<u>**Time : 3hrs**</u>   <u>**Max marks :70**</u>

Answer any Five questions choosing one question from each unit.
UNIT- I
1. (a) Define Environment and explain about need for public awareness.   06M
   (b).Discuss in detail about scope and importance of environmental studies   08M
(or)
2. (a) Write notes on Energy Resources.   06M
   (b) Write notes on (i) Causes of deforestration
                       (ii) Effects of modern agriculture on environment.   08M
UNIT-II
3. (a) Write notes on Foodchains & Foodwebs   07M
    (b) Discuss structure and functions of ecosystem.   07M
(or)
4. (a) Write short notes on Biotic and Abiotic components of Ecosystem.   08M
    (b) Write notes on characteristic features of Forest ecosystem.   06M

UNIT-III
5. (a) Discuss the Hotspots of biodiversity   06M
   (b) Discuss different methods of Conservation of biodiversity.   08M
(or)
6. (a) Write short notes on biodiversity at Global, National and Local level.   07M
   (b) Describe different types of threats to biodiversity.   07M
UNIT-IV
7. (a) Define Air pollution and discuss its control measures.   07M
   (b) Write about Solid waste management.   07M
(or)
8. (a) Define Noise pollution and discuss its causes, effects and control measures.   06M
    (b) Write notes on (i) Earthquakes (ii) Cyclones   08M
UNIT-V
9. (a) Write about water shed management leading to water conservation.   07M
   (b) Write short notes on causes and effects of Global Warming.   07M
(or)
10. (a) Write about role of Information Technology in Environment and Human health.   05M

   (b) Write notes on a) Family welfare programme.   09M
                       b) HIV/AIDS
                       c) Urbanisation

Code: 1503103   **B.Tech I Semester (R15) Examinations**
SUBJECT: ENGINEERING GRAPHICS
(Common to CSE ,EEE & ECE Branches)
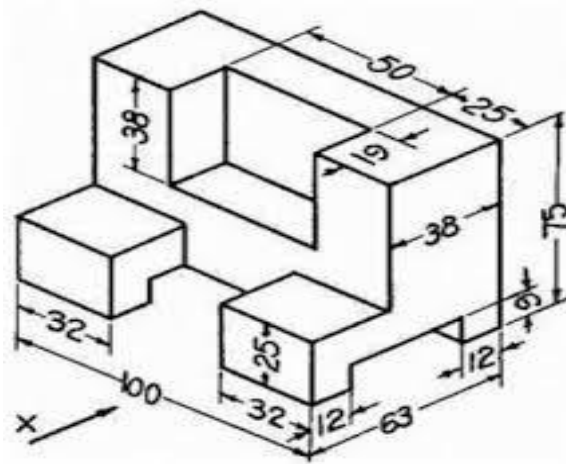**Time: 3 Hrs.**   **Maximum Marks: 70**

Answer any FIVE questions, choosing ONE question from each unit
**All questions carry equal marks**
Unit-I

1. The distance between a fixed straight line and a fixed point is 65mm trace the path of a point P moving in such a way that the ratio of its distance from the fixed point to its distance from the straight line is 2/3. Name the curve; draw a normal and a tangent to the curve at a point on it 50mm from the fixed point.

(OR)

2. A circle of 50mm diameter rolls on another circle of 75mm diameter with external contact. Draw the locus of a point on the circumference of the rolling circle for its one complete revolution .Draw a tangent and normal to the curve at a point on it after the rolling circle has made ¾th of a revolution.

3   a). A point A is 15 mm above H.P. and 20 mm in front of V.P. Another point B is 25 mm behind V.P. and 40 mm below H.P. Draw the projections of A and B, keeping the distance between the projectors equal to 90 mm. Draw straight lines, joining (i) the top views and (ii) the front views.

(b).   Two pegs fixed on a wall are 4.5 meters apart. The distance between the pegs measured parallel to the floor is 3.6 meters. If one peg is 1.5 meters above the floor, find the eight of the second peg and the inclination of the line joining the two pegs, with the floor.

(OR)

4. A line PQ 75 mm long has its end P 25 mm above the HP and 15 mm in front of the VP. The end Q is 50 mm above the HP and 60 mm in front of VP. Draw the projections of PQ and find its inclinations with HP and VP.

5. Draw the projections of a regular pentagon of 40mm side ,having its surface inclined at 30^0 to the H.P and a side parallel to the H.P and inclined at an angle of 60^0 to the V.P

(OR)

6. A hexagonal pyramid with side of base 30 mm long and height 80 mm has one of its triangular faces perpendicular to H.P. and inclined at 45^0 to V.P. The base side of this triangular face is on H.P. Draw its projections.

7. A cylinder of 45 mm diameter and 70 mm long is resting on one of its bases on HP. It is cut by a section plane inclined at 60^0 to HP and passes through the point of the axis at 15mm from one end. Draw the three views of the solid and show the true shape of the section.

(OR)

8. A pentagonal pyramid with edge of base 25mm and axis 65 mm long is resting on H.P on its base with an edge nearer to the observer ,parallel to V.P It is cut by a section plane ,inclined at 60^0 to V.P 6 mm from the axis. Draw the projections and obtain the true shape of the section.

9. Draw front view, top view and side view of the following figure.

(O.R)

10. Draw front view, top view and right side view of the following figure.
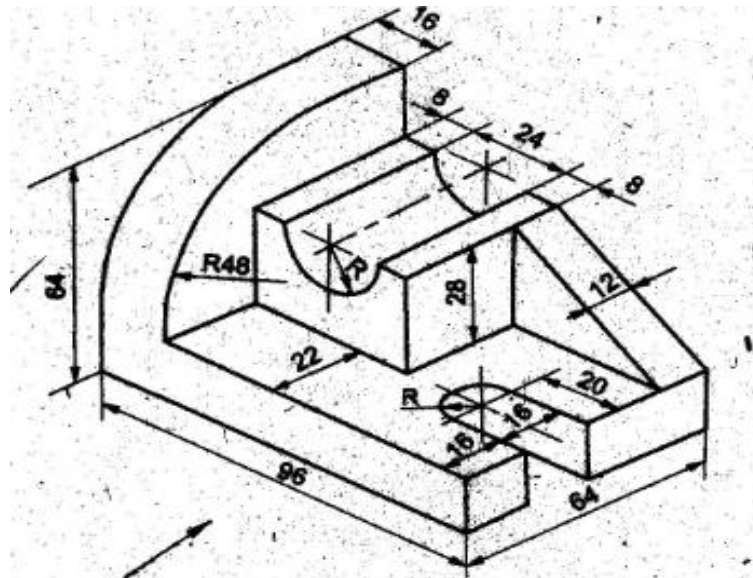
Code: 1503105

B.Tech I Year I Semester (R15) Supple. Examinations, 2018
SUBJECT: ENGINEERING DRAWING – I
(Common to Civil & Mechanical Engineering Branches)
Time: 3 Hrs.   **Maximum Marks: 70**
Answer any FIVE questions, choosing ONE question from each unit
All questions carry equal marks

UNIT-I

1.   Construct an ellipse, with distance of the focus from the directrix as 30mm   and eccentricity as 3/4 . Also draw the tangent and normal to the curve at a point 40 mm from the focus.

(OR)

2.   A thread of 165mm length is wound round a circle of 40mm diameter. Trace the path of end point of the thread. Draw a tangent and normal to the curve at a point 80mm from the center of the circle.

UNIT-II

3(a). A point A is 15 mm above H.P. and 20 mm in front of V.P. Another point B is 25 mm behind V.P. and 40 mm below H.P. Draw the projections of A and B, keeping the distance between the projectors equal to 90 mm. Draw straight lines, joining (i) the top views and (ii) the front views.

(b). Two pegs fixed on a wall are 4.5 meters apart. The distance between the Pegs measured parallel to the floor is 3.6 meters. If one peg is 1.5 meters. Find the height of the second peg and the inclination of   the line joining above the floor, the two pegs, with the floor.

(OR)

4.   A line PQ 75 mm long has its end P 25 mm above the HP and 15 mm in front of the VP. The end Q is 50 mm above the HP and 60 mm in front of VP. Draw the projections of PQ and find its inclinations with HP and VP.

UNIT-III

5.   A semi-circular plate of 80 mm diameter has its straight edge on V.P. and inclined at 30^0 to H.P., while the surface of the plate is inclined at 45^0 to V.P. Draw the projections of the plane .

(OR)

6.   A rectangular plane ABCD of size 100 x 60 is inclined to V.P. by an angle of 45^0 ; longer edge of which is making an angle of 30^0 with H.P. Draw the projections of the plane by using auxiliary plane method.

UNIT-IV

7.   A hexagonal pyramid with side of base 30 mm long and height 80 mm has one of its triangular faces perpendicular to H.P. and inclined at 45^0 to V.P. The base side of this triangular face is on H.P. Draw its projections.

(OR)

8.   A tetrahedron of 30 mm side is resting with one of its edges on H.P. The edge on which it rests is inclined at 45^0 to V.P. and a face containing that edge is inclined at 30^0 to H.P. Draw the projections of the solid.

UNIT-V

9. A cube of 50 mm edge is resting on H.P. on one of its faces, with a vertical face inclined at 30^0 to V.P. It is cut by a section plane, perpendicular to V.P. and inclined at 45^0 to H.P. The section plane intersects the axis at 45 mm from the base. Draw the projections.

(OR)

10. A cone with diameter of base 50 mm and axis 60 mm long is resting on its base on H.P. It is cut by a section plane inclined at 45^0 to HP and passing through the axis point 30 mm above the H.P. Draw the projections of the cut solid and obtain the true shape of the section.

(1505105) PROGRAMMING IN C

B.Tech. I Semester (CSE) (R15) Degree Examinations

Time: 3 Hrs	**(Common to ECE, EEE & CSE)**	**Max.Marks:70**

Note: Answer any **FIVE** questions choosing **ONE** question from each unit.

All questions carry **Equal** marks.

UNIT-I

1. a) Explain about computer system. **(7M)**
   b) What is flowchart? Explain different symbols in flowchart **(7M)**

OR

2. a) Explain the steps involved in creating and running programs in C. **(7M)**
   b) What is variable? Explain how to declare and initialize variables
   with an examples. **(7M)**

UNIT-II

3. a) Explain the two way selection(if, if-else, nested if-else) in C
   language with syntax. **(7M)**
   b) Explain about assignment operator and size of operator, Coma-
   operator and relational operator in C. **(7M)**

(OR)

4. a) Explain the multi way selection (Switch and else if ladder) in C
   language with syntax and example. **(7M)**
   b) Design and develop C program to read a year as an input and
   find whether it is a leap year or not also consider end of the
   centuries. **(7M)**

UNIT-III

5. a) Explain about while, for and do while loops in C with syntax and
   example. **(7M)**
   b) Write a C program to generate all the prime numbers within a
   given range. **(7M)**

(OR)

6. a) What recursive function? Write a C program to find factorial
   given number using recursive function. **(7M)**
   b) Explain the following basic function designs
   i) void function without parameters
   ii) void function with parameters. **(7M)**

UNIT-IV

7. a) Define array. Explain declaration and initialization of one and
   two dimensional arrays with an example. **(7M)**
   b) Write a C program to sort given list of numbers using bubble
   sort. **(7M)**

Mathematics – I
(Common to All Branches)

Time: 3 Hrs.   **Max Marks : 70**

Note :   Answer any **FIVE** questions by choosing one from each unit.
         All questions carry equal marks.

UNIT - I

1 a) Solve $(1+y^2)dx = (\tan^{-1} y - x)dy$ (7M)

   b) Solve $(x^2y-2xy^2)dx - (x^3 - 3x^2y)dy = 0$ (7M)

(OR)

2 a) Find the orthogonal trajectories of a system of confocal and coaxial parabolas.   (7M)

   b) A body originally at 80^0 c cools down to 60^0 c in 20 minutes, the temperature of the air
      being 40^0 c. What will be the temperature of the body after 40 minutes from the original?   (7M)

UNIT – II

3 Solve $(D – 2)^2 y = 8(e^{2x} + \sin 2x + x^2)$ (14M)

(OR)

4 Solve $\frac{d^2y}{dx^2} - 2\frac{dy}{dx} + y = e^x . \log x$ by the method of variation of parameters.   (14M)

UNIT – III

5 a) Using Maclaurin's series, expand $\tan x$ upto the terms containing x^5.   (7M)

   b) If $u = x^2 – y^2$, $v = 2xy$ and $x = r\cos\theta$, $y = r\sin\theta$, find $\frac{\partial(u,v)}{\partial(r,\theta)}$ (7M)

(OR)

6 A rectangular box open at the top is to have volume of 32 cubic ft. Find the dimensions of
   the box requiring least material for its construction.   (14M)

UNIT – IV

7 a) Show that the radius of curvature at any point of the cycloid
      $x = a(t + \sin t), \; y = a(1 - \cos t)$ is $4a\cos\left(\frac{t}{2}\right)$.   (7M)

   b) Find the coordinates of the centre of curvature at any point of the parabola $y^2 = 4ax$.   (7M)

(OR)

8 Trace the curve $y^2(x-a) = x^2 (x+a)$ (14M)

UNIT – V

9. Change the order of integration and hence evaluate $\int_0^{4a} \int_{\frac{x^2}{4a}}^{2\sqrt{ax}} dy\, dx$ (14M)

(OR)

10. Evaluate $\int_0^1 \int_0^{\sqrt{(1-x^2)}} \int_0^{\sqrt{(1-x^2-y^2)}} xyz \; dx\, dy\, dz$ (14M)

B.Tech I Sem (R15) Model Question paper
Mathematics – II
(Common to EEE, ECE & CSE Branches)

Time: **3 Hrs.**   Max. Marks : **70**

Note : Answer any **FIVE** questions by choosing one from each unit.
         All questions carry equal marks.

UNIT - I

1. (a) Prove that $\nabla r^n = nr^{n-r}\bar{r}$, where $\bar{r} = x\bar{\imath} + y\bar{\jmath} + z\bar{k}$.   (7M)

   (b) Show that the vector $(y + z)\bar{\imath} + (z + x)\bar{\jmath} + (x + y)\bar{k}$ is irrotational and find its scalar potential.   (7M)

(OR)

2. Verify Green's theorem for $\int_c [(xy + y^2)dx + x^2 dy]$, where C is bounded by $y = x$ and $y = x^2$ (14M)

UNIT – II

3. (a) Find the Laplace transform of $t\, e^{-t} sin3t$ (7M)
   (b) Evaluate $\int_0^\infty t\, e^{-3t} \sin t\, dt$ (7M)

(OR)

4. Find the Laplace transform of the function f(t) = $\begin{cases} sinwt, & 0 < t < \dfrac{\pi}{w} \\ 0 & ,\dfrac{\pi}{w} < t < \dfrac{2\pi}{w} \end{cases}$ (14M)

UNIT – III

5. a) Find the inverse Laplace transform of $\dfrac{s+2}{s^2-4s+13}$ (7M)

   b) Apply convolution theorem to evaluate $L^{-1}\left[\dfrac{s^2}{(s^2+a^2)(s^2+b^2)}\right]$ (7M)

(OR)

6. Solve $(D^3-3D^2+3D-1)y = t^2 e^t$ given that y(0)=1, y'(0)=0, y''(0) = -2.   (14M)

UNIT – IV

7. Find a Fourier series to represent $x - x^2$ from $x = -\pi$ to $x = \pi$.   (14M)

(OR)

8. a) Express $f(x) = x$ as half range sine series in 0<x<2,   (7M)
   b) Obtain the Fourier expansion of $x \sin x$ as a cosine in $(0, \pi)$.   7M)

UNIT – V

9. a) Form the partial differential equation by eliminating the arbitrary functions from $z = f(x + at) + g(x - at)$ (7M)

   b) Using the method of separation of the variables, solve $\dfrac{\partial u}{\partial x} = 2\dfrac{\partial u}{\partial t} + u$, where u(x, 0) = 6 e^{-3x} (7M)

(OR)

10. A tightly stretched string with fixed end points $x = 0$ and $x = l$ is initially in a position given by $y = y_0 \sin^3\left(\dfrac{\pi x}{l}\right)$. If it is released from rest from this position, find the displacement $y(x,t)$.   (14M)

Sub: <u>Engineering Physics</u> (Common to CE & ME)

Time: 3 hrs.   Max. Marks: 70

Answer any *FIVE* questions choosing *one* question from each unit.

UNIT – I

1. a) Describe Fraunhofer diffraction due to grating (N-parallel slits)   .   10M
    b) A Monochromatic light of wavelength 5500 A^0 is incident on a single slit   4 M
       of width 0.3mm and gets diffracted. Then find the diffraction angle of first
       Minima.

(Or)

2. a) Explain the construction and working of He-Ne Laser.   8 M
    b) Explain Fibre optic Communication system   6 M

UNIT – II

3. a) Explain the crystal structure of F.C.C and B.C.C.   10 M
    b) Write any four properties of Ultrasonics.   4 M

(Or)

4. a) Explain the production of ultrosonics by piezoelectric method.   8 M
    b) Describe Debye-Scherrer method.   6 M

UNIT – III

5. a) What are de'Broglie waves. Write their properties   4 M
      b) Derive Schrodinger's time independent wave equation.   10 M

(or)

6. a) Derive an expression for electrical conductivity on the basis of Drude and Lorentz
method.   10 M
b) Find the relaxation time of conduction electrons in a metal contain 6.5×10^{28}
       electrons per m^3. The resistivity of the metal is 1.5×10^{-8} ohm-m   4M

UNIT-IV

7. a) Explain hysteresis of ferromagnetic materials.   7 M
    b) Describe BCS Theory of superconductivity.   7 M

(or)

8. a) Distinguish between type-I and type-II superconductors.   7 M
    b) Explain soft and hard magnetic materials.   7 M

UNIT-V

9. a) What is Hall effect. Derive hall co-efficient.   7 M
    b) Explain the formation of p-n junction.   7 M

(or)

10. a) Describe the synthesis of nanomaterials by Chemical vapour deposition method. 10 M
        b) Explain about any tow properties of nanomaterials.   4 M

K.S.R.M CO LLEGE OF ENGINEERING(AUTONOMOUS)::KADAPA
MODEL QUESTION PAPER
FOUR YEAR B. TECH (R15) DEGREE EXAMINATIONS
B.TECH I SEM EXAMINATION
SUB : ENGINEERING CHEMISTRY-1523103
(CIVIL & MECH)

Time : 3hrs   **Max marks :70**

Answer any Five questions choosing one question from each unit.
UNIT- I
1. (a) Define hardness of water.Calculate temporary,permanent and total hardness of water containing the following in ppm $CaSO_4$= 7.8, $MgSO_4$= 9.4, $Ca(HCo_3)_2$= 5.86.   08M
   (b) Write notes on conversion of hard water to soft water by Ion exchange process.   06M
(or)
2. (a) Write notes on (a)Priming & Foaming (b) scale and sludge.   08M
   (b) Estimate the amount of Dissolved Oxygen present in given water sample by Winkler's method.   06M
UNIT-II
3. (a) i. Vulcanization of Rubber
   ii. Classification of Polymers.   08M
   (b) Compounding of plastics   06M
(or)
4. (a) Define addition polymerization?Explain the free radical polymerization reaction with mechanism.   05M
   (b) Write short notes on preparation, properties & applications of
                                    (a) Silicone rubber
                                    (b) Bakelite   09M

UNIT-III
5. (a) Write in detail about Concentration cells.   07M
   (b) Explain various factors influencing corrosion of metal.   07M
(or)
6. (a) Write notes on (a) Dry cell (b) Fuel cell.   08M
   (b) Discuss the mechanism of Dry corrosion.   06M

UNIT-IV
7. (a) Define calorific value & determine the calorific value of solid fuels by bomb Calorimetry.   07M
   (b) Describe the method employed for refining of crude oil with suitable diagram.   07M
(or)
8. (a) Describe the method employed for manufacture of Synthetic Petrol.   07M
   (b) Define lubricant and explain the properties of lubricants in detail.   07M
UNIT-V
9. (a) Write 12 principles of green chemistry and its applications.   07M
   (b) Write short notes on fluorescence and phosphorescence.   07M
(or)
10. (a) Define catalyst. Explain types of catalysis and its applications.   06M
    (b) (i) Laws of Photochemistry (ii) solar cells   08M

I B.Tech I Sem (R15) Model Question paper
ENGLISH - I
(Common to All Branches)

Time: 3 Hrs.   **Max Marks : 70**

Note : Answer any **FIVE** questions. **All** questions carry equal marks.

I.   **"A humorous person or situation is amusing and makes us laugh' – What makes 'An Astrologer's day' a humorous story?**   14M

II.   **Why does Kipling advise against making 'thoughts' your aim?**   14M
III.   **Describe the versatile genius of Visweswariah.**   14M
IV.   **Read the following passage and answer the questions:**

One of the main reasons why wrong ideas and useless practices can grow up is ignorance. Among primitive tribes today, as was the case too in prehistoric times, there is hardly any scientific knowledge, everything is mysterious. The sun rises and sets and the moon changes; but people have no idea why, or what are the relations of heavenly bodies to the earth. No one knows anything about the natural causes of rain or drought, storms or earthquakes, famine or disease. Thus everything is put down to mysterious influences by magic or by good and bad spirits. Such ideas cannot very well be called superstitious so long as no better explanation is available. But reason may show that they are false; and finally when scientific knowledge demonstrates the way things really work the ideas of magic or spirit-influence can be seen to be mere superstitious. So, as science progresses, superstition ought to grow less. On the whole, that is true. But it is surprising how superstitious linger on. If we are tempted to look down on savage tribes and other nations for holding such ideas, we should remember that even today, among the most civilized nations, a great many equally stupid superstitious exist and are believed in by a great many people. It is worth making a list of the superstitious which you know about. Some people will not sit down thirteen at table; others will not light three cigarettes from one match or do not like to start anything important on a Friday.

Questions
   (a) To whom did the primitive tribes attribute the natural disasters?   2x7=14
   (b) How are superstitious proved wrong?
   (c) What is the relationship between Science and Superstition?
   (d) Are superstitious limited to primitive tribes?
   (e) Mention one of the superstitious practiced today.
   (f) Give a suitable title to the above passage.
   (g) Give the meaning of 'Put down' and frame a sentence of your own.
V.   **Expand any TWO of the following into a paragraph.**
       7x2=14
   (a) All that glitters is not gold
   (b) A rolling stone gathers no moss
   (c) Failures are stepping stones to success.
VI. (a)**Write the phonetic transcription of the following sentences.**   2X2 = 4M
       (i) I am an Engineer   (ii) He is honest and sincere

       (b) Write the meanings of any FIVE of the following using them in sentences of your own   5X 2 = 10M
   (i) To nip in the bud   (ii)   To win laurels   (iii)   To break out
   (iv)   Panacea   (v)   Antidote   (vi)   Mortuary
   (vii)   Bonafide   (viii)   Sine die

VII.   **Answer any <u>FOURTEEN</u> of the following as directed**   14X1=14
   (1)   Who taught you English? (into passive)
   (2)   English is spoken all over the world (into active)
   (3)   Bring that file (Into passive)
   (4)   Teacher said to students, "oil floats on water" (into indirect)
   (5)   She told me that she was going to finish the work then. (into direct)
   (6)   Hari said, "Did you see the picture yesterday"? (into indirect)
   (7)   The doctor advised the patient to take rest. (into direct)
   (8)   No other building is as wonderful as Tajmahal [change it Comparative degree]
   (9)   A wise enemy is better than a foolish friend [change into Positive degree]
   (10) This tree is older than many other trees in the garden (into superlative)
   (11) If you work hard, you will get promotion. (into simple)
   (12) He is too dull to understand [into Complex]
   (13) You are strong, I am equally strong [use as---as)]
   (14) Besides being a hard worker, he is intelligent [into compound]
   (15) I was doubtful whether it was you [into Negative]
   (16) Everybody knows about man's mortality [into Interrogative]
   (17) I shall not forget you [into Affirmative]

VIII.   **Correct any <u>FOURTEEN</u> of the following sentence if necessary**
        14X1=14
        (1) He has two sister-in-laws
        (2) Your service to the society is greater than me
        (3) A.P.J. Abdul Kalam is one of the most greatest philanthropists
        (4) She is one of those who likes classical dance.
        (5) Ten projects were accepted and one rejected.
        (6) He behaved cowardly before his opponent.
        (7) He is always for his boss to get promotion.
        (8) He worked hard and failed.
        (9) He returned the book back to me.
        (10) You worked hard, Isn't it?
        (11) If you ask me I would oblige
        (12) I am going to school everyday
        (13) The teacher teached me a lesson
         (14) One of my book has been stolen.
        (15) South Indians prefer coffee than tea
         (16) I have not read the book from 2008
         (17) She is my cousin sister

I B.Tech I Sem (R15) Model Question paper
HUMAN VALUES AND PROFESSIONAL ETHICS (CE&ME)

Time : 3 Hrs.   **Max.Marks : 70**

Answer the following questions. Each question carries equal marks

1 . Answer any **SEVEN** of the following   7X2 = 14 M
    a) Define Engineering Ethics.
    b) state three types of Inquiry.
    c) State any two examples of improved safety.
    d) Define Collegiality.
    e) Name any four "employee rights"
    f) What is 'patent'?
    g) What is moral dilemma?
    h) Accountability
    i) Hired guns
    j) Copy rights

2.   a) Briefly describe the use of ethical theories.   1X14 =14 M
              (or)
    b) Explain Carol Gilligan's theory on moral autonomy.

3. a) i) What are the limitations of codes of ethics?   7X2 = 14 M
      ii) Write short note on 'Industrial Standards'.
              (or)
  b) i) Write a short note on Regulated society
      ii) What are the general features of morally responsible engineers?
          explain briefly any two.

4. a) Discuss various methods of reducing risks.   1X14 = 14 M
              (or)
  b) Explain the concept of Risk – Benefit Analysis.
5.   a) What is Indian scenario in accordance with 'Intellectual Property Rights, IPR'?   1X14 = 14 M
              (or)
  b) Write an essay on Computer Ethics