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Printed Pages : 3

(20514)

B.Tech. II Sem.

Roll No.

TU-417 (M)

B.Tech. Examination, May 2014

M.E./C.E.

Engg. Physics II

[Code No. BT-204(M)]

Time : Three Hours]

[Maximum Marks : 80]

Note: Attempt any five questions. **Three** questions from Section-A and rest **Two** questions from Section-B. All questions carry equal marks.

Section-A

1. Explain Heisenberg's uncertainty principle by the help of ultra-microscope and discuss its importance in Quantum theory. 16

(1)

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2. Describe an experiment for accurate determination of de-Broglie wavelength of a free e of energy 10^4 electron volts. Calculate the velocity of such electrons. 16
3. What are the Bucky balls? Discuss their properties and application. 16
4. Explain the construction and working of Carbon nanotube. 16
5. Distinguish between dia, para and ferromagnetic materials and also explain the behaviour of these substances. 16
6. What do you mean by dielectric constant? Define dielectric susceptibility and also derive the relation between them.

Section-B

7. What do you understand by atomic packing factor? Calculate atomic packing factor for SC and fCC. 16

8. What is the thermoelectric effect? And also explain
Natural temperature and inversion temperature. 16
9. What are ultrasonic waves. Describe the method to
produce ultrasonic wave. Give application of ultrasonic
wave. 16
10. Explain the principle of hydraulic system. 16

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Roll No.

B.Tech. II Sem.

G-37

B.Tech. Examination, May 2014

CS/EC/EI/IT/ME/CE

Professional Communication

BT-201(O)

Time : Three Hours / Maximum Marks : 100

Note: Attempt all questions. Distribution of marks has been mentioned with each question.

1. Attempt any two of the following: $10 \times 2 = 20$
 - (a) Describe the process of communication, indicating clearly the role of each constituent element.
 - (b) Discuss the salient features of technical communication. How technical communication is different from general communication?

P.T.O.

- (c) Discuss any three barriers that lead to miscommunication.
2. (a) Give antonyms of the following: $1 \times 5 = 5$
- (i) Blunt
 - (ii) Arrogant
 - (iii) Economical
 - (iv) Belief
 - (v) Plenty
- (b) Correct the following sentences: $1 \times 5 = 5$
- (i) I could neither contact Lila or Sarla.
 - (ii) I hope that you are well now.
 - (iii) You wait here unless the train arrives.
 - (iv) Keep your body fit like I do.
 - (v) As the started late, she will miss the train
- (c) Change the following as directed: $1 \times 5 = 5$
- (i) His mother (die) three months ago.
(Use correct form of verb)
 - (ii) He has repaired the car.
(Change into Passive Voice)

(iii) He said, "Man is Mortal".

(Change into Indirect Speech)

(iv) Walk Carefully. You may fall.

(Combine into one sentence)

(v) He was very tired but he kept on
working.

(Turn this into a simple sentence)

(d) Differentiate between the following pairs
of Homophones: $1 \times 5 = 5$

(i) Heel-Heal

(ii) Hole-Whole

(iii) Lose-Loose

(iv) Pray-Prey

(v) Peace-Piece

3. In the capacity of a branch manager, write a
letter to the Head Office recommending a
loan to a customer. 20

OR

Draft an application for the post of the Sec-
retary of a large public limited company.

4. Draft a report on the need to introduce some Incentive schemes to boost the sales of the company. 20

OR

Discuss the role of audio-visual aids in making the communication effective. Also, give examples of some audio-visual aids.

5. How are Humanistic and Scientific Approaches to Human activity different according to Moody, E Prior? 10

OR

What does J. Bronowski say about Man and Nature?

6. What does Prior say about the aims of Science and Humanities? 10

OR

Summarize B. Commoner's views as given in his essay, "Science and Survival".

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Roll No.

B.Tech. II Sem.

G-34

B.Tech. Examination, May 2014

Computer Concepts & Programming in C

[BT-202 (O)]

Time : Three Hours / Maximum Marks : 100

Note : Attempt any five questions. All questions carry equal marks.

1. (a) What is the advantage of writing pseudo-code before writing a program? Explain with the help of a suitable example. 5
- (b) What is correctness of a program? Explain. 5
- (c) Write a program in C to read a list of numbers from a file into an array, read a number and position from keyboard, insert that number at the given position and write this modified array to another file. 10

P.T.O.

2. (a) Write down the basic data types available in C along with their widths in bytes and their data ranges. How can we modify them using type modifiers? 6
- (b) What is operator precedence? Explain the operator precedence used in C. 4
- (c) Distinguish between the top-down and the bottom-up approaches to program development. 10
3. (a) Convert the following numbers as indicated: 10
- (i) Octal to decimal: 706
 - (ii) Decimal to Hex: 4096
 - (iii) Hex to Octal: 72BF
 - (iv) Binary to grey: 1101101
 - (v) Find the value of the base b in the conversion: $(16)_{10} = (100)_b$
- (b) What are standard C pre-processor directives? Explain #define, #ifndef, #ifdef, #pragma and #error. 10

4. (a) What are the two approaches of developing a program? Explain the top-down approach and bottom-up approach giving their advantages and disadvantages. 10
- (b) WAP to read a date as mm, dd, yyyy and the day on 1st January, and find out the day on the specified date. 10
5. What is function? How many types of functions are there in C? Explain actual and format parameters. WAP to read a number and find out if it is an automorphic number or not. A number n is automorphic number if the sum of the factorials of its digits is equal to n. For example: $145 = 1! + 4! + 5!$ 20
6. What is recursion? Describe two types of recursive functions that exist. Write a recursive function to find out the greatest common divisor (gcd). 20

G-3418013

P.T.O.

7. Write a C program that implements the selection sort algorithm. Also show how the numbers will shift if the given numbers are sorted in ascending order using selection sort algorithm: (25, 14, 4, 9, 30, 22). 20
8. What is dynamic memory allocation and how is it achieved in C? Implement a linked list in C where each node stores a string and any node in the list can be deleted or inserted. 20
9. Work through Binary search algorithm on an ordered file with keys (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16) and determine the number of key comparisons made while searching for the key 2. Write a program that illustrates binary search on a sorted array of integers. 20
10. What are matrices and how they may be initialized? Write down five salient features of matrices. Write a program to read a rectangular matrix and find out if the sum of all the border elements is greater than 100. 20

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Roll No.

B.Tech. II Sem.

TU-418

B.Tech. Examination, May 2014

EC, CS, ME BRANCH

Energy Environment and Ecology

BT-203

Time : Three Hours /

/Maximum Marks : 80

Note: Attempt any eight questions. Every question carries 10 marks.

1. Define the term environment. Explain the importance of environmental studies in present context. 10
2. What is meant by structure of an ecosystem? Explain the various Component of ecosystem. Discuss the functions of an ecosystem also. 10

P.T.O.

3. What is meant by biodiversity? What is 'Red data Book'? How do we declare species threatened or endangered? Name two species each of endangered reptiles, birds, mammals and plant of our country. 10
4. What are the alternative energy resources? Differentiate between renewable and non-renewable natural resources. 10
5. Discuss population explosion in Indian context. What are major reasons of population explosion? 10
6. What do you understand by water pollution? Suggest various remedial and control measures to minimise water pollution. 10
7. What is air pollution? What are its effects on human health? Discuss the measures used for controlling air pollution. 10

8. Discuss the phenomenon of 'Green House Effect'. What are its effects? What remedial measures you suggest. 10
9. Explain water conservation, global warming, acidic-rain and ozone layer depletion. 10
10. Write short notes on- 10=5+5
- (a) Briefly discuss the salient features of Environment (Protection) Act 1986.
 - (b) Bhopal Gas tragedy.

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Roll No.

B.Tech. II Sem.

G - 039

EC,CS,ME,EI & IT Examination, May 2014

Environmental Ecology

[BT- 203 (O)]

Time : Two Hours]

[Maximum Marks : 50]

Note: Attempt any five questions. All questions carry equal marks.

1. What do you understand by Environment & Explain different components of Environment in details? 10
2. Explain in detail about the Ecosystem & write down about the energy flow in any ecosystem. 10
3. What do you mean by natural resources. Explain different natural resources of Environment in details? 10

P.T.O.

4. Explain the pollution, mainly air pollution in detail with reference to primary & secondary pollutants & controlling measures? 10
5. What do you mean by Agricultural pollution. Explain different factors of Agricultural pollution & their remedies? 10
6. Explain water pollution. How dissolve oxygen level decreases in thermal pollution of water. Write in details? 10
7. What is environmental impact assessment (EIA) write down different steps of EIA & where EIA is used? 10
8. What do you mean by Global Environmental Problems, explain different Global Environmental problems in details? 10

9. Explain Acid rain, Global warming & Green House effect with concern Gases in details & reactions? 10

10. What do you mean by following short notes.

(Attempt any four). $5 \times 2 = 10$

- (A) Bio-chemical Oxygen Demand (BOD).
- (B) Chemical Oxygen Demand (COD).
- (C) Green House Gases (GHGs).
- (D) Cyclone Separators.
- (E) Sechi Disc.

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Roll No.

B.Tech.-II Sem.

TU-414

B.Tech. Examination, May 2014

Common Paper in All Branches

Mathematics - II

(BT-205)

Time : Three Hours / Maximum Marks : 100

Note: Attempt any five questions.

1. (a) Solve the O.D.E $\frac{dy}{dx} = \sin(x+y)$. 10

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

10

2. (a) Show that $P_n(x) = \frac{1}{2^n n!} \frac{d^n}{dx^n} (x^2 - 1)^n$

10

P.T.O.

(b) Find the inverse Laplace transform of

$$\frac{s}{(s^2 + 1)(s^2 + 4)} \quad 10$$

3. (a) Prove that $J_{1/2}(x) = \sqrt{\frac{2}{\pi x}} \sin x \cdot 10$

(b) Find the Laplace transform of

$$f(t) = \frac{e^{-4t} \sin 3t}{t} \quad 10$$

4. (a) Solve by changing the independent variable 10

$$(1+x)^2 \frac{d^2 y}{dx^2} + (1+x) \frac{dy}{dx} + y = 4 \cos \log (1+x)$$

(b) Solve $(D^4 - 1)y = e^x \cos x$

where $D \in \frac{d}{dx}$ 10

5. (a) Solve $(x^2 D^2 - x D - 3) y = x^2 \log x$ 10

(b) Solve dy method of variation of parameter. 10

$$\frac{d^2 y}{dx^2} + y = \operatorname{cosec} x$$

6. Find series solution about $x = 0$ of the differential eq"

$$x \frac{d^2 y}{dx^2} + \frac{dy}{dx} - y = 0 \quad 20$$

7. (a) Find Laplace transform of unit step function. 4

(b) State and prove that convolution theorem. 16

8. (a) Solve the following O.D.E by Laplace transform method

$$(D^2 - D - 2)y = Z_0 \sin z t, y(0) = -1,$$

$$y'(0) = 2 \quad 10$$

(b) Solve 10

$$(mz - ny) \frac{\partial z}{\partial x} + (nx - \ell z) \frac{\partial z}{\partial y} = \ell y - mx$$

9. Solve the partial differential equation by method of variables separable method (separation of variables)

$$\frac{\partial^2 z}{\partial x^2} - 2 \frac{\partial z}{\partial x} + \frac{\partial z}{\partial y} = 0. \quad 20$$

10. (a) Find Laplace transform of Periodic function:

$$f(t) = \begin{cases} t, & 0 < t \leq c \\ 2c - t, & c < t < 2c \end{cases} \quad 10$$

(b) Find Laplace transform of the function:

$$f(t) = (2014)^t. \quad 10$$

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Roll No.

B.Tech. II Sem.

G-30

B. Tech. Examination, May 2014

EC/EI/CS/IT/ME/CE

Mathematics-II

BT-205(O)

Time : Three Hours / Maximum Marks : 100

Note : Attempt any five questions. All questions carry equal marks.

1. (a) Solve $x^2 \frac{d^2y}{dx^2} + 4x \cdot \frac{dy}{dx} + 2y = e^x$ 10

(b) Solve $\frac{d^2y}{dx^2} + \cot x \frac{dy}{dx} + 4y \cos \operatorname{ec}^2 x = 0$ by
changing the independent variables. 10

2. (a) Solve, by method of variation of parameters $\frac{d^2y}{dx^2} - y = e^{-2x} \cdot \sin(e^{-x})$ 10

P.T.O.

- (b) Solve the simultaneous differential equations 10

$$\frac{d^2x}{dt^2} - 4 \frac{dx}{dt} + 4x = y$$

$$\frac{d^2y}{dt^2} + 4 \frac{dy}{dt} + 4y = 25x + 16e^t$$

3. (a) A spring of negligible weight hangs vertically. A mass M is attached to the other end. If the mass is moving with velocity u when the spring is unstretched, find the velocity v as a function of the stretch x . 10

- (b) Prove that $J_{-n}(x) = (-1)^n J_n(x)$ where n is a positive integer. 10

4. (a) Show that 10

$$\int_{-1}^1 (1-x^2) P_m' P_n' dx = \begin{cases} 0, & m \neq n \\ \frac{2n(n+1)}{2n+1}, & m = n \end{cases}$$

- (b) Find the Laplace Transform of $t \cdot \sin ht$.

10

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5. Find the Laplace Transform of the waveform

$$f(t) = \frac{2t}{3}, \quad 0 \leq t \leq 3. \quad 20$$

6. (a) Using Laplace Transforms, find the solution of the initial value problem 10

$$y'' - 4y' + 4y = 64 \sin 2t$$

$$y(0) = 0, y'(0) = 1$$

(b) Find the Fourier sine - series for the function $f(x) = e^{ax}$ for $0 < x < \pi$, where a is a constant. 10

7. (a) Solve the differential equation 10

$$x^2 \frac{\partial z}{\partial x} + y^2 \frac{\partial z}{\partial y} = (x+y)z$$

(b) Solve the partial differential equation

$$\frac{\partial^2 z}{\partial x^2} - 2 \frac{\partial^2 z}{\partial x \partial y} + \frac{\partial^2 z}{\partial y^2} = \sin x \quad 10$$

8. (a) Solve

$$(D^2 - DD' - 2D'^2) z = (y - 1) e^x \quad 10$$

(b) Solve the following differential equation
by the method of separation of vari-
ables

10

$$\frac{\partial^2 u}{\partial x \partial t} = e^{-t} \cdot \cos x.$$

9. Solve completely the equation :

$\frac{\partial^2 y}{\partial t^2} = c^2 \frac{\partial^2 y}{\partial x^2}$, representing the vibrations of
a string of length l , fixed at both ends, given
that $y(0,t) = 0$, $y(l,t) = 0$, $y(x,0) = f(x)$ and
 $\frac{\partial}{\partial t} y(x,0) = 0$; $0 < x < l$.

20

10. A thin rectangular plate whose surface is im-
pervious to heat flow has $t = 0$ an arbitrary
distribution of temperature $f(x,y)$. Its four
edges $x = 0$, $x = a$, $y = 0$, $y = b$ are kept at
zero temperature. Determine the tempera-
ture at a point of the plate as t increases.

20

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Roll No.

B.Tech. II Sem.

G-36

B.Tech. Examination, May 2014

EC,EI,CS,IT,ME,CE.

Electronics Engg.

(BT-208)(O)

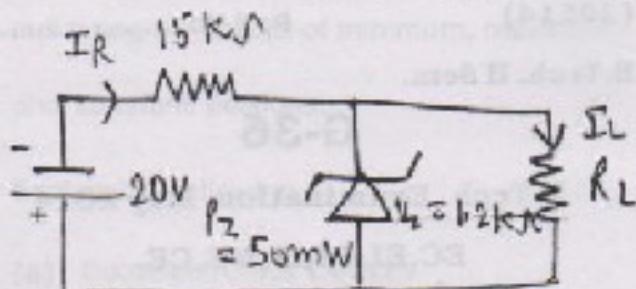
Time : Three Hours / Maximum Marks : 100

Note : Attempt any five questions.

1. Define and explain depletion layer in respect of p-n Junction, and explain why the reverse saturation current in a silicon diode is much smaller than that in a comparable germanium diode. 20
2. Draw the circuit diagram of full-wave Bridge Rectifier and calculate. Efficiency, AC Power, TVF and PIV. 20

P.T.O.

3. Explain "Avalanche" Break down. For the given zener diode network shown in fig. 20



4. Explain various method of Biasing of BJT. 20

5. Explain the working of JFET with neat sketch.

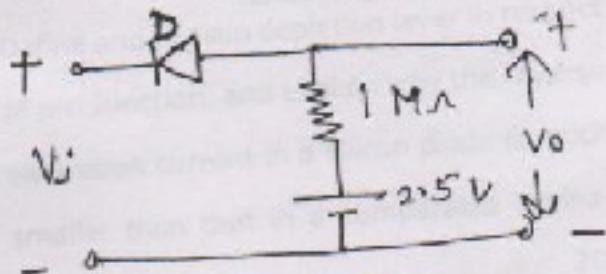
Also explain Pinch off voltage of a FET. 20

6. Draw the circuit diagram of Inverting and Non-Inverting amplifier and derive expression for output voltage. 20

7. With the help of block diagram explain the working of Digital multimeter and write down

the three major advantages of digital multimeter over analog multimeter. 20

6. Explain the working of CRO, and explain how do we measure the current and voltage using the CRO. 20
9. A Symmetrical 5 KHz squarewave that varies between +10V and -10V is impressed upon the clipping circuit of fig.



Assume $R_F = 0$, $R_v = 2\text{M}\Omega$, $V_i = 0$

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P.T.O.

- Sketch the steady state output wave form indicating the values of minimum, maximum and constant portions. 20
10. Explain the following : 20
- Optoelectronics Devices
 - CMRR
 - Buffer Amplifier
 - Clamping Circuits.

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B.Tech.-II Sem.

TU-420

B. Tech. Examination, May 2014

E.C./E.S./M.E. Branch

Electronics Engineering

[BT-208(N)]

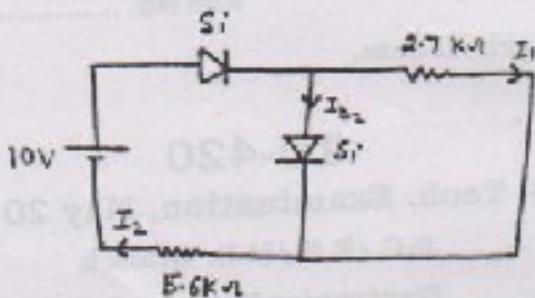
Time : Three Hours] Maximum Marks : 100

Note : Attempt any five questions. All questions carry equal marks. Assume suitable data if necessary.

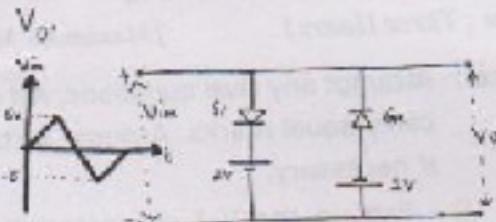
1. (i) Explain the V-I characteristics of PN Junction diode, define diode resistance and explain its graphically. What is the effect of temperature on the characteristics? Why is Si prefer over Ge. 10
- (ii) Draw the Bridge rectifier circuit and explain the operation. And also derive the expressions for average de Load Voltage and V_{RMS} . 10

P.T.O.

2. (i) Determine the currents I_1 , I_2 and I_{D2} for the network shown in the figure. Use second approximation of diode.



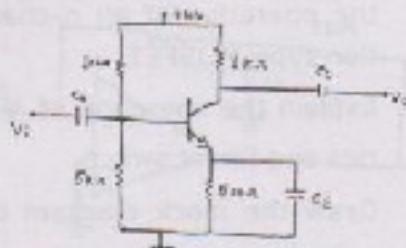
- (ii) Draw the output waveform of voltage V_O .



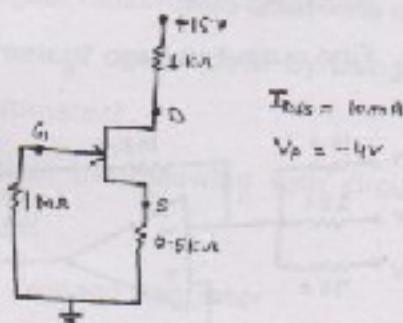
3. (i) Explain the working of n-p-n transistor in active region and show all current components. Draw the DC Load Line and also write down the stability factors for BJT Amplifier. 10
 (ii) For the circuit shown in figure B = 100 for the silicon transistor calculate V_{CE}

and I_C and its stability factor.

10



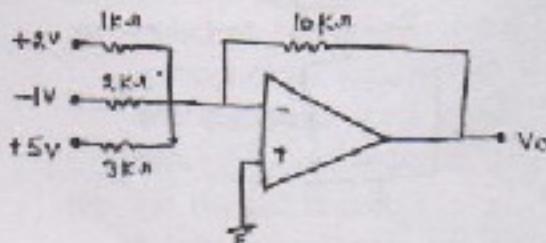
4. (i) Draw a circuit for obtaining drain and transfer characteristic of an P-Channel JFET. Define R_D , g_m and μ of JFET. 10
(ii) For a given circuit determine the following. 10
(a) I_D (b) V_{DS} (c) V_S



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P.T.O.

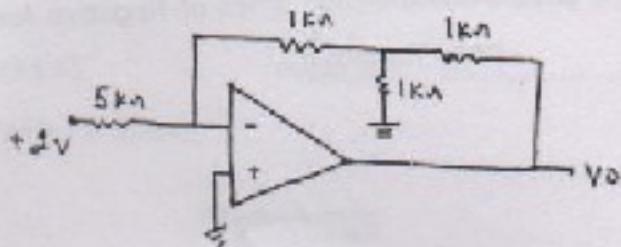
5. (i) With the help of neat diagram explain the operation of an n-channel Depletion type MOSFET. 10
- (ii) Explain the operation of JFET as a series and Shunt switch. 10
6. (i) Draw the block diagram of CRO and explain the function of various blocks. 10
- (ii) Describe the method of measurement of frequency, amplitude and phase using CRU. 10
7. (i) Write the characteristics of an ideal OP-amp. Draw and derive the expression for Integrator. 10
- (ii) Find output Voltage V_o . 10



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8. (i) Find V_o .

10



(ii) Draw and derive the expression for subtractor circuit. 10

9. (i) What are the different applications of function generator? Draw and Explain with the help of Block diagram. 10

(ii) Draw and explain the block diagram of a digital multimeter. What kind of measurement can be done by using digital multimeter? 10

10. (i) Explain the following with circuit diagram: 10

(a) Voltage Regulator

(b) Clamper Circuit

(II) Draw the four types of Negative feed-back Topologies.

10

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Roll No.

B.Tech. II Sem.

G-35

B. Tech. Examination, May 2014

EC.CS.ET.IT.ME

Electrical Engg.

[BT-207 (O)]

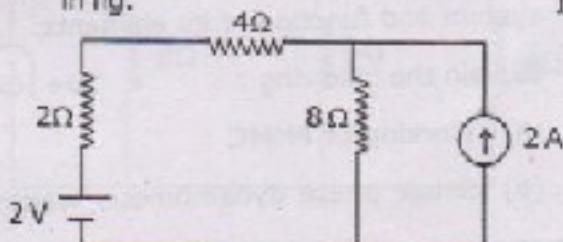
Time : Three Hours /

/Maximum Marks : 100

Note: Answer any five questions.

1. (a) Explain Maximum Power Transfer Theorem. 10

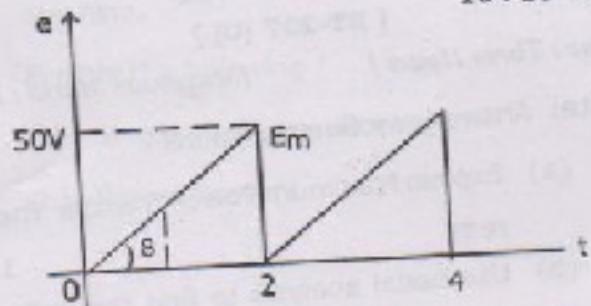
- (b) Use nodal analysis to find the voltage across and current through 4Ω resistor in fig. 10



P.T.O.

2. Find the following values of voltage and current : 20
- (a) Mean value
 - (b) RMS value
3. (a) Explain series parallel RLC circuit.
(b) Determine the form factor of the Sawtooth wave. Shown in fig.

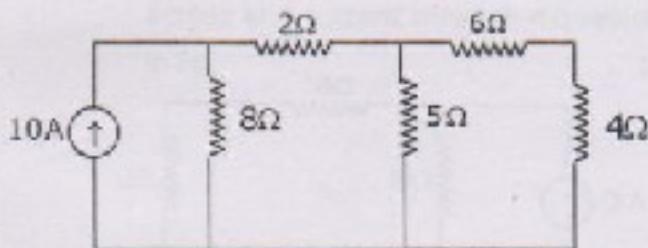
$10+10=20$



4. Describe General layout of electrical Power system and function of its elements. 20
5. Explain the following : $10+10=20$
- (a) Working of PMMC
 - (b) Single phase dynamometer wattmeter

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6. (a) What are the advantages of star and delta connected system. 10
- (b) A balanced 3-phase load consist of three coils, each of resistance 6Ω and inductive reactance of 8Ω . Determine the line current and power absorbed when the coils are : 10
- (i) Star-connected
- (ii) delta-connected
- across 400V, 3-phase supply
7. Using Norton's theorem. Calculate the current in the 5Ω resistor in the circuit shown in fig. also verified with KVL. 20



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P.T.O.

8. (a) Show that when Thevenin equivalent circuit of a network is converted into Norton equivalent circuit, $I_N = E_{TH}/R_{TH}$ and $R_N = R_{TH}$. 10
- (b) Explain super position theorem. 10
9. Explain working of three phase induction motor. Also derive an equation for emf in a DC machine. 20
10. Explain the following : 20
- (a) Single phase transformer
- (b) Power Factor

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Roll No.

B.Tech.-II Sem.

TU-421

B.Tech. Examination, May 2014

E.C., C.S. ME Branch

Engineering Mechanics

BT-211

Time : Three Hours / Maximum Marks : 100

Note: Attempt any **five** questions. **All** questions carry equal marks.

1. (a) (i) State Newton's law of Gravitation.

5

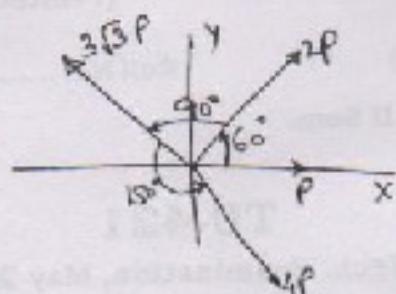
(ii) State principle of Transmissibility of forces. 5

(b) Find the Magnitude and direction of the resultant R of four concurrent forces

P.T.O.

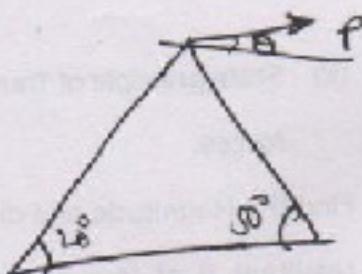
acting as shown in fig.

10



2. (a) State law of Coulomb friction, Dry friction and Belt friction. 10

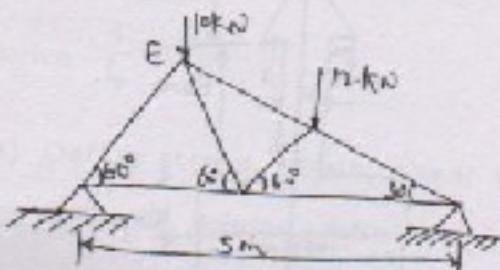
- (b) Two ropes are tied together at c. If the maximum permissible tension in each rope is 3.5 KN, What is the Maximum force p that can be applied and in what direction. 10



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3. Determine the forces in all members of the truss loaded and supported as shown in fig.

20



4. (a) Explain different types of supports for beams.

10

- (b) What are the various types of loads to which a beam can be subjected? Explain with diagram?

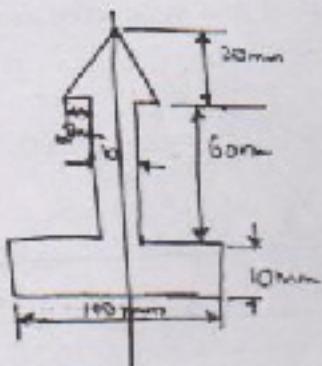
10

5. (a) State Parallel Axis Theorem, Perpendicular Axis Theorem and centre of gravity

10

(b) Locate the centroid of the section.

10



6. State the following: $5 \times 4 = 20$

(a) Varignan's Theorem

(b) Perfect, and Imperfect truss

(c) Polar Moment of Inertia

(d) Parallelogram law

(e) Polygon law

7. (a) What do you mean by Relative velocity. Explain with example.

10

- (b) Define work, power, potential energy,
Kinetic energy. 10
8. Derive $\frac{I}{I_0} = \frac{G \theta}{\ell} = \frac{\tau}{R}$ 20
9. (a) Define stress, strain, shear stress
resistance, Poisson's ratio. 10
- (b) Derive an expression for the strain en-
ergy stored. 10

M

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Roll No.

B.Tech.-II Sem.

G-32

B.Tech. Examination, May 2014

EC / CS / ME

Engineering Mechanics

BT-211(O)

Time : Three Hours / Maximum Marks : 100

Note: Attempt any five questions. All questions carry equal marks. Assume suitable data if missing.

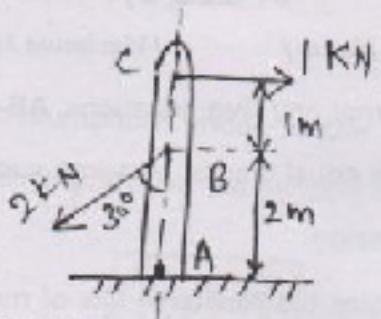
1. (a) State the Newton's law of motion. 10
- (b) Explain the principle of transmissibility in detail. 5
- (c) Explain polygon law of forces. With diagram. 5

P.T.O.

2. (a) What is equilibrium? Write down the equilibrium conditions for the following force system. 10

- (i) Coplanar Concurrent force system
- (ii) Coplanar Non-concurrent force system

(b) Find the moment of sum. of forces in figure about point A. 10

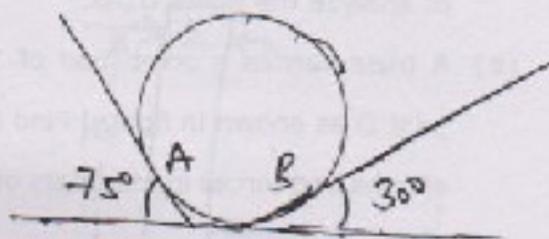


3. (a) Explain: 10

- (i) Coefficient of friction
- (ii) Angle of friction
- (iii) Angle of repose

- (b) A 100 N homogenous smooth spheres rests on two inclined planes as shown in figure. Determine the contact forces at A and B.

10

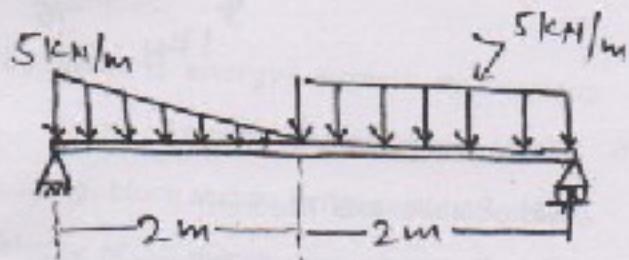


4. (a) Explain the different type of external load and their effect on beam with suitable diagram.

10

- (b) For the simply supported beam as shown in figure. Find the reaction at the support.

10.



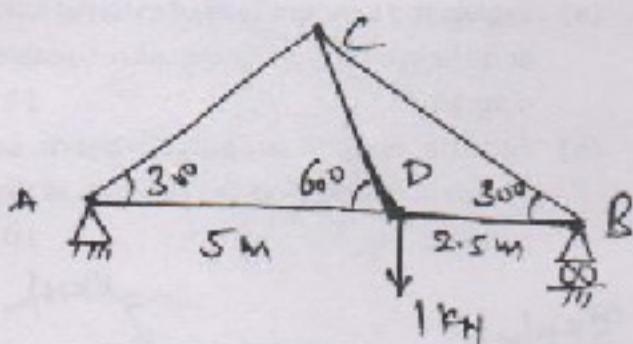
G-32110013

P.T.O.

5. (a) For perfect truss give the relationship between number of members and number of joint. Also write down the method of analyze the plane truss. 10

(b) A truss carries a point load of 1KN at joint D as shown in figure. Find the reactions and forces in members of truss.

10



6. State and prove the following: 20

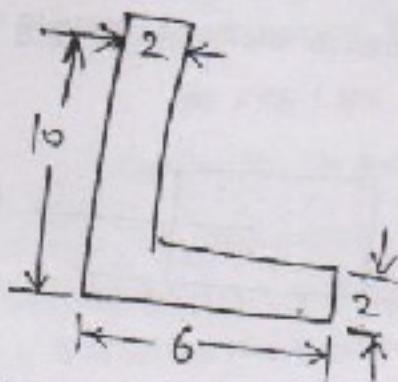
(a) Parallel axis Theorem

(b) Perpendicular axis theorem

G-32110014

7. Find the centroid of given figure. Also find the moment of inertia about the centroidal X - axis and Y - axis.

20



8. (a) What do you understand by term kinematics? Explain different types of plane motion of rigid bodies with suitable examples.

10

(b) What is energy? Explain the various forms of mechanical energies.

10

9. A 30 kg. block shown in figure is imparted a velocity of 10 m/sec. The coefficient of friction is 0.2.

y

z

a-

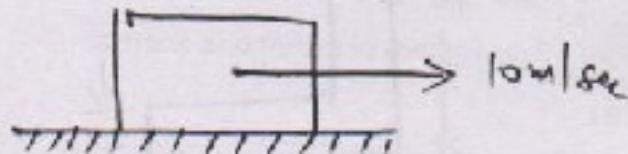
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o.

G-32110015

P.T.O.

netic friction between the block and floor is 0.28. Determine the distance covered by the block before it comes to rest and also time required for the box to come to rest. 20



10. State assumptions made in the theory of pure bending. Derive the bending formula:

20

$$\frac{M}{I} = \frac{\partial^2}{y} = \frac{c}{R}$$

M..... (Printed Pages 3)

(20514) Roll No.

B.Tech. - II Sem.

TU-423

B.Tech. Examination, May 2014

EC, CS, ME BRANCH

Introduction Bio Science

[BT-221]

Time : Three Hours / Maximum Marks : 80

Note : Attempt any five questions. One question is compulsory from each unit. All questions carry equal marks.

Unit - I

- | | |
|--|----|
| 1. Write short note on: | 16 |
| (a) Plasma Membrane | |
| (b) TCA cycle and its Regulation | |
| 2. (a) Give a brief account on etc and its regulation. | 16 |

P.T.O.

(b) Give a detailed account on endoplasmic reticulum with suitable diagram and its functions.

Unit - II

3. Explain in detail structure and functions of DNA and its types. 16

4. Give a brief account on RNA structure and its functions. 16

Unit - III

5. Give a detailed account on mitosis with suitable diagram. 16

6. Explain in detail sexual reproduction in eukaryotes, differentiate sexual reproduction and asexual reproduction. 16

Unit - IV

7. Write short note on: $8 \times 2 = 16$

(a) Polymerase chain reaction

(b) Electrophoresis

8. Write short note on: $8 \times 2 = 16$

(a) Genetically modified food

(b) Stem cells

Unit - V

9. Write short note on : $8 \times 2 = 16$

(a) Fertilization and implantation

(b) Parturition and lactation.

10. Give a brief account on contraception. 16

M

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Roll No.

B.Tech. II Sem.

TU-422

B.Tech. Examination, May 2014

EC, CS, ME

Manufacturing Practices

(BT-222)

Time : Two Hours / Maximum Marks : 50

Note: Attempt any five questions.

1. (a) What do you understand by seasoning and mention types of seasoning the wood. 5
(b) Draw and explain different types of Carpentry joints. 5
2. (a) What is the purpose of using surface plate and angle plate in fitting shop? 5
(b) How are files classified? Give their sketches also. 5

P.T.O.

3. (a) Explain the hand tools used in forging shop with neat diagrams. 5
- (b) What is difference between snithing and forging? 5
4. (a) Define welding. Give the classification of welding process. 5
- (b) Explain the principle used in Resistance welding with diagram. 5
5. (a) Explain different Sheet metal operations. 5
- (b) Write the short note on Sheet Metal working machines with diagram. 5
6. (a) What is difference between Lathe and Milling Machine? 5
- (b) Explain the construction and working of Milling machine. 5

7. (a) Explain in details the types of allowances provides to the pattern and their importance. 5

(b) Write a short notes on Moulding Process. 5

8. (a) Explain different parts of shaper with help of block diagram. 5

(b) Name and explain different casting defects. 5

(c) What do you understand by Reservoir and riser? Name three types of riser patterns. 5

(d) What is the purpose of using surface roughness and temperature in filing shop? 5

(e) How are turnings made? Give their applications. 5

M

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Roll No.

B.Tech. II Sem.

G-38

B.Tech. Examination, May 2014

Manufacturing Processes

[BT-210(O)]

Time : Two Hours]

[Maximum Marks : 50

Note: Attempt any five questions.

1. (a) Explain the following terms: 5
Ductility, Brittleness, Toughness, Hardness, Malleability.
- (b) Classify different carbon steels on the basis of percentage of carbon. 5
2. (a) Write a short note on heat treatment of steels. 5
- (b) What is brass? Describe the compositions, properties and uses of a few important types of brasses. 5

P.T.O.

3. (a) What is hot working? What are its advantages and limitations? 5
- (b) What is hot extrusion? Describe direct extrusion and indirect extrusion in brief. 5
4. (a) What are the essential qualities of a good sand? What are its main constituents? 5
- (b) What are different casting defects and its remedies? 5
5. (a) Explain the term 'machining'. Which factors govern the selection of a machine tool? 5
- (b) Explain the construction, working of drilling or milling machine. 5
6. (a) Classify the different welding processes. 5

- (b) Explain the processes of soldering and brazing and its uses. 5
7. (a) What are the different types of production? Difference between production and productivity. 5
- (b) What are the difference between soft wood and hard wood? 5
8. (a) How plastics are classified? How do thermosetting plastics differ from thermoplastics? 5
- (b) What are the different methods of producing metal powders? Describe the atomisation process in detail. 5

M

(Printed Pages 4)

(20514)

Roll No.

B.Tech. II Sem.

TU-006

B.Tech. Examination, May 2014

Remedical English Language

BT-206

Time : Two Hours]

[Maximum Marks : 50

Note : All questions are compulsory.

Unit -I

1. Fill in the correct form of noun given in bracket. 05
 - (i) Do you have _____? (scissors/scissor)
 - (ii) I do not wear _____(spectacle/spectacles)
 - (iii) Convey my _____to her. (thank/thanks)
 - (iv) I shall not give _____ to the poor. (alm/alm's)
 - (v) I like _____(music/musics)

P.T.O.

2. Fill in appropriate pronoun. 05
- (i) We scored as many goals as _____ (they/them)
 - (ii) Rama and _____ were present, (I/me)
 - (iii) Let you and _____ try what we can do. (I/me)
 - (iv) One should obey _____ parents. (one's/his)
 - (v) Nobody but _____ was present. (he/him)

3. Fill in appropriate preposition. 05
- (i) He is accused _____ theft.
 - (ii) I am not envious _____ you.
 - (iii) You should not be hostile _____ your classmates.
 - (iv) She is good _____ mathematics.
 - (v) One can rely _____ oneself.
4. Change the following into the passive. 05
- (i) Do you write a letter?
 - (ii) Why is he not singing a song?

- (iii) I gave him a gift.
- (iv) He will send a letter tomorrow.
- (v) People say figs are good for health.

Unit - II

5. Fill in the correct tense of modals. 05
- (i) If I drop it, it _____ explode. (will/would)
 - (ii) Even if I dropped it, it _____ not explode (will/would)
 - (iii) If he had delayed, the plane _____ have left, (will/would)
 - (iv) If you smoked in the classroom, the teacher _____ object (will/would)
 - (v) If she did not smoke so much, she _____ get rid of her cough (may/might)
6. Change the following sentence as per direction given in bracket. 05
- (i) There is my good brother. His name is Sohan. (combine into simple sentence)
 - (ii) In received no answer. I knocked sec-

ond time. (combine into simple sentence)

(iii) He felt tried. He laid his work aside.

(combine into simple sentence)

(iv) The way was long. The wind was cold.

(combine into compound sentence)

(v) He is poor. He is honest. (combine into

complex sentence)

Unit - III

7. Write a paragraph of about 100 words on any topic of your choice keeping in mind the concept of unity and coherence. 5

Unit - IV

8. Write an essay on any one the following topics in about 500 words. 15

(i) Information Technology: Its uses and abuses

(ii) Internet as a tool of communication

(iii) Noise Pollution

(iv) Engineering as a career

(v) Terrorism