEE, ECE, CSE & IT)

Time : 3Hrs

Max. Marks : 60

Answer ONE Question from each section
All Questions carry equal marks

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SECTION - I

1. (a) What is meant by lattice parameters of a crystal system? Briefly explain seven systems of crystals.
(b) Derive the expression for the interplanar spacing between two adjacent planes of a simple cubic lattice.
2. (a) State and derive Bragg's law for diffraction in crystals.
(b) Describe with suitable diagram the powder method for determination of crystal structure.

SECTION - II

3. (a) Define polarizability. Derive the expression for electronic polarizability and ionic polarizability.
(b) The number of atoms in hydrogen gas is 9.8×10^{20} atoms/m³. The radius of hydrogen atom is 0.053 nm. Calculate the relative permittivity.
4. (a) Write a short note on Origin of magnetic moment.
(b) What is meant by hysteresis? Explain hysteresis loss.

SECTION - III

5. (a) Describe drift and diffusion process in a semiconductor with help of relevant expressions.
(b) Obtain an expression for Hall coefficient?
6. (a) Explain the formation of potential barrier across the p - n junction region and discuss its I - V characteristics.
(b) What is LED? Explain the construction and working of LED?

SECTION - IV

7. (a) Write a short note on sampling theorem.
(b) Explain in detail about digital communication system. How it is different from analog communication system.

- 8 (a) What do you understand by signal impairment? Explain.
(b) What is meant by modulation? Explain various modulation mechanisms and compare them.

SECTION – V

- 9 (a) What is emission? Differentiate spontaneous and stimulated emission of radiation.
(b) Explain working of He – Ne Laser with neat sketch.
- 10 (a) Derive an expression for acceptance angle for an optical fiber. How it is related to numerical aperture?
(b) Explain the mechanism of light propagation in optical fiber. Discuss different types of optical fibers with suitable diagrams.

SECTION – VI

- 11 (a) Define superconductivity. Explain the effect of magnetic field on superconductors.
(b) Write short notes on BCS theory of super conductivity.
- 12 (a) What do you understand by nanoparticles? Discuss their magnetic and optical properties.
(b) With the help of neat sketch explain SOL-GEL method of synthesizing nanomaterials.

Code :17CS1101

B.TECH. DEGREE EXAMINATION, NOVEMBER 2018

I B.Tech. I Semester

BASIC COMPUTER ENGINEERING

(Common to EEE, ECE , CSE & IT)

Time : 3Hrs

Max. Marks : 60

*Answer SIX Questions Choosing ONE Question from each section
All Questions carry equal marks*

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SECTION - I

1. (a) Explain a few of the different ways in which computers can be categorized
(b) How are computer technologies being used to train surgeons
2. (a) Identify four categories of computer hardware
(b) How does OCR software translate scanned text into text that you can edit

SECTION - II

3. (a) Explain about how OS access the data.
(b) i) Convert $(65.4)_8$ to $()_2$ ii) Convert $(101111)_{16}$ to $()_2$
4. (a) Describe how virtual memory works
(b) What are the factors affecting processing speed? Explain

SECTION - III

5. (a) Define an algorithm? Write an algorithm to find the biggest of three numbers
(b) Describe Software Development Life Cycle for programming
6. (a) What is a program? How programs solve problems
(b) What are the different high level language? What are the advantages and disadvantages of High level languages when compare with low level languages

SECTION - IV

- 7 (a) Discuss the following types of Operating System :
i) Real Time Operating Systems ii) Single-user/Single-Tasking OS
(b) What are the advantages and disadvantages of Command-Line Interfaces
- 8 (a) Explain sharing of information in different applications
(b) Explain about windows operating system.

SECTION - V

- 9 Discuss types of Computer Networks
- 10 (a) Name three common LAN protocols
(b) Name four types of media used to link networks

SECTION – VI

- 11 (a) What are the different computer viruses you know? Explain
(b) Describe the way of working with database
- 12 (a) What are the steps involved in creating database tables?
(b) Explain about Power related threats

B.TECH. DEGREE EXAMINATION, NOVEMBER 2018

I B.Tech. I Semester

INTRODUCTION TO COMPUTING

(Common to CE & ME)

Time : 3Hrs

Max. Marks : 60

Answer SIX Questions Choosing ONE Question from each section

All Questions carry equal marks

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SECTION – I

1. Classify and discuss about Desktop computers, Handheld computers and Notebook computers.
2. Define Hardware. Categorize different hardware components and their functions.

SECTION – II

3. (a) Define an Input Device. List out and explain about any four input devices.
(b) Discuss about the different categories of storage devices with example.
4. (a) Discuss the process of storing and organizing data on a disk.
(b) Explain about solid state storage devices.

SECTION – III

5. Write short notes on
(i) Single-user/ Multitasking OS. (ii).Multi-user/ Multitasking OS.
6. Write detailed notes on
(i) Graphical User Interface. (ii) Command-Line Interface

SECTION – IV

- 7 (a) Define variable. List out five valid and invalid variable names and give reason for it.
(b) Discuss the following data types with example
(i) Void() (ii) Boolean (iii) Char.
- 8 Write short notes on (i) Increment operator (ii) Decrement operator
(iii) Logical operator.

SECTION – V

- 9 Write a 'C' program to copy and reverse a string using string handling functions.
- 10 Write a 'C' program to implement all arithmetic operations using switch- case statement.

SECTION – VI

- 11 (a) Give the general syntax of "while" loop and give an example.
(b) Write a 'C' program to print n to 1 numbers using "while" loop.
- 12 (a) Define a Two-Dimensional array. How to initialize it. Give one example.
(b) Write a 'C' program to arrange the given numbers in descending order.

ENGINEERING CHEMISTRY
(Common to CE & ME)

Time : 3Hrs

Max. Marks : 60

Answer ONE Question from each section
All Questions carry equal marks

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SECTION - I

1. (a) What is a reference electrode? Describe the construction & working of standard Hydrogen gas electrode with reactions.
(b) With a neat sketch explain H₂-O₂ fuel cell. Mention its merits & demerits.
2. (a) Define Ion selective electrode. How glass electrode is used to measure p^H of a solution.
(b) Describe lead – acid battery & write cell reactions for discharging process.

SECTION – II

3. (a) What is corrosion? Distinguish between two types of corrosion.
(b) With an example explain the method of Electroplating.
4. (a) Explain the effect of
(i) Area of electrodes (ii) Oxide film (iii) Temp. on rate of corrosion.
(b) What is cathodic protection? Explain sacrificial method of protection.

SECTION – III

5. (a) What are refractory materials? Classify them with suitable examples.
(b) Discuss the properties of lubricating oils.
6. (a) Write short notes on
(i) Dielectric Strength (ii) Dielectric constant
(b) Explain the mechanism of lubrication.

SECTION – IV

7. (a) Define the determination of gaseous fuel with Boy's Calorimeter.
(b) Discuss proximate analysis of coal.
8. (a) On burning 0.73 gms of a solid fuel in a bomb calorimeter, the temp. of 1500 gms of water increased by 2.3^oC. water equivalent of calorimeter & latent heat of steam are 470 gms & 587 cal/ gm respectively. If the fuel contains 2.5% of hydrogen . Calculate its Gross and net calorific values.
(b) What is synthetic petrol? How it is obtained?

SECTION - V

- 9 (a) How chloride content of water is estimated volumetrically?
(b) Explain how hard water is softened with ion exchange method?
- 10 (a) What are boiler scales? Explain the disadvantages of boiler scales mentioning the Prevention methods.
(b) 100 ml of a sample of water required 18 ml of $\frac{M}{100}$ EDTA for titration. After boiling the same sample required 9 ml of $\frac{M}{100}$ EDTA. Calculate total Hardness & permanent hardness of water sample.

SECTION - VI

- 11 (a) What is Natural Rubber chemically? What are defects & how they are eliminated?
(b) Give preparation & uses
(i) Nylons (b) Silicon Rubber
- 12 (a) Briefly describe the compounding of rubber.
(b) Explain Mechanism of addition polymerisation with an example.

B.TECH. DEGREE EXAMINATION, NOVEMBER 2018
I B.Tech. I Semester

ENGINEERING MECHANICS - I
 (Mechanical Engineering)

Time : 3Hrs

Max. Marks : 60

Answer ONE Question from each section
All Questions carry equal marks

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SECTION - I

1. a. State and prove varignon's theorem
- b. Determine the magnitude and direction of the resultant of the force system shown in Fig.1.

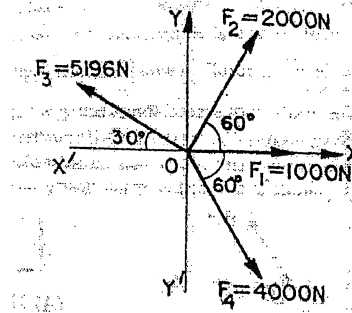


Fig.1.

2. a. State principle of transmissibility of force.
- b. The four coplanar forces acting at a point are shown in Fig.2. One of the forces is unknown and is represented as P. The resultant is having a magnitude of 500N and is acting along x-axis. Determine the unknown force P and its inclination with x-axis.

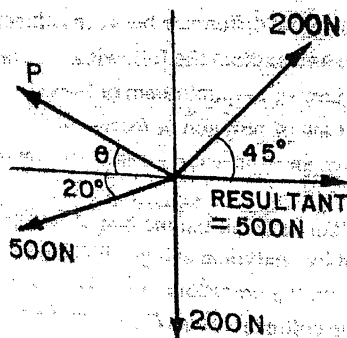


Fig.2.

SECTION - II

3. a. Write a short note on free body diagram.
 b. Two identical rollers, each of weight 50 N, are supported by an incline plane and a vertical wall as shown in Fig.3. Find the reactions at the points of supports A, B and C. Assume all the surfaces to be smooth.

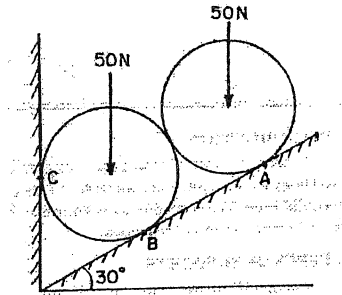


Fig.3.

4. a. State Lami's theorem.
 b. A beam is loaded as shown in Fig.4. Determine the reactions at the supports.

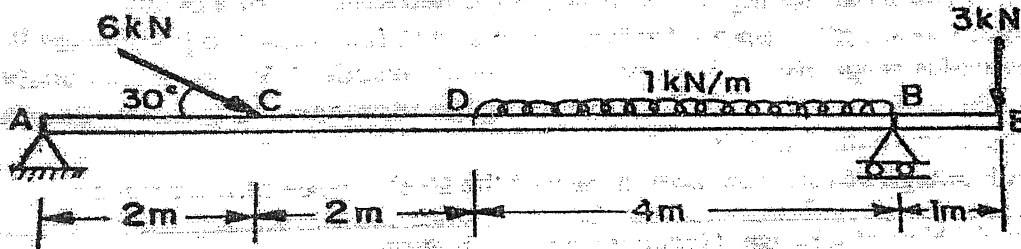


Fig.4.

SECTION - III

5. Calculate the forces in all the members of the truss shown in Fig.5.

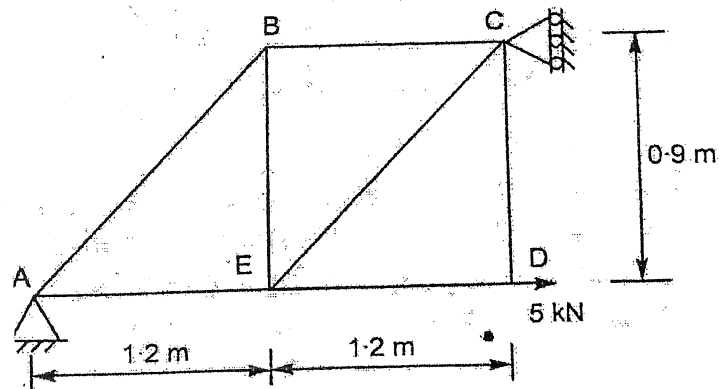


Fig.5.

6. a. State the assumptions made in the analysis of trusses.
 b. Find the forces in the members of the truss shown in Fig.6. using method of sections.

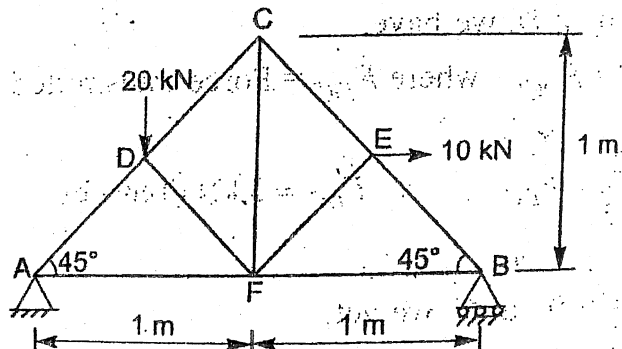


Fig.6.

SECTION - IV

- 7 Determine the least value of the force 'P' shown in Fig.7. to cause motion to impend rightwards. Assume the co-efficient of friction under the blocks to be 0.20 and the pulley to be frictionless.

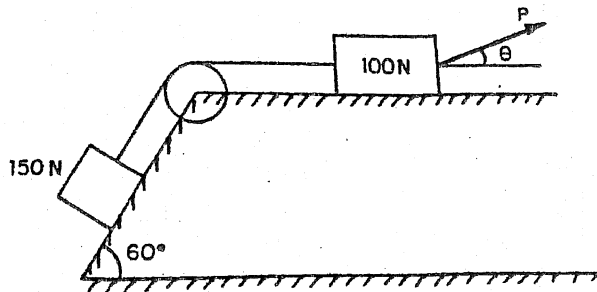


Fig.7.

- 8 Derive the expression for maximum efficiency of a screw jack and prove that $\eta = (1 - \sin\phi) / (1 + \sin\phi)$ Where ϕ is angle of friction.

SECTION - V

- 9 a. Define centre of gravity and centroid.
b. Determine the centroid of the plane uniform lamina shown in Fig.8.

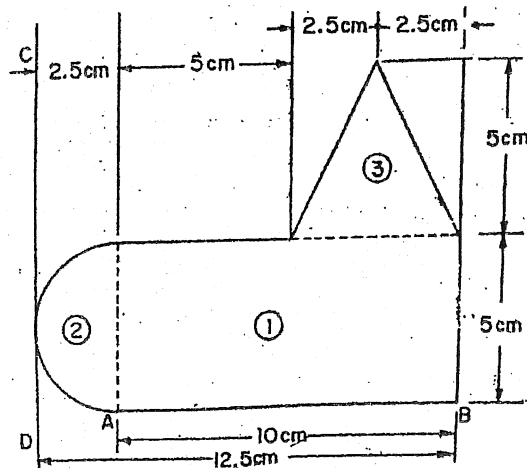


Fig.8.

- 10 a. Differentiate between centre of gravity and centre of mass.
 b. Determine the centroid of the lamina shown in Fig.9.

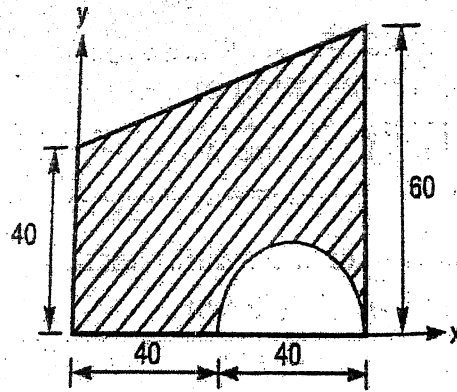


Fig.9.

SECTION - VI

- 11 Find the moment of inertia of the plane area shown in Fig.10. about its centroidal x and y axis

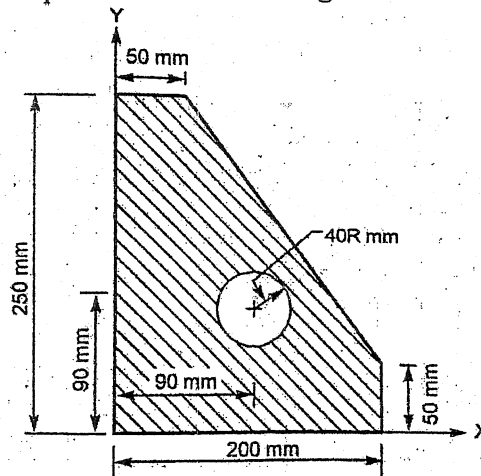


Fig.10.

- 12 a. Derive the expression for mass moment of inertia of hemisphere.
 b. Derive the expression for mass moment of inertia of a right circular cone about the axis of rotation.

12

Code: 17ME1101

B.TECH. DEGREE EXAMINATION, NOVEMBER 2018

I B.Tech. I Semester

**ELEMENTS OF MECHANICAL ENGINEERING
(Mechanical Engineering)**

Time : 3Hrs

Max. Marks: 60

*Answer SIX Questions Choosing ONE Question from each section
All Questions carry equal marks*

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SECTION - I

1. (a) Explain any two types of sand casting methods with neat sketches.
(b) Write a short note on Soldering.
2. (a) Describe any two hot and cold working processes with neat sketches.
(b) Write a short note on brazing.

SECTION - II

3. Write the differences between metals, alloys and composites.
4. Classify machine tools and describe anyone with a neat sketch

SECTION - III

5. Describe an IC Engine with a neat sketch.
6. Explain the applications of 2 stroke and 4 stroke engines

SECTION - IV

7. Describe any four types of energy sources.
8. Explain the working principle of Steam power plant

SECTION - V

9. Explain the working principle of Refrigeration system with a neat sketch
10. Write a short note on applications of refrigeration and air conditioning system.

SECTION - VI

11. Write about different power transmission systems
12. Explain about cam drives and discuss their applications

Code :17CE1101

B.TECH. DEGREE EXAMINATION, NOVEMBER 2018

I B.Tech. I Semester

BUILDING MATERIALS

(Civil Engineering)

Time : 3Hrs

Max. Marks : 60

Answer Six questions choosing ONE Question from each section

All Questions carry equal marks

*** * ***

SECTION - I

1. (a) Explain briefly about various qualities of a good brick.
(b) Explain briefly the manufacture of bricks with neat sketches.
2. (a) Describe about different classification of bricks.
(b) What are the factors affecting the strength of bricks?

SECTION - II

3. (a) Discuss geological classification of rocks.
(b) Define the term 'Quarrying'. List the materials using for blasting of rocks
4. (a) What are the qualities of good building stones? Discuss them.
(b) Describe in brief dressing of stone.

SECTION - III

5. (a) Explain the qualities of a good timber.
(b) Make a list of chief varieties of Indian trees. Explain about bamboo, rosewood and teak.
6. (a) Enumerate various market forms of steel and explain any two.
(b) List the common characteristics and types of glass used in construction industry.

SECTION - IV

7. (a) Define cement concrete. Explain the importance of the each ingredient.
(b) Enumerate the Laboratory tests for cement and describe any two of them.
8. (a) Explain why the 'Dry process' has been replaced at present by 'Wet process' of mixing raw materials in the manufacture of cement.
(b) What are the good characteristics of aggregate used in cement concrete?

SECTION - V

9. (a) Discuss the mortars which are used for plastering.
(b) Explain the characteristics of good mortar.

- 10 (a) Write briefly about procedure for selection of mortar.
(b) What is guniting? Explain about various applications of guniting.

SECTION - VI

- 11 (a) Discuss about the use of fly ash as a construction material.
(b) What are the uses of nano-materials as construction materials?
- 12 (a) Explain how fiber-reinforced plastics can be useful as building materials.
(b) Discuss about uses of carbon fibers.

LB

Code :17EE1102

B.TECH. DEGREE EXAMINATION, NOVEMBER 2018

I B.Tech. I Semester

BASIC ELECTRICAL ENGINEERING

(Civil Engineering)

Time : 3Hrs

Max. Marks : 60

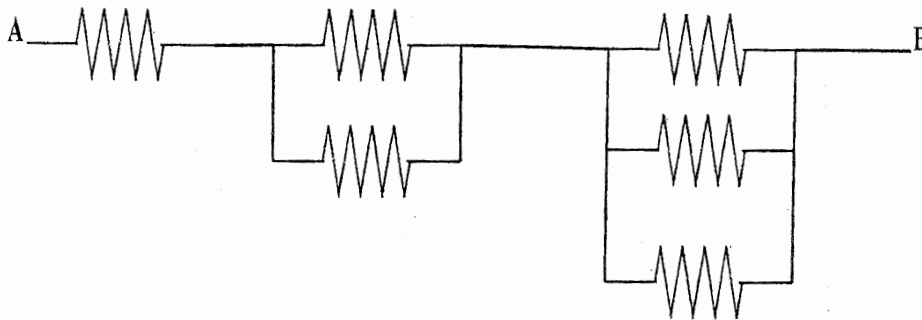
Answer SIX Questions choosing ONE Question from each section

All Questions carry equal marks

* * *

SECTION - I

1. a) State and explain Ohm's law and its limitations?
- b) Find the equivalent resistance between A and B, if each resistance is of 12 ohms? If the applied voltage across A and B is 120V then find out the power delivered by the voltage source?



2. a) State and explain Kirchoff's laws with examples.
- b) Derive Star-Delta transformation for a resistive network?

SECTION - II

3. a) Define (i) RMS Value
(ii) Average Value
(iii) Instantaneous value
- b) An alternating current varying sinusoidally with a frequency of 50 Hz has an RMS value of 20 A. Write down the equation for the instantaneous value and find this value (a) 0.0025 second (b) 0.0125 second after passing through a positive maximum value. At what time, measured from a positive maximum value, will the instantaneous current be 14.14 A ?
4. a) Explain relationship between line and phase values of 3-phase system.
- b) A circuit having a resistance of 12Ω , an inductance of 0.15 H and a capacitance of $100\mu\text{f}$ in series is connected across a 100V, 50Hz supply. Calculate the impedance, current, the phase difference between the current and supply voltage.

SECTION – III

5. a) Derive the e.m.f equation of a 1 – phase transformer.
b) A transformer with 800 primary turns and 200 secondary turns and it is supplied from a 100 V a.c. supply. Calculate the secondary voltage and the volts per turn
6. a) Describe the construction of a 1-phase transformer
Explain the operation of an auto transformer

SECTION – IV

- 7 a) Explain the constructional features of Alternator (or Synchronous generator).
b) Explain the principle of operation of Alternator (or Synchronous generator).
- 8 a) Explain why single phase motors are not self-starting?
b) Explain operation of split phase type induction motor and its applications.

SECTION – V

- 9 a) List different types of wiring systems adopted? Explain about conduit wiring system?
b) Draw and explain the wiring diagram of a fluorescent tube
- 10 a) List different accessories used for electrical wiring? Explain any two of them in brief
b)

SECTION – VI

- 11 Explain the single line diagram of a power system from generation to utilization
- 12 a) What is circuit breaker? Explain its operation
b) Write a short notes on HRC cartridge fuses