MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)

B.Tech I Year I & II Semester (R18) Regular & Supplementary End Semester Examinations – DEC 2019

PROFESSIONAL ENGLISH
(Common to All)

Time: 3Hrs   Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either Part-A or B only

Q.1	i.	Change the following sentence in to indirect speech Manoj said " I am waiting for my friend."	1M
	ii.	_____(might, may, will, should) heaven protect you.(Wish)	1M
	iii.	Discuss the importance of Skimming.	1M
	iv	Select the word from the given four alternative words marked **a - d** that is nearly the same in meaning or expression as the key word- **imbibe**. (a) Reject (b) Eject (c) Emit (d) Absorb	1M
	v.	Write any two types of Non-verbal expressions.	1M
	vi	Frame 'wh' question for the following statement: I like pink colour.	1M
	vii.	What is formal conversation?	1M
	viii.	How do you introduce your friend to your parents?	1M
	ix.	How do you greet your friend? Write one expression?	1M
	x.	How important are Recommendations in a report?	1M

Q.2(A) **Fill in the blanks with appropriate verb forms**   10M

1. Anusha _____(dislike) watching movies.
2. No, he is n't here: he just _____(go out).
3. The boys _____ (play) cricket since morning.
4. Iron _____(expand) when heated.
5. Reaching the station, he _____(find)that _____(leave)the keys at home.
6. I _____(meet) my friend last week..
7. The government _____(give) more attention to the development of dry land now.
8. The door bell_____(ring) when I _____(sleep) yesterday.

OR

Q.2(B) **i)Write suitable dialogues for the following conversation.**   5M
Write a dialogue between two people on asking for directions.

ii) Describe the following process.   5M
planting a sapling in your garden.

Q.3(A) **Write two paragraphs comparing**   10M
(a) human brain and computer   (b) Calculators and computers.

OR

Q.3(B) **Read the following passage and answer the questions given below.**   10M

Philosophy of Education is a label applied to the study of the purpose, process, nature and ideals of education. It can be considered a branch of both philosophy and education. Education can be defined as the teaching and learning of specific skills, and the imparting of knowledge, judgment and wisdom, and is something broader than the societal institution of education we often speak of.

Many educationalists consider it a weak and woolly field, too far removed from the practical applications of the real world to be useful. But philosophers dating back to Plato and the Ancient Greeks have given the area much thought and emphasis, and there is little doubt that

their work has helped shape the practice of education over the millennia.

Plato is the earliest important educational thinker, and education is an essential element in "The Republic" (his most important work on philosophy and political theory, written around 360 B.C.). In it, he advocates some rather extreme methods: removing children from their mothers' care and raising them as wards of the state, and differentiating children suitable to the various castes, the highest receiving the most education, so that they could act as guardians of the city and care for the less able. He believed that education should be holistic, including facts, skills, physical discipline, music and art. Plato believed that talent and intelligence is not distributed genetically and thus is be found in children born to all classes, although his proposed system of selective public education for an educated minority of the population does not really follow a democratic model.

Aristotle considered human nature, habit and reason to be equally important forces to be cultivated in education, the ultimate aim of which should be to produce good and virtuous citizens. He proposed that teachers lead their students systematically, and that repetition be used as a key tool to develop good habits, unlike Socrates' emphasis on questioning his listeners to bring out their own ideas. He emphasized the balancing of the theoretical and practical aspects of subjects taught, among which he explicitly mentions reading, writing, mathematics, music, physical education, literature, history, and a wide range of sciences, as well as play, which he also considered important.

During the Medieval period, the idea of Perennialism was first formulated by St. Thomas Aquinas in his work "De Magistro". Perennialism holds that one should teach those things deemed to be of everlasting importance to all people everywhere, namely principles and reasoning, not just facts (which are apt to change over time), and that one should teach first about people, not machines or techniques. It was originally religious in nature, and it was only much later that a theory of secular perennialism developed.

During the Renaissance, the French skeptic Michel de Montaigne (1533 - 1592) was one of the first to critically look at education. Unusually for his time, Montaigne was willing to question the conventional wisdom of the period, calling into question the whole edifice of the educational system, and the implicit assumption that university-educated philosophers were necessarily wiser than uneducated farm workers, for example.

Q.1.What is the difference between the approaches of Socrates and Aristotle?
   a) Aristotle felt the need for repetition to develop good habits in students; Socrates felt that students need to be constantly questioned
   b) Aristotle felt the need for rote-learning; Socrates emphasized on dialogic learning
   c) c)There was no difference
   d) d)Aristotle emphasized on the importance of paying attention to human nature; Socrates emphasized upon science

Q.2.Why do educationists consider philosophy a 'weak and woolly' field?
   a) It is not practically applicable
   b) Its theoretical concepts are easily understood
   c) It is irrelevant for education
   d) None of the above

Q.3.What do you understand by the term 'Perennialism', in the context of the given comprehension passage?
   a) It refers to something which existed in the past and no longer exists now
   b) It refers to something which is quite unnecessary
   c) It refers to something which is abstract and theoretical
   d) It refers to something which is of ceaseless importance

Q.4.Were Plato's beliefs about education democratic?
   a) He believed that only the rich have the right to acquire education
   b) Yes
   c) He believed that only a select few are meant to attend schools
   d) He believed that all pupils are not talented

Q.5. Why did Aquinas propose a model of education which did not lay much emphasis on facts?

    a) Facts are not important
    b) Facts do not lead to holistic education
    c) Facts change with the changing times
    d) Facts are frozen in time

Q.4(A)	i)Prepare the question tags for the following statements	5M

    a) He is coming tonight.
    b) You would not report me.
    c) She never informed us.
    d) He know s it's true.
    e) I told you so.

ii) Arrange the sentences to form a logical sequence to construct a coherent paragraph.

    a) These markets had become rapidly dominated by powerful enterprises who were able to act in their own interest against the interests of both workers and consumers.
    b) Mill was able to see an expanded role for the state in such legislation to protect us against powerful interests.
    c) He was able to argue that the state was only organ that was genuinely capable of responding to social needs and social interests unlike markets.
    d) There had already been some legislation to prevent such abuses-such as various factory Acts to prevent exploitation of child workers.
    e) Markets may be good at encouraging innovation and following trends but, but they were not good at ensuring social equality.

OR

Q.4(B)	Explain the various sub-skills that are essential in enhancing reading skills.	10M

Q.5(A)	Imagine that you are a banker and you are conversing with a person who wants to open a saving account in your bank. Write a formal conversation between you (Banker) and a customer by using following points:	10M

    • Procedure for opening a bank account,
    • Documents required,
    • Minimum opening balance,
    • Facilities available on the account.

OR

Q.5(B)	Your uncle sent you a set of Harry Potter series for your birthday. Write an email thanking him for the gift.	10M

Q.6(A)	You are unhappy about your company's current website. You have decided to write a memo to your managing Director about your ideas for setting up a new website. Write a memo to the Managing Director. Write about:	10M

    • The problems with the current website
    • The kind of information a new website should contain
    • Who should be involved in setting it up

and any other points you think are important.

OR

Q.6(B)	As the marketing Executive of "Ideal Home Makers", you have been asked by the Managing Director to study the feasibility of introducing a new dish was bar. Prepare a report of the study.	10M

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MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)

B.Tech I Year I & II Semester (R18) Regular & Supplementary End Semester Examinations – Jan 2020

MODERN PHYSICS
(Common to EEE, CSE, CSIT, CST)

Time: 3Hrs | Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either Part-A or B only

Q.1	i.	Define simple harmonic motion.	1M
	ii.	What is the kinetic energy of the pendulum in SHM with an amplitude A, at the mean position and at extreme position?	1M
	iii.	State the principle of superposition of waves.	1M
	iv	What are the conditions required for Fraunhofer diffraction?	1M
	v.	The position of an electron is determined to within 1 Å. What is the minimum uncertainty in its momentum?	1M
	vi	Write a Schrodinger equation for a free particle moving along X-axis, whose mass is m and total energy is E.	1M
	vii.	What is Fermi energy level?	1M
	viii.	Distinguish between direct band gap and indirect band gap semiconductors.	1M
	ix.	What is meant by pumping in lasers? Give an example.	1M
	x.	State any four applications of lasers in medicine.	1M

Q.2(A)	i) What are Lissajous figures? On which factors does the shape of Lissajous figures depend?	3M
	ii) Two vibrations at right angles to one another are described by the equations given below.	7M

(a) $x = 10\cos(10\pi t)$

(b) $y = 10\cos\left(10\pi t + \frac{\pi}{2}\right)$

Construct the Lissajous figure of the combined motion.

OR

Q.2(B)	i) What are transverse waves? Derive an expression for velocity of a transverse wave generated along a stretched string.	6M
	ii) The equation of a transverse wave along a stretched string is given by $Y = 0.3\sin\pi(0.5x - 50t)$, where y and x are in centimeters and t is in seconds. Find the wave number, frequency, period, and velocity of the wave.	4M

Q.3(A)	i) What are the conditions required to get sustained interference?	3M
	ii) Derive expressions for bandwidth and intensity distribution for interference pattern formed due to Young's double slit experiment.	7M

OR

Q.3(B)	Describe Fraunhofer diffraction due to single slit with a suitable diagram. Obtain the conditions for maxima, minima, and secondary maxima intensities in the diffracted spectrum.	10M

Q.4(A) i) What are postulates of quantum mechanics? 2M
ii) Derive time-independent Schrodinger wave equation for a particle moving in a one dimensional potential field in general. 8M

OR

Q.4(B) i) Applying Schrodinger time independent wave equation, show that the energies are quantized for a particle trapped in a potential well with infinite walls. 7M
ii) Calculate the first three energy levels for an electron in a quantum well of width 10Å with infinite walls. 3M

Q.5(A) i) What are the assumptions made in free electron theory? 3M
ii) Using free electron theory obtain expression for drift velocity and electrical conductivity . 7M

OR

Q.5(B) i) On the basis of band theory, explain how the solids are classified into metals, semiconductors and insulators? 6M
ii) Provide a qualitative explanation for Kronig - Penney model and origin of energy bands in solid materials. 4M

Q.6(A) i) What are the characteristics of LASER? 2M
ii) With a neat sketch, explain the construction and working of Ruby laser. 8M

OR

Q.6(B) i) What is population inversion? 2M
ii) Describe the construction and working of semiconductor diode laser with neat diagram. What are its applications? 8M

*** END***

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year I & II Semester (R18) Supplementary End Semester Examinations – JAN 2020

PHYSICS: ELECTROMAGNETIC THEORY

(ECE)

Time: 3Hrs   Max Marks: 60

| Attempt all the questions. All parts of the question must be answered in one place only. |
|---|
| **All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either Part-A or B only** |

Q.1	i.	What is Dirac delta function?	1M
	ii.	What is the physical significance of Divergence?	1M
	iii.	State the Gauss law in electrostatics.	1M
	iv	Write expression for energy stored in a electric field.	1M
	v.	What are the boundary conditions for dielectric materials?	1M
	vi	What is dielectric constant in linear dielectrics?	1M
	vii.	Write the relation between magnetic flux density and field intensity.	1M
	viii.	Explain the physical significance of displacement current.	1M
	ix.	Express the Faraday's law in integral form.	1M
	x.	What is modified Amperes law in electrodynamics?	1M

Q.2(A)	i) Explain gradient, divergence and curl with emphasizing physical interpretation?	6M
	ii) Calculate divergence and curl for the given vector, $\vec{V} = y^2\hat{x} + (2xz + z^2)\hat{y} + 2yz\hat{z}$.	4M

OR

| Q.2(B)	i) Explain three co-ordinate systems.	4M
	ii) Given point P (-2, 6, 3) and vector $\vec{A} = y\hat{i} + (x + z)\hat{j}$, Express P in spherical and cylindrical coordinates. Evaluate $\vec{A}$ at P in the cartesian, cylindrical and spherical systems.	6M

Q.3(A)	Write down Coulomb' law in electrostatics. Use it to calculate the electric field at point p which is at a distance z above the midpoint of a straight-line segment of length 2L and carries a uniform line charge density λ as shown in the figure below.	10M
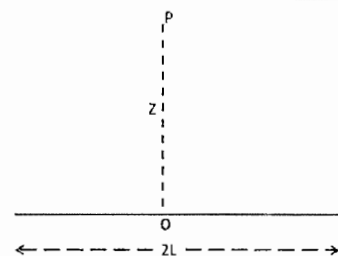
OR

Q.3(B)	i) Discuss about Poisson's equation and Laplace's equation in electrostatics.	5M
	ii) Find the potential of a uniformly charged spherical shell of radius R.	5M

| Q.4(A)	Find electric potential and field produced by a uniformly polarized sphere of radius 'R'.	10M
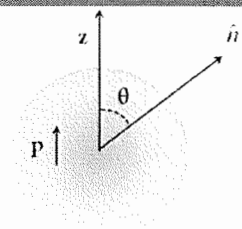
Q.4(B) i) Define the following terms in electrostatics   4M
        a) Electric dipole b) Polarization c) Susceptibility d) Electric displacement
        ii) What do you mean by a linear dielectric? Obtain a relationship between dielectric   6M
        constant and electric susceptibility in case of a linear dielectric material.

Q.5(A) i) State and Explain Biot - Savart Law.   3M
        ii) Derive an expression for the force between two long straight parallel current carrying 7M
        conductor.

Q.5(B) Write down the expression for Lorentz force for a charge **Q** moving with velocity **v** in a 10M
        uniform magnetic field **B**.
        Consider that a uniform electric field **E** is in the Z-direction and a magnetic field **B**
        points in the X-direction. A particle of charge **Q** at rest is released from the origin;
        obtain the equation of motion of the particle?

Q.6(A) i) Define resistivity, current density of conductor and explain Ohm's law in terms of   5M
        current density.
        ii) Two long coaxial metal cylinders (radii a and b) are   5M
        separated by material of conductivity σ as shown in
        picture. If they are maintained at potential difference V.
        What current flows from one to the other, in a length L?

L
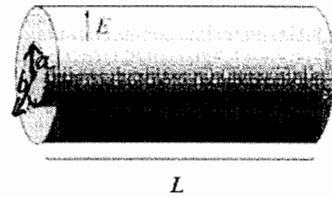
Q.6(B) i) What are Electromagnetic waves?   2M

        ii) Apply Maxwell's equation to obtain wave equation for electromagnetic waves in   8M
        vacuum.

*** END***

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
B.Tech I Year I & II Semester (R18) Regular & Supplementary End Semester Examinations – Jan 2020
ENGINEERING PHYSICS
(Common to ME, CE)

Time: 3Hrs   Max Marks: 60

> Attempt all the questions. All parts of the question must be answered in one place only.
> All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either Part-A or B only

Q.1	i.	Define inertial frame of reference	1M
	ii.	Find the particle's acceleration 'a' at t= 2sec whose position is given by $x(t)=t^3+4t^2-3t+5$	1M
	iii.	What is the minimum velocity required for 150Kg object to escape from the surface of the earth.	1M
	iv	State work energy theorem.	1M
	v.	Define time period and amplitude.	1M
	vi	What is transverse wave?	1M
	vii.	What is interference and write the types of interference?	1M
	viii.	Write the condition for maximum intensity position in Fraunhoffer diffraction at single slit.	1M
	ix.	Define pumping and population inversion.	1M
	x.	Write the two applications of Laser.	1M

Q.2(A)	Derive the expression for the acceleration in Polar coordinates.	10M

OR

Q.2(B)	Derive the equation of motion of an electron of charge –e in the ionosephere and mass m which is initially at rest and which is suddenly subjected to an electric field $E = E_0 \sin \omega t$ (ω is the frequency of oscillation in radius per second).	10M

Q.3(A)	Derive the rocket equation and show that final velocity is independent of how the mass is released when it moves in a free space?	10M

OR

Q.3(B)	Deduce the expression for escape velocity for an object of mass 'm' projected upward from the earth at some angle using some work-energy theorem.	10M

Q.4(A)	What are forced oscillations? Derive the differential equation which represents forced oscillations. Discuss the condition for resonance in forced oscillators.	10M

OR

Q.4(B)	i. What are Lissajous figures? On what factor Lissajous figure depends.	3M
	ii. Construct the Lissajous figures for the motion described by x=cos (2ωt), y=cos (2ωt+π/2).	7M

Q.5(A)	Derive an expression for wave length of light in Newton's rings experiment.	10M

OR

Q.5(B)	Describe the construction and principle of Michelson interferometer.	10M

Q.6(A)	Derive the relation between the probabilities of spontaneous emission and stimulated emission in terms of Einstein's coefficients?	10M

OR

Q.6(B)	Describe the principle, construction and working of a Ruby Laser.	10M

*** END***

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
B.Tech I Year I & II Semester (R18) Supplementary End Semester Examinations – Jan 2020
LINEAR ALGEBRA
(Common to CSE, CSIT & CST)

Time: 3Hrs   Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either Part-A or B only

Q.1   i.   State the conditions for $W \subset V$ to be a subspace of V.   1M

     ii.   State Cayley Hamilton's theorem.   1M

     iii.   Find a basis for a 3x3 skew symmetric matrices.   1M

     iv   Determine whether the set of vectors   1M
$\{(1,2,0,3),(0,0,3,5),(1,1,1,0),(0,0,0,\ 1)\}$ in $\mathbb{R}^4$ is a basis.

     v.   Find SoT and/or ToS whenever it is defined. For $(x,y) = (x - y, x), S(x,y) = (x, x - y, y)$.   1M

     vi   Determine whether the function $\langle x, y \rangle = 4x_1 y_1 + 4x_2 y_2 - x_1 y_2 - x_2 y_1$ on $\mathbb{R}^2$ is   1M
inner product or not, for $x = (x_1, x_2),\ y = (y_1, y_2)$.

     vii.   Determine the value of k so that the vectors $\left\{ \begin{bmatrix} 2 \\ 8 \\ 4 \\ k \end{bmatrix}, \begin{bmatrix} 2 \\ -6 \\ 2 \\ k \end{bmatrix} \right\}$ are orthogonal with   1M

        respect to the Euclidean inner product in $\mathbb{R}^4$.

     viii.   Determine whether the function $\langle x, y \rangle = x_1 y_1 + 3x_2 y_2$ on $\mathbb{R}^2$ is inner product   1M
or not, for $x = (x_1, x_2), y = (y_1, y_2)$.

     ix.   Define dual space.   1M

     x.   Determine whether an inner product can be defined on every vector space.   1M

Q.2(A)   Solve the following system of linear equations using Gaussian elimination. What are   10M
the pivots? $w + x + y = 3;\ -3w - 17x + y + 2z = 1;\ 4w - 17x + 8y - 5z = 1;$
$-5x - 2y + z = 1$.

OR

Q.2(B)   Verify Cayley-Hamilton Theorem and find the inverse of the matrix   10M
$A = \begin{bmatrix} 2 & 1 & 2 \\ 5 & 3 & 3 \\ -1 & 0 & -2 \end{bmatrix}$.

Q.3(A)   In the 3-space $\mathbb{R}^3$, let W be the set of all vectors (x_1, x_2, x_3) that satisfy the equation   10M
$x_1 - x_2 - x_3 = 0$. Prove that W is a subspace of $\mathbb{R}^3$. Find a basis for the subspace W.

OR

Q.3(B)   Find bases for the row space, the column space, and the null space for the given   10M
matrices, $A = \begin{bmatrix} 1 & 3 & 2 \\ 2 & 6 & 4 \\ 3 & 9 & 6 \end{bmatrix}$

Q.4(A) Let $w_1 = (1,0)$, $w_2 = (2,-1)$, $w_3 = (4,3)$ be three vectors in $\mathbb{R}^2$.　　　　10M
　　　　(a) Let $\alpha = \{e_1, e_2, e_3\}$ be the standard basis for 3-space $\mathbb{R}^3$, and let $T: \mathbb{R}^3 \to \mathbb{R}^2$ be
　　　　the linear transformation defined by, $T(e_1) = w_1$, $T(e_2) = w_2$, $T(e_3) = w_3$. Find the
　　　　formula for $T(x_1, x_2, x_3)$, and then use it to compute $T(2, -3, 5)$.
　　　　(b) Find the matrix of reflection about the line $y = \sqrt{3}x$ in $\mathbb{R}^2$.

OR

Q.4(B) Show that the linear transformation T on $\mathbb{R}^3$ is invertible and find a formula for　　10M
　　　　T^{-1}, $T(x, y, z) = (2x, 4x - y, 2x + 3y - z)$.

Q.5(A) Consider the following ordered bases of $\mathbb{R}^3$: $\alpha = \{e_1, e_2, e_3\}$ the standard basis and　　10M
　　　　$\beta = \{u_1 = (1,1,1), u_2 = (1,1,0), u_3 = (1,0,0)\}$.
　　　　　i.　　Find the transition matrix P from α to β.
　　　　　ii.　　Find the transition matrix Q from β to α.
　　　　　iii.　Find$[T]_\alpha$.

OR

Q.5(B) Let $T: \mathbb{R}^3 \to \mathbb{R}^3$ be the linear transformation defined by　　　　　　　　10M
$$T(x, y, z) = (2y + z, -x + 4y + z, x + z).$$
　　　　Compute $[T]_\alpha$ and $[T^*]_{\alpha^*}$ for the standard basis $\alpha = \{e_1, e_2, e_3\}$.

Q.6(A) Find an orthogonal basis for $\mathbb{R}^3$ with the Euclidean inner product by applying the　　10M
　　　　Gram-Schmidt orthogonalization to the vectors
　　　　$x_1 = (1, 0, 1)$, $x_2 = (1, 0, -1)$, $x_3 = (0, 3, 4)$.

OR

Q.6(B)　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　10M

Find the Projection matrix for $A = [c_1\ c_2\ c_3] = \begin{bmatrix} 1 & 1 & 0 \\ 1 & 0 & 1 \\ 0 & 1 & 1 \\ 0 & 0 & 1 \end{bmatrix}$.

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MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
B.Tech I Year I & II Semester (R18) Supplementary End Semester Examinations – Jan 2020
LINEAR ALGEBRA AND DIFFERENTIAL EQUATIONS
(CE)

Time: 3Hrs   Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either Part-A or B only

Q.1	i.	Define transpose of a matrix.	1M
	ii.	Calculate the determinant of the matrix $A = \begin{bmatrix} 4 & -1 \\ 3 & 0 \end{bmatrix}$.	1M
	iii.	Write the definition of a homogeneous function.	1M
	iv	Find the order and the degree of the differential equation $y'' + 16y = 2x$.	1M
	v.	What is a singular point of a differential equation?	1M
	vi	What is an ordinary point of the differential equation?	1M
	vii.	What is the definition of Partial differential equation.	1M
	viii.	Write the D'Alembert's solution of the wave equation.	1M
	ix.	Write the general form of Heat equation in 2-D.	1M
	x.	Explain Laplacian $\nabla^2 u = 0$, in polar form.	1M

Q.2(A) Reduce the matrix $A = \begin{bmatrix} -1 & 2 & -2 \\ 1 & 2 & 1 \\ -1 & -1 & 0 \end{bmatrix}$ into diagonal form.   10M

Q.2(B) Obtain the parabola $y = ax^2 + bx + c$ passing through the points $(0,11), (1,5)$ and   10M
(2,3) by using Gauss-Elimination Method.

Q.3(A) Explain orthogonal trajectory. Find the orthogonal trajectories of the given curve   10M
$y = ax$.

Q.3(B) Suppose that an object initially having a temperature of $20^{\circ}C$ is placed in a large   10M
temperature controlled room of $80^{\circ}C$ and one hour later the object has a
temperature of $35^{\circ}C$. What will its temperature be after 3 hours?

Q.4(A) Show that the given set of functions $\{y_1(x), y_2(x)\} = \{x, \ln x\}$ forms a basis of the   10M
equation and hence solve the IVP: $x^2 y'' - xy' + y = 0, \quad y(1) = 3; \quad y'(1) = 4$.

Q.4(B) Write the general form of the Legendre differential equation and express $f(x) =$ 10M
$x^4 + 2x^3 - 6x^2 + 5x - 3$ in terms of Legendre polynomials.

Q.5(A) Solve the PDE $\dfrac{x^2}{p} + \dfrac{y^2}{q} = z$.   10M

Q.5(B) Solve the Lagrange's equation $(x^2 - yz)p + (y^2 - zx)q = z^2 - xy$.   10M

Q.6(A) Find the deflection of a vibrating string of unit length having fixed ends with initial   10M
        velocity zero and the initial deflection $f(x) = k(\sin x - \sin 2x)$.

Q.6(B) Using the method of separation of variables, solve $\dfrac{\partial u}{\partial x} = 2\dfrac{\partial u}{\partial t} + u$, where $u(x,0) = $ 10M
        $6e^{-3x}$.

*** END ***

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
B.Tech I Year I & II Semester (R18) Supplementary End Semester Examinations – Jan 2020
LINEAR ALGEBRA, COMPLEX VARIABLES AND ORDINARY DIFFERENTIAL EQUATIONS
(Common to ECE & ME)

Time: 3Hrs   Max Marks: 60

| Attempt all the questions. All parts of the question must be answered in one place only. |
| All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either Part-A or B only |

Q.1   i.   When the linear system of non-homogeneous equations are said to be consistent   1M

ii.   Find the characteristic polynomial of the matrix $A = \begin{bmatrix} 3 & 1 \\ -2 & 4 \end{bmatrix}$ 1M

iii.   Find the value of $Log(-ei)$ 1M

iv   State the Cauchy-Riemann equations for Cartesian coordinates   1M

v.   Write the principal part of the function $\dfrac{\sin z}{z}$ at its isolated singular points and   1M
determine whether that point is a pole, a removable singular point, or an essential singular point.

vi   State the Cauchy Integral formula   1M

vii.   Write the general solution of Exact Differential Equation   1M

viii.   Solve $p = \sin(y - xp)$, where $p = \dfrac{dy}{dx}$ 1M

ix.   Find the complementary function of the differential equation $y'' + 9y = cot3x$ 1M

x.   Find the inverse Laplace transform of $\dfrac{30}{p^4}$ 1M

Q.2(A)   Find the complete solution set for the following homogeneous system of linear equations   10M
$-2x_1 - 3x_2 + 2x_3 - 13x_4 = 0$, $-4x_1 - 7x_2 + 4x_3 - 29x_4 = 0$, $x_1 + 2x_2 - x_3 + 8x_4 = 0$

OR

Q.2(B)   Let $L : R^3 \to R^4$ given by $L\begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} = \begin{bmatrix} 4 & -2 & 8 \\ 7 & 1 & 5 \\ -2 & -1 & 0 \\ 3 & -2 & 7 \end{bmatrix}\begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix}$. Verify the Rank-Nullity theorem.   10M

Q.3(A)   Define the Cauchy-Riemann equations for polar coordinates. Also, show that the function $f(z) = \dfrac{1}{z^2}(z \neq 0)$ is differentiable in the indicated domain and find $f'(z)$.   10M

OR

Q.3(B)   (i) Find the harmonic conjugate $v(x,y)$, given that $u(x,y) = y^3 - 3x^2 y$ 5M

(ii) Find the principal value of i^i 5M

Q.4(A) Evaluate the integral $\int_c \frac{5z-2}{z(z-1)}dz$, where $c:|z|=2$ **10M**

OR

Q.4(B) Show that when $0<|z-1|<2$, $\frac{z}{(z-1)(z-3)} = -3\sum_{n=0}^{\infty}\frac{(z-1)^n}{2^{n+2}} - \frac{1}{2(z-1)}$ **10M**

Q.5(A) Solve the differential equation $2ydx + x(2\log x - y)dy = 0$ **10M**

OR

Q.5(B) Solve $x = yp + ap^2$, where $p = \frac{dy}{dx}$ **10M**

Q.6(A) Solve $y'' - 2y' + 2y = e^x \tan x$ by using the method of variation of parameters **10M**

OR

Q.6(B) Solve $y'' + 5y' + 6y = 5e^{3t}$ given that $y(0) = y'(0) = 0$ **10M**

*** END***

Hall Ticket No: ☐☐☐☐☐☐☐☐☐☐☐   Question Paper Code: 18MAT106

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)

B.Tech I Year I & II Semester (R18) Supplementary End Semester Examinations – Jan 2020

LINEAR ALGEBRA AND TRANSFORM CALCULUS
(EEE)

Time: 3Hrs   Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either Part-A or B only

Q.1
i.   When the system of homogeneous equations have non-trivial solution   1M
ii. Find the Eigen values of the matrix $A = \begin{bmatrix} 2 & 1 \\ 1 & -1 \end{bmatrix}$.   1M
iii. Verify Cauchy-Riemann equations for the function $f(z) = e^{-z}$ 1M
iv   Define Cauchy-Goursat theorem   1M
v.   Evaluate $L\{e^{2t}\}$ 1M
vi   Find $L^{-1}\left\{\dfrac{1}{s+1}\right\}$ 1M
vii. Write the Fourier transform of $f(x)$ 1M
viii. Find the Fourier sine transform of $f(x) = \dfrac{1}{x}$.   1M
ix. Determine the Z-transform of $\dfrac{1}{n!}$ 1M
x.   Find the Z-transform of unit step sequence.   1M

Q.2(A)   10M
Find eigenvalues and eigenvectors for the matrix $A = \begin{bmatrix} 1 & 0 & 1 \\ 0 & 2 & -3 \\ 0 & 0 & -5 \end{bmatrix}$

OR

Q.2(B) Reduce the quadratic form $2xy + 2zx - 2yz$ to the canonical form and specify the matrix   10M
of transformation. Discuss its nature.

Q.3(A)   10M
Prove that the function $f(z)$ defined by $f(z) = \begin{cases} \dfrac{x^3(1+i) - y^3(1-i)}{x^2 + y^2} & for\ Z \neq 0 \\ 0 & for\ Z = 0 \end{cases}$

is continuous and the Cauchy-Riemann equations are satisfied at the origin, yet $f'(0)$
does not exist.

OR

Q.3(B) Evaluate the integral $\oint_c \dfrac{z^2 - z + 1}{z - 1}\, dz$ where C is the circle defined by $|z| = 2$ 10M

Q.4(A) Prove that $\int_0^\infty \dfrac{e^{-at} - e^{-bt}}{t} dt = \log \dfrac{b}{a}$ by using Laplace transform property. 10M

OR

Q.4(B) Solve the equation by the Transform method $y'' + 4y' + 3y = e^{-t}$ given that $y(0) = y'(0) = 1$ 10M

Q.5(A) Find the Fourier transform of $f(x) = \begin{cases} 1, & if \ |x| < 1 \\ 0, & if \ |x| > 1 \end{cases}$ .Hence evaluate $\int_0^\infty \dfrac{Sinx}{x} dx$ 10M

OR

Q.5(B) Recall Fourier Cosine Transform and evaluate Fourier cosine transform of e^{-x^2} 10M

Q.6(A) Find the Z-transform of (i) $\dfrac{a^n}{n!}$ (ii) e^{-n} 10M

OR

Q.6(B) Using Z-transform, solve $y_{n+2} + 6y_{n+1} + 9y_n = 2^n \ with \ y_0 = y_1 = 0$. 10M

*** END***

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
B.Tech I Year I & II Semester (R18) Supplementary End Semester Examinations – Jan 2020
ENGINEERING CHEMISTRY
(Common to All)

Time: 3Hrs   Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either Part-A or B only

Q.1	i.	Why NH_3 - NH_4Cl buffer solution is added in determination of hardness of water by EDTA method.	1M
	ii.	What happened when temporary hard water is boiled? Give equation.	1M
	iii.	What is condensation reaction? Give one example.	1M
	iv	Define ionization energy? Explain why second ionization energy is more than that of first ionization energy.	1M
	v.	Define chemical shift?	1M
	vi	How many fundamental vibration modes are there in CO atom?	1M
	vii.	What is an isolated system?	1M
	viii.	What is standard electrode potential? Mention Hydrogen standard electrode potential	1M
	ix.	Write Scherrer's equation.	1M
	x.	What is the function of gypsum in cement?	1M

Q.2(A)	i) How is water analyzed for alkalinity? How the alkalinity due to various ions can be determined.	6M
	ii) 200 ml of a sample of water required 20ml N/50 H_2SO_4 using methyl orange as indicator but did not give any coloration with phenolphthaleine. What type of alkalinity is present? Express the same in mg/L.	4M

OR

Q.2(B)	i) Explain ion exchange process with neat diagram and give its merits.	5M
	ii) Write about treatment of brakish water by reverse osmosis.	5M

Q.3(A)	i) Explain the SN^1 reaction mechanisms with an example.	5M
	ii) Explain the condensation polymerization of nylon 6,6.	5M

OR

Q.3(B)	i) Elucidate the structure of following molecules using VSEPR theory. a) CH_4 b) XeF_2 c) SF_4	6M
	ii) Write about E1 reaction with example.	4M

Q.4(A)	What is the electronic spectroscopy? Explain the basic principle of electron spectroscopy.	10M

OR

Q.4(B)	i) Write the principle of IR spectra. Explain about types of vibrations?	10M

Q.5(A) i) Discuss the functioning of H_2-O_2 fuel cell with a neat diagram.   7M
        ii) Write about Nernst equation   3M

OR

Q.5(B) Derive the expression for the change in entropy under isothermal and isochoric   10M
        processes.

Q.6(A) Explain the preparation of Portland Cement with a neat diagram.   10M

OR

Q.6(B) i) Give a detail account on the synthesis of nanomaterial using sol-gel process.   7M
        ii) write applications of nanomaterials in hydrogen storage   3M
                                *** END***

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)

B.Tech I Year I & II Semester (R18) Regular & Supplementary End Semester Examinations – Jan 2020

ENGINEERING CALCULUS
(Common to CE, ME, ECE, CSE, CSIT & CST)

Time: 3Hrs   Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either Part-A or B only

Q.1	i.	Determine the area between the curve $y = \sqrt{x}$, $0 \le x \le 4$ and the x-axis.	1M
	ii.	Find the value of $\Gamma\left(\dfrac{7}{2}\right)$	1M
	iii.	State Rolle's theorem.	1M
	iv	Find the Maclaurin's series of $f(x) = e^x$	1M
	v.	Test the convergence of the series $\sum\limits_{n=1}^{\infty} \dfrac{1}{n+3}$	1M
	vi	Write the formula for half range cosine series for the function $f(x)$ in $(0, l)$	1M
	vii.	Find $\dfrac{dy}{dx}$ if $f(x, y) = y^2 - x^2 - \sin xy$	1M
	viii.	When does the stationary point (a, b) is said to be a saddle point of the function $f(x, y)$.	1M
	ix.	Evaluate the double integral $\int\limits_{1}^{\sqrt{3}} \int\limits_{1}^{2x} dy\, dx$	1M
	x.	State Gauss Divergence theorem.	1M

Q.2(A)	i. Find the area of the polar curve $r = a \sin 2\theta$	5M
	ii. Find the volume of the solid generated by the revolution of the cardioid $r = a(1 - \cos\theta)$ about the initial line	5M

OR

Q.2(B)	i. Show that $\int\limits_{0}^{\frac{\pi}{2}} \sqrt{\sin\theta}\, d\theta \times \int\limits_{0}^{\frac{\pi}{2}} \dfrac{d\theta}{\sqrt{\sin\theta}} = \pi$	5M
	ii. show that $\Gamma(n) = \int\limits_{0}^{1} \left(\log\dfrac{1}{y}\right)^{n-1} dy\, (n > 0)$	5M

Q.3(A)	Using Lagrange's mean value theorem, prove that	10M
	$\dfrac{b-a}{1+b^2} < \tan^{-1}b - \tan^{-1}a < \dfrac{b-a}{1+a^2}$ and hence deduce that $\dfrac{\pi}{4} + \dfrac{3}{25} < \tan^{-1}\left(\dfrac{4}{3}\right) < \dfrac{\pi}{4} + \dfrac{1}{6}$	

OR

Q.3(B)	i. Show that $\sin x(1 + \cos x)$ is a maximum when $x = \dfrac{\pi}{3}$	5M
	ii. Find the maximum and minimum values of $3x^4 - 2x^3 - 6x^2 + 6x + 1$ in the interval (0, 2).	5M

Q.4(A) Test the convergence of the series i) $\sum\limits_{n=1}^{\infty} \dfrac{\cos n\pi}{n\sqrt{n}}$ ii) $\sum\limits_{n=2}^{\infty} \dfrac{n+7}{n^2-n}$ 10M

OR

Q.4(B) Obtain the half range cosine series for the function $f(x) = \begin{cases} \pi x, & 0 \le x \le 1 \\ \pi(2-x), & 1 \le x \le 2 \end{cases}$.   10M

Deduce that $\dfrac{1}{1^2} + \dfrac{1}{3^2} + \dfrac{1}{5^2} + \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots = \dfrac{\pi^2}{8}$.

Q.5(A) Find $\dfrac{\partial w}{\partial u}$ and $\dfrac{\partial w}{\partial v}$, if $w = xy + yz + zx$, $x = u+v$, $y = u-v$, $z = uv$ at $(1,2)$ 10M

OR

Q.5(B) A delivery company accepts only rectangular boxes the sum of whose length and girth (perimeter of cross section) does not exceed 108 inches. Find the dimensions of an acceptable box of largest volume.   10M

Q.6(A) i. Using polar coordinates, evaluate $\iint\limits_{R} e^{x^2+y^2} dy\, dx$, where R is the semicircular region   5M

bounded by the x-axis and the curve $y = \sqrt{1-x^2}$.

ii. Evaluate $\int\limits_{0}^{\pi}\int\limits_{0}^{\pi}\int\limits_{0}^{2\sin\phi} \rho^2 \sin\phi\, d\rho\, d\phi\, d\theta$ 5M

OR

Q.6(B) Verify Green's theorem for the vector field $F(x,y) = (x-y)i + xj$ and the region R   10M
bounded by the unit circle $C : r(t) = (\cos t)i + (\sin t)j$, $0 \le t \le 2\pi$

*** END***

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
B.Tech I Year I & II Semester (R18) Regular & Supplementary End Semester Examinations – Jan 2020
CALCULUS AND DIFFERENTIAL EQUATIONS
(EEE)

Time: 3Hrs   Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either Part-A or B only

Q.1	i.	Define Rolle's Theorem?	1M
	ii.	Find the length of the curve $y = x$ from $x = 0$ to $x = 4$.	1M
	iii.	Find the limit of $\underset{x \to \infty}{Lt} \dfrac{\ln x}{2\sqrt{x}}$	1M
	iv.	When the function $f(x,y)$ has saddle point	1M
	v.	Evaluate $\iint\limits_{R} dA$, when $0 \le x \le 2, 0 \le y \le 2$	1M
	vi.	State Gauss divergence theorem.	1M
	vii.	Define order and degree of a differential equation.	1M
	viii.	What is particular integral of $y'' - 4y = e^x$	1M
	ix.	Write the general form of claurit's differential equation.	1M
	x.	State comparison test for convergence.	1M

Q.2(A) Verify Rolle's theorem for the function $f(x) = \dfrac{Sinx}{e^x}$ in $(0, \pi)$ **10M**

OR

Q.2(B) Find the area of the Cardioid $r = a(1 + Cos\theta)$.   **10M**

Q.3(A) Investigate the maxima and minima, if, any of the function $f(x,y) = \sin x + \sin y + \sin(x+y)$.   **10M**

OR

Q.3(B) Find the derivative of $f(x,y,z) = x^3 - xy^2 - z$ at the point (1, 1, 0) in the direction of $v = 2i - 3j + 6k$ **10M**

Q.4(A) Sketch the region of integration, reverse the order of integration, and evaluate the integral $\displaystyle\int_{0}^{\pi}\int_{x}^{\pi} \frac{\sin y}{y} \, dy \, dx$ **10M**

OR

Q.4(B) Verify divergence theorem for the expanding vector field $F = x\bar{i} + y\bar{j} + z\bar{k}$ over the sphere $x^2 + y^2 + z^2 = a^2$.   **10M**

Q.5(A) (i) Solve $(x+y)dx - (x-y)dy = 0$ **5M**

(ii) Solve $\dfrac{dy}{dx} + \dfrac{y\cos x + \sin y + y}{\sin x + x\cos y + x} = 0$ **5M**

Q.5(B)   Find the general solution of $y'' + 10y' + 25y = 14e^{-5x}$ 10M

Q.6(A)   (i) Form the partial differential equations by eliminating the arbitrary constants from   5M
$$x^2 + y^2 + (z-c)^2 = r^2$$
(ii) Form the partial differential equations by eliminating the arbitrary functions from   5M
$$z = f(x+at) + g(x-at)$$

OR

Q.6(B)
Use any method to determine the series converges or diverges. $\sum_{n=1}^{\infty} \dfrac{(n+1)(n+2)}{n!}$ 10M

*** END ***

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)

B.Tech I Year I & II Semester (R18) Supplementary End Semester Examinations – JAN 2020

C PROGRAMMING & DATA STRUCTURES
(Common to All)

Time: 3Hrs   Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
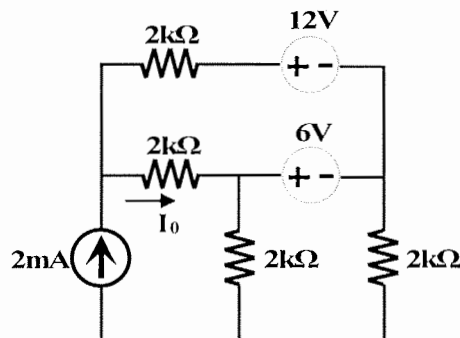**All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either Part-A or B only**

Q.1	i.	Int a=5,b=4; if(a/b) printf("b is big"); else printf("a is big");	1M
		What is the output of above program?	
	ii.	List the different types of constants.	1M
	iii.	What value contains in array name?	1M
	iv	Write a program for finding the largest number in an array.	1M
	v.	Define Structure. Write the syntax of structure.	1M
	vi	Write the advantages and disadvantages of using pointers.	1M
	vii.	List the queue operations.	1M
	viii.	Write the Classification of Data Structure.	1M
	ix.	Is FILE a built-in data type?	1M
	x.	What are the file handlings functions in C?	1M
Q.2(A)		Explain in detail about bit wise operators with examples	10M
		OR	
Q.2(B)		Discuss the various variations of 'if' statement. List out the differences between while and do-while loops.	10M
Q.3(A)		Explain the sequential and binary search methods with examples.	10M
		OR	
Q.3(B)		What are the elements of user defined functions? Explain.	10M
Q.4(A)		Describe three different approaches that can be used to pass structures as function arguments.	10M
		OR	
Q.4(B)		Explain the Swapping of two numbers and changing the value of a variable using pass by reference.	10M
Q.5(A)		List and explain the applications of stack and queue	10M
		OR	
Q.5(B)		Write a program to implement given scenario using stack operations. Use stack operation to push these characters 'o p e r a t i o n', perform pop operation three times and then push 'o r 'characters and finally display stack content	10M
Q.6(A)		Implement a C program to insert a substring in to given main string from a given position	10M
		OR	
Q.6(B)		What is a file? What are the uses of files in 'C'? Explain about different modes of files.	10M

*** END***

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year I Semester (R18) Regular & Supplementary End Semester Examinations – Dec 2019

BASIC ELECTRICAL ENGINEERING

(Common to All)

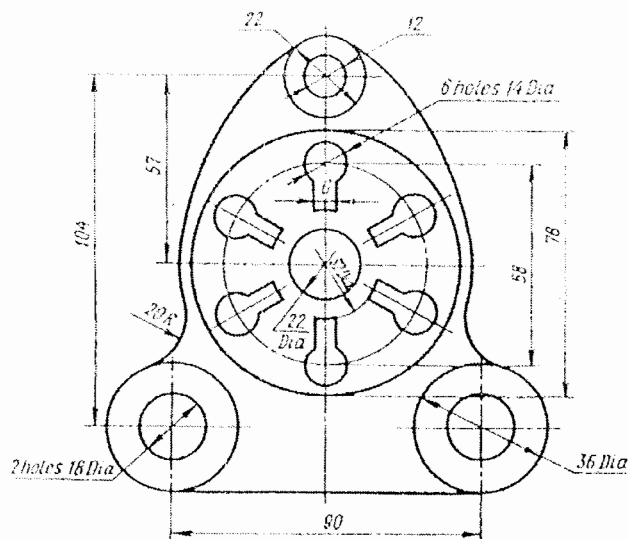Time: 3Hrs   Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either A or B only

---

Q.1	i.	Define the Resistance and give its unit of measurement.	1M
	ii.	Two equal and parallel resistors of each 20 ohm connected in series with a bulb of 10 ohm resistance. If the total circuit is supplied by a 100 V battery then determine current through the bulb?	1M
	iii.	Define Apparent Power?	1M
	iv.	Write the expression for form factor of a sinusoidal wave.	1M
	v.	Draw the B-H curve.	1M
	vi.	How eddy current loss will be minimized?	1M
	vii.	What is Commutator?	1M
	viii.	A 12 pole, 50 Hz induction motor is running at 450rpm. Calculate the % slip of the motor.	1M
	ix.	Expand ELCB.	1M
	x.	What are the different types of cables?	1M

Q.2(A)   Apply the nodal analysis to determine node voltages.   10M
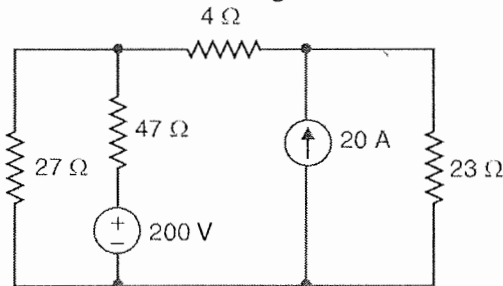
OR

Q.2(B)   (I) State superposition theorem and Steps to Analyse Superposition Theorem.   3M

(ii) By means of superposition theorem, calculate the current I_o in the network shown.   7M

Q.3(A)	(i). A coil, having both resistance and inductance, has a total effective impedance of 50 Ω and the phase angle of the current through it with respect to the voltage across it is 45° lag. The coil is connected in series with a 40 Ω resistor across a sinusoidal supply. The circuit current is 3A. Find (a) supply voltage and (b) circuit phase angle.	5M
	(ii). A circuit consisting of a resistor in series with a capacitor takes 100 watts at a power factor of 0.5 from a 100 V, 60 Hz supply. Find (a) the current flowing, (b) the phase angle, (c) the impedance, (d) the resistance, and (e) the capacitance.	5M

OR

Q.3(B)	i. Write the advantages of three phase AC systems.	3M
	ii. Derive relation between line and phase voltages and currents in a BALANCED star connection and expression for real power.	7M

Q.4(A)	(i) Derive the emf equation of a transformer.	5M
	(ii) Write short notes on different losses in transformer.	5M

OR

Q.4(B)	(i) Draw the equivalent circuit of a transformer.	5M
	(ii)The primary winding of a single phase transformer is connected to a 220 V, 50 Hz supply. The secondary winding has 2000 turns. If the maximum value of the core flux is 0.003wb, determine	5M
	(a) the number of turns on the primary winding	
	(b) the secondary induced voltage	

Q.5(A)	Explain the construction of DC Generator in detail with neat sketch.	10M

OR

Q.5(B)	(i) Explain the principle of operation of a Three Phase Induction motor.	6M
	(ii) A 3-Phase induction motor is wound for 4-poles and is supplied from a 50 Hz system. Calculate	4M
	(a) Synchronous speed	
	(b) the speed of the rotor when the slip is 4%	
	(c) the rotor frequency when the rotor runs at 1200 rpm.	

Q.6(A)	Draw and explain the P-N Junction diode and its characteristics.	10M

OR

Q.6(B)	With a neat circuit diagram and waveforms explain the working of full wave bridge rectifier.	10M

*** END***

Hall Ticket No: ☐☐☐☐☐☐☐☐☐☐☐☐☐ Question Paper Code: 18ME101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
B.Tech I Year I Semester (R18) Regular End Semester Examinations –JAN 2020
ENGINEERING GRAPHICS
(Common to All)

Time: 3Hrs   Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 1 to 5 answer either Part-A or B only

Q.1(A) Draw the below figure using Auto CAD commands   12M

OR

Q.1(B) Draw the below figure using Auto CAD commands(Assume suitable data if any   12M
missed)
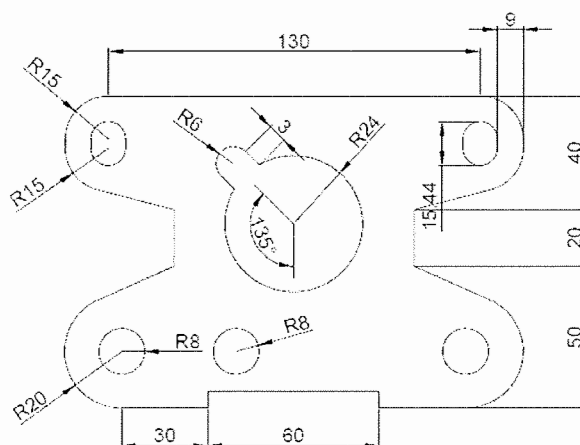
Q.2(A) i. Two points A and B are on H.P; the point A being 30mm in front of V.P, while B is   6M
45mm behind V.P. The joining their top views makes an angle of 45º with xy. Find
the horizontal distance between two points.

ii. A point B is 20mm above H.P, 10mm in front of V.P and 30mm in front of P.P.   6M
Draw front view, top view and left side view of the point.

Q.2(B) Draw the projection of line AB 90mm long, its midpoint M being 50mm above H.P   12M
        and 40mm in front of V.P. The end A is 20mm above H.P and 10mm infront of the
        V.P. Show the inclinations of the line with H.P and V.P.

Q.3(A) A square ABCD of 50mm side, has its corner A in the H.P, its diagonal AC is inclined   12M
        at 30^0 to the H.P and the diagonal BD is inclined at 45^0 to the V.P and parallel to
        H.P. Draw its projections.

OR

Q.3(B) A triangular prism, base 40mm side and height 65mm, is resting on H.P on one of   12M
        its base edges. The axis of the prism is inclined at 40^0 to the H.P and parallel to the
        V.P. Draw its projections.

Q.4(A) A hexagonal prism of side 50 mm is resting on HP on one of its base with two   12M
        vertical faces being parallel to VP. It is cut by a vertical plane inclined at 45° to VP
        and is 8 mm away from the axis. Draw its top view, sectional front view and true
        shape of section.

OR

Q.4(B) A cube of 50 mm long edges is resting on the H.P. with a vertical face inclined at   12M
        30^0 to the V.P. It is cut by a section plane, perpendicular to the V.P. inclined at 30^0
        to the H.P. and passing through a point on the axis, 38 mm above the H.P. Draw the
        development of the lateral surface of the remaining portion of the cube.

Q.5(A) Draw the front view, top view and right side view of the object shown below.   12M

OR
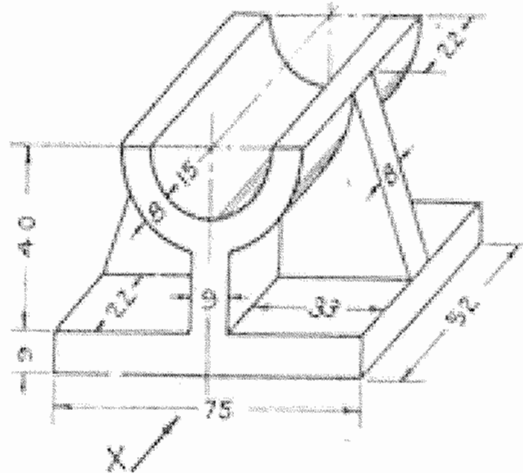
Q.5(B) A square prism of base 50 mm side and height 125 mm stands on the ground with   12M
        its side of base inclined at an angle of 30°to VP. It is penetrated by a cylinder of
        diameter 50 mm and axis 125 mm long. The axis of the cylinder is parallel to both
        HP and VP and bisects the axis of the prism. Draw the projection showing fully the
        curves of intersection.

*** END***

Hall Ticket No: ⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚ 　　　　Question Paper Code: 18ME101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
B.Tech I Year I Semester (R18) Regular End Semester Examinations –JAN 2020
## ENGINEERING GRAPHICS
(Common to All)

Time: 3Hrs 　　　　　　　　　　　　　　　　　　　　　　　　Max Marks: 60

> Attempt all the questions. All parts of the question must be answered in one place only.
> **All parts of Q.no 1 are compulsory. In Q.no 1 to 5 answer either Part-A or B only**

Q.1(A) 　Draw the below figure using Auto CAD commands 　　　　　　　　　12M

OR
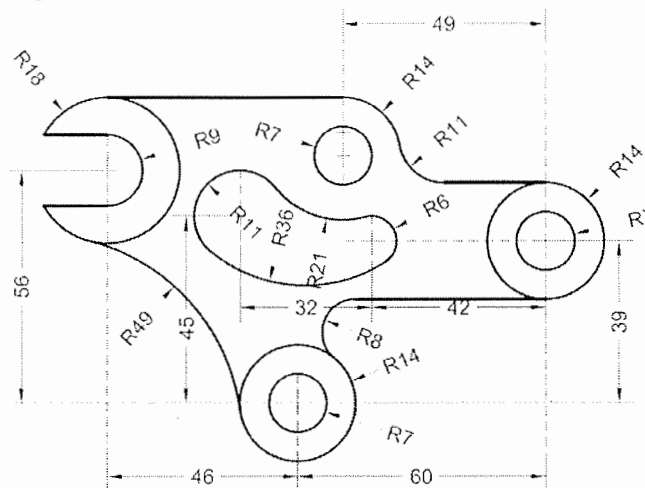
Q.1(B) 　Draw the below figure using Auto CAD commands 　　　　　　　　　12M
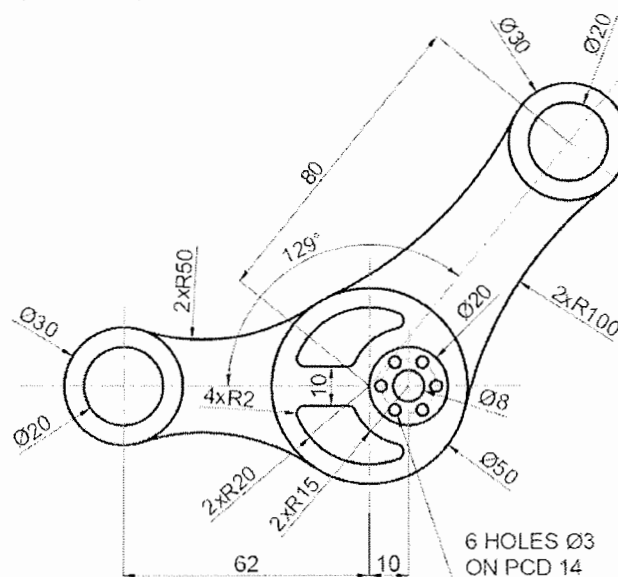
Q.2(A) 　Draw the projections of the following points by keeping the projectors as 50mm 　12M
　　　　apart
　　　　　　a. Point A - In H.P and 20 mm behind V.P
　　　　　　b. Point B - 30 mm below H.P, 45mm behind V.P
　　　　　　c. Point C - 40 mm above H.P, 35mm in front of V.P
　　　　　　d. Point D – On HP and on VP

Q.2(B)	A line AB 65mm long has its end A, 20mm above H.P and 25mm in front of V.P. The end B is 40mm above H.P and 65mm in front of V.P Draw the projections of AB and show its inclination with H.P and V.P.	12M

Q.3(A)	A pentagon of 30mm side has one corner on H.P. Its plane is inclined at 65º to V.P and parallels to H.P. Draw its projections.	12M

<div align="center">OR</div>

Q.3(B)	An equilateral triangular prism of side of base 25mm and axis 50mm long is resting on an edge of its base on H.P. The face containing that edge is inclined at 30º to H.P. Draw the projections of the prism, when the edge on which the prism rests, is inclined at 60º with V.P.	12M

Q.4(A)	A pentagonal prism of base side 30 mm and axis length 60mm is resting on H.P on its base with one of its base side parallel to VP. It is cut by a plane inclined at 30° to H.P and perpendicular to VP and is bisecting the axis. Draw its front view and sectional top view	12M

<div align="center">OR</div>

Q.4(B)	A cylinder of diameter of base 40mm and axis 55mm long is resting on its base on H.P. It is cut by a section plane, perpendicular to V.P and inclined at 45° to H.P. The section plane is passing through the top end of an extreme generator of the cylinder. Draw the development of the lateral surface of the cut cylinder.	12M

Q.5(A)	Draw the front, top and right side views of the bracket shown in the picture below.	12M
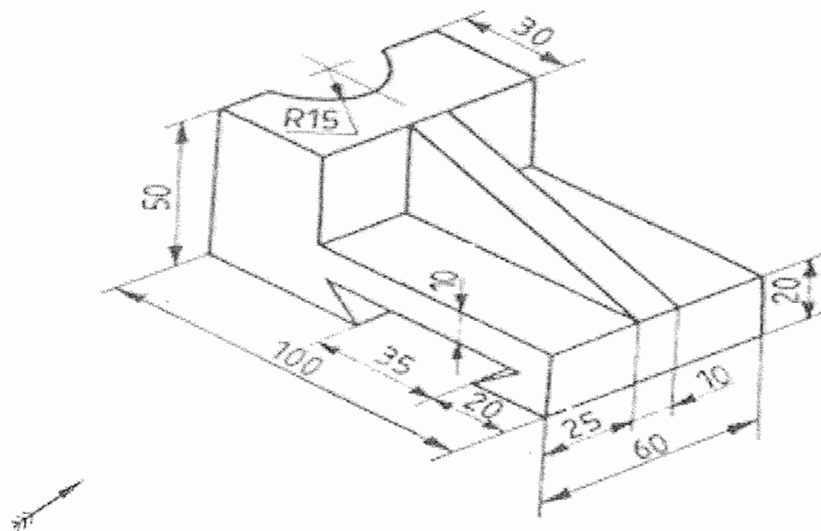
<div align="center">OR</div>

Q.5(B)	A cylinder of 60 mm diameter stands vertically on its base. It is pierced by a horizontal square prism of 35 mm side of base such that the axes of the two solids intersect each other at right angles. The faces of the prism are equally inclined to VP. Draw the projections of the solids, showing the lines of intersection. (Assume suitable lengths for prism and cylinder)	12M

<div align="center">*** END***</div>

Hall Ticket No: ⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚   Question Paper Code: 18ME101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
B.Tech I Year I Semester (R18) Regular End Semester Examinations –JAN 2020
ENGINEERING GRAPHICS
(Common to All)
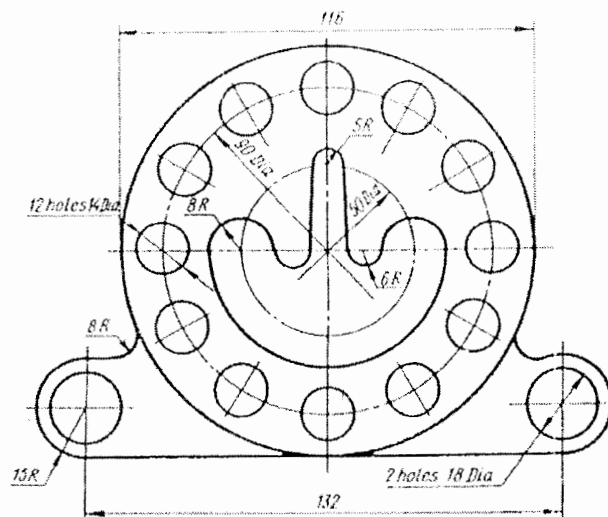
Time: 3Hrs   Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 1 to 5 answer either Part-A or B only

Q.1(A)   Draw the below figure using Auto CAD commands   12M

OR
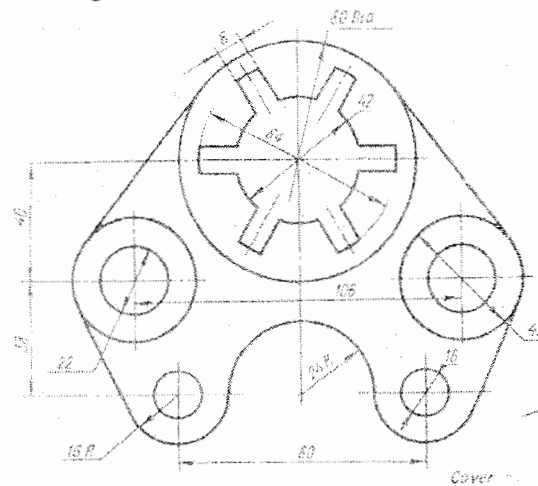
Q.1(B)   Draw the below figure using Auto CAD commands   12M
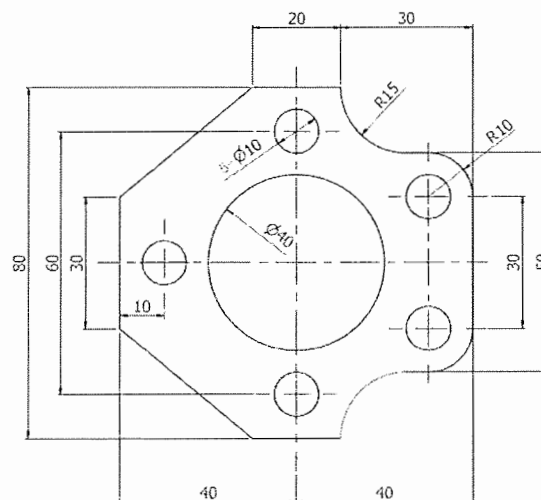
Q.2(A)   A point P is 15mm above H.P and 20mm in front of V.P. Another point Q is 25mm   12M
behind V.P and 40mm below H.P. Draw projections of the points P and Q; keeping
the distance between their projectors equal to 90mm. Draw the straight lines
joining their top views and the front views. Also state the quadrants in which the
points P and Q lies.

OR

| Q.2(B) | A line MN 80mm long is parallel to V.P and inclined at 45^0 to H.P. The end M is 30mm above H.P and 25mm in front of V.P. Draw the projections of the line and finds its inclinations with HP and VP. | 12M |

| Q.3(A) | Draw the projections of a regular hexagon of 25mm side, having one of its sides in H.P and inclined at 60^0 to V.P. The surface of the hexagon is making an angle of 45^0 with H.P. | 12M |

OR

| Q.3(B) | A hexagonal pyramid base 25 mm side axis 50 mm long, has edge of its base on the ground .its axis is inclined at 30° to ground ,and parallel to V.P. Draw projections. | 12M |

| Q.4(A) | A cylinder, 65 mm diameter and 90 mm long have its axis parallel to the H.P. and inclined at 30° to the V.P. It is cut by a vertical section plane in such a way that the true shape of the section is an ellipse having the major axis 75 mm long. Draw its sectional front view and true shape of the section. | 12M |

OR

| Q.4(B) | A pentagonal prism of base side 30mm and height 60 mm resting on its base on H.P with the rectangular face parallel to V.P. It is cut by a section plane inclined at 30 degrees to the H.P and passing though the midpoint of the axis. Draw the development of the lateral surface of the truncated prism. | 12M |

| Q.5(A) | Draw the front view, top view and right side view of the object shown below. | 12M |

OR

| Q.5(B) | A Vertical square prism base 50mm side, is completely penetrated by a horizontal square prism, base 35mm side, so that their axes intersect. The axis of the horizontal prism is parallel to the V.P., while the faces of the two prisms are equally inclined to the V.P. Draw the projections of the solids, showing lines of intersection. (Assume suitable lengths for the prisms). | 12M |

*** END***

Hall Ticket No:

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
B.Tech I Year I Semester (R18) Regular End Semester Examinations –JAN 2020
ENGINEERING GRAPHICS
(Common to All)

Time: 3Hrs   Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 1 to 5 answer either Part-A or B only

Q.1(A)   Draw the below figure using Auto CAD commands   12M

OR

Q.1(B)   Draw the below figure using Auto CAD commands   12M

Q.2(A)   A line AB 70mm long has its end A at 10 mm above H.P and 15 mm in front of V.P.   12M
Its front view and top view measures 50 mm and 60 mm respectively. Draw the
projections of the line and determine its inclination with H.P and V.P.

OR

Q.2(B)	Draw the projections of the following points on the same ground line and keep the distance between the projectors as 50mm. Name the quadrants in which they are?	12M

1)Point P, 50mm in front of the V.P. and 30mm above the H.P.

2)Point Q, 65mm below the H.P. and on the V.P.

3)Point R, 35mm below the H.P. and 50mm behind the V.P.

4)Point S, 40mm above the H.P. and 45mm in front of the V.P.

Q.3(A)	Draw the projections of a rhombus, having diagonals 60 and 40 long, the smaller diagonal of which is parallel to both the principal planes, while the other is inclined at 30^0 to H.P	12M

<center>OR</center>

Q.3(B)	A hexagonal prism with side of base 30mm and axis 80mm long is resting with an edge of its base on H.P, such that the rectangular face containing that edge is inclined at 40^0 to HP. Draw the projections of the prism when its axis is parallel to V.P.	12M

Q.4(A)	A cylinder of base diameter 40 mm and height 80 mm rests on its base on HP. It is cut by section plane perpendicular to VP and inclined at 45° to HP and passing through the axis at a distance 40 mm from base. Draw the front view and the sectional top view.	12M

<center>OR</center>

Q.4(B)	A hexagonal prism of side of base 30 mm and axis 70 mm long is resting on its base on H.P. such that a rectangular face is parallel to V.P. It is cut by a section plane perpendicular to V.P. and inclined at 30^0 to H.P. The section plane is bisecting the axis of the hexagonal prism.. Draw the development of the lateral surface of the cut prism.	12M

Q.5(A)	Draw the front view, top view and left side view of the object shown below.	12M

<center>**OR**</center>

Q.5(B)	A cylinder of base diameter 50 mm and axis 75 mm long is standing on its base on the HP. It is completely penetrated by a horizontal cylinder of 45 mm diameter and axis 80 mm long, such that their axes intersect at right angles and at 40 mm above the base. Draw the curves of intersection of the solids at their interfaces.	12M

<center>*** END***</center>

Set - 5

Hall Ticket No: ☐☐☐☐☐☐☐☐☐☐ Question Paper Code: 18ME101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
B.Tech I Year I Semester (R18) Regular End Semester Examinations –JAN 2020
ENGINEERING GRAPHICS
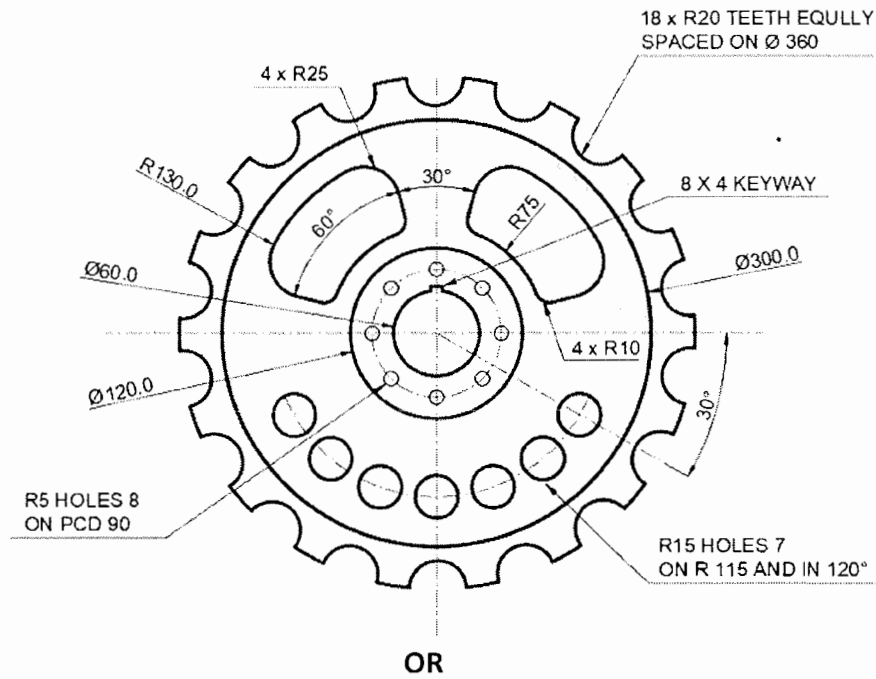(Common to All)

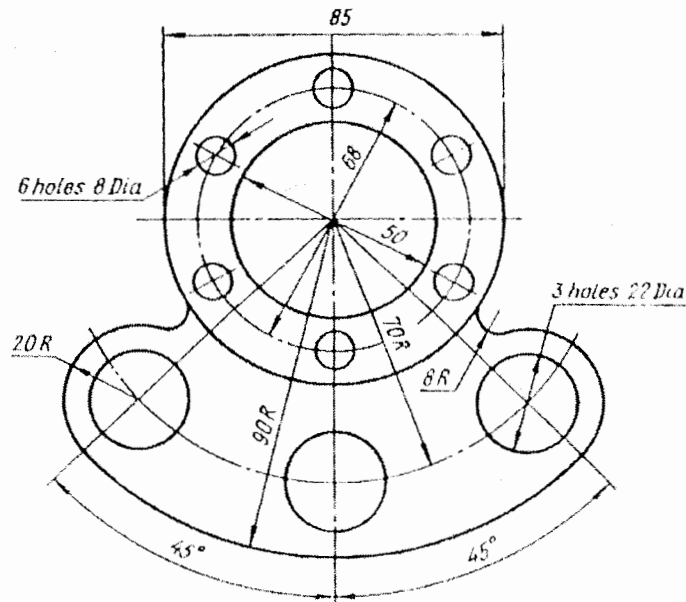Time: 3Hrs   Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 1 to 5 answer either Part-A or B only

Q.1(A) Draw the below figure using Auto CAD commands and dimension it.   12M

OR

Q.1(B) Draw the below figure using Auto CAD commands and dimension it.   12M

Q.2(A)	i. A point 30 above xy line is the plan view of two points P and Q. The elevation of P is 45 above the H.P while that of the point Q is 35 below the H.P. Draw the projections of points and state their positions with reference to the principal planes and the quadrants in which they lie.	8M
	ii. A point K is 40mm below H.P, 30mm behind V.P and 30mm in front of P.P. Draw its front view, top view and the left side view.	4M

OR

Q.2(B)	The length of the Top view of a line Parallel to V.P and inclined at 45^0 to H.P is 50mm. one end is 12mm above H.P and 25mm infront of V.P. Draw the Projections of the line and determine its True length.	12M

Q.3(A)	Draw the projections of a circle of 50mm diameter resting in the H.P and a point A on the circumference. Its plane is inclined at 45^0 to the HP and the top view of the diameter AB making an angle of 30^0 with the VP.	12M

OR

Q.3(B)	A pentagonal prism side of base 25 mm and axis 50 mm long rests with one of its shorter edges on H.P. such that the base containing that edge makes an angle 30^0 to H.P. and its axis is parallel to V.P. Draw its projections.	12M

Q.4(A)	A hexagonal prism of side 50 mm is resting on HP on one of its base with two vertical faces being parallel to VP. It is cut by a vertical plane inclined at 45° to VP and is 8 mm away from the axis. Draw its top view, sectional front view and true shape of section.	12M

OR

Q.4(B)	A vertical cylinder of diameter of base 40mm and height 60mm, is cut by a section plane, perpendicular to V.P and inclined at 30° to H.P, so as to bisect the axis. Draw the development of the lateral surface of the truncated portion of the cylinder.	12M

Q.5(A)	Draw the front view, top view and side view of the figure shown below	12M

OR
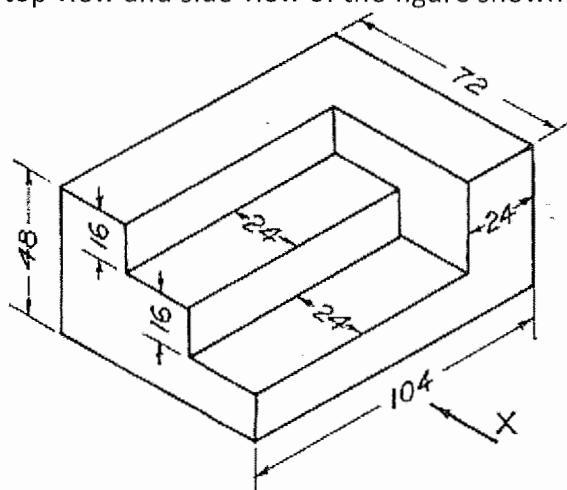
Q.5(B)	A square prism of base 50 mm side and height 125 mm stands on the ground with its side of base inclined at an angle of 30°to VP. It is penetrated by a cylinder of diameter 50 mm and axis 100 mm long. The axis of the cylinder is parallel to both HP and VP and bisects the axis of the prism. Draw the projection showing fully the lines of intersection.	12M

*** END***
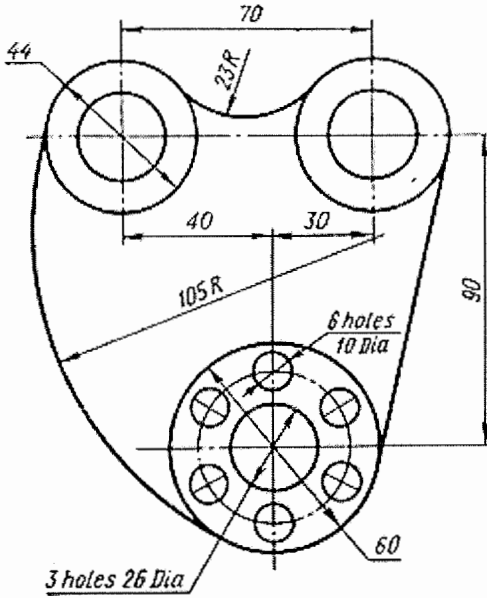
Hall Ticket No: ⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚   Question Paper Code: 18ME101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
B.Tech I Year I Semester (R18) Regular End Semester Examinations –JAN 2020
ENGINEERING GRAPHICS
(Common to All)

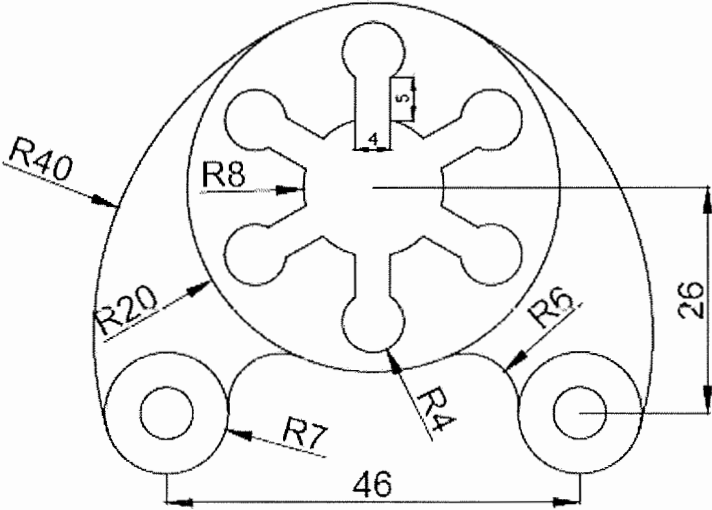Time: 3Hrs   Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 1 to 5 answer either Part-A or B only

Q.1(A)   Draw the below figure using Auto CAD commands and dimension it.   12M

OR

Q.1(B)   Draw the below figure using Auto CAD commands and dimension it.   12M

Q.2(A)	Draw the projections of the following points on the same reference line by keeping the distance between the projectors as 40 mm: E – 30mm below HP and 50mm behind VP F – 40mm above HP and 60mm behind VP G – 50 mm above HP and 60mm in front of VP H – 40mm below HP and 30mm in front of VP	12M

OR

Q.2(B)	i. The front view of a line, which is inclined at 30^0 to VP, is 65mm long. Draw the projections of the line when it is parallel to and 30mm above HP; its one end being 30mm in front of VP	6M
	ii. A line MN 45mm long is parallel to V.P and perpendicular to H.P. Point A is 35mm above H.P and 20mm in front of V.P. Point B is 10mm above H.P. Draw the three views of the projections.	6M

Q.3(A)	An equilateral triangular plane ABC of side 40mm, has its plane parallel to VP and 20mm away from it. Draw the projections of the plane when one of its sides is (i) perpendicular to HP (ii) parallel to HP and (iii) inclined to HP at an angle of 45^0	12M

OR

Q.3(B)	A pentagonal pyramid of base side 30mm and axis 60mm has an edge of base parallel to H.P. Its axis is pa rallel to V.P and inclined at 45^0 to H.P. Draw its projections when the apex lies in the H.P.	12M

Q.4(A)	A cylinder of base diameter 40 mm and height 80 mm rests on its base on HP. It is cut by a plane inclined 45^0 to HP and passing through a point 30mm from top base of the axis. Draw the front view, sectional top view and true shape.	12M

OR

Q.4(B)	A Pentagonal prism having 30mm base edge and 70mm height is standing on its base on the ground with one base edge parallel to VP. It is cut by a plane inclined 45^0 to HP and passing through a point 30mm above the base. Draw the development of lateral surface of the truncated prism.	12M

Q.5(A)	Draw the front view, top view and side view of the figure shown below	12M
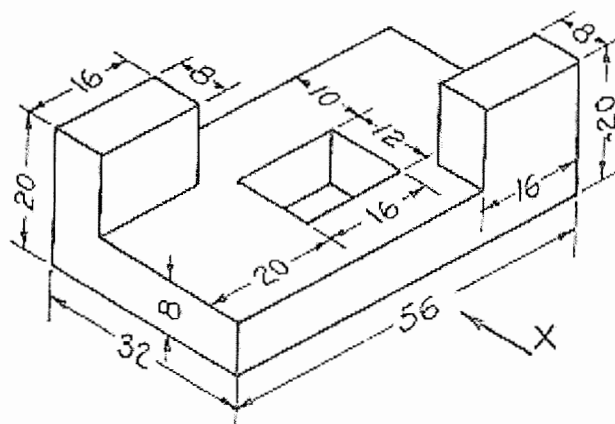
OR

Q.5(B)	A cylinder of diameter 45mm pierces through another vertical cylinder of diameter 30mm.The axes are at right angles. The axis of the vertical cylinder is nearer to the V.P. The axis of the penetrating cylinder is parallel to the both the H.P. and the V.P. Draw the projections of the cylinder and show the curves of intersection.	12M

*** END***

Hall Ticket No: ☐☐☐☐☐☐☐☐☐☐☐☐   Question Paper Code: 18ME101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
B.Tech I Year I Semester (R18) Regular End Semester Examinations –JAN 2020
ENGINEERING GRAPHICS
(Common to All)

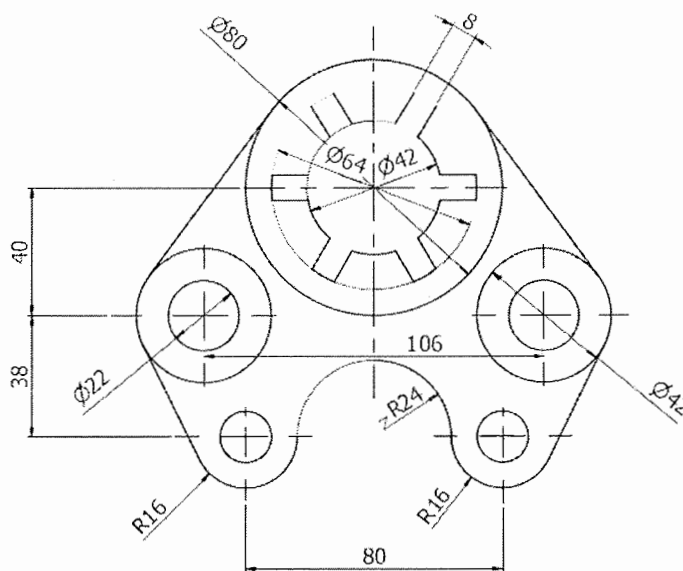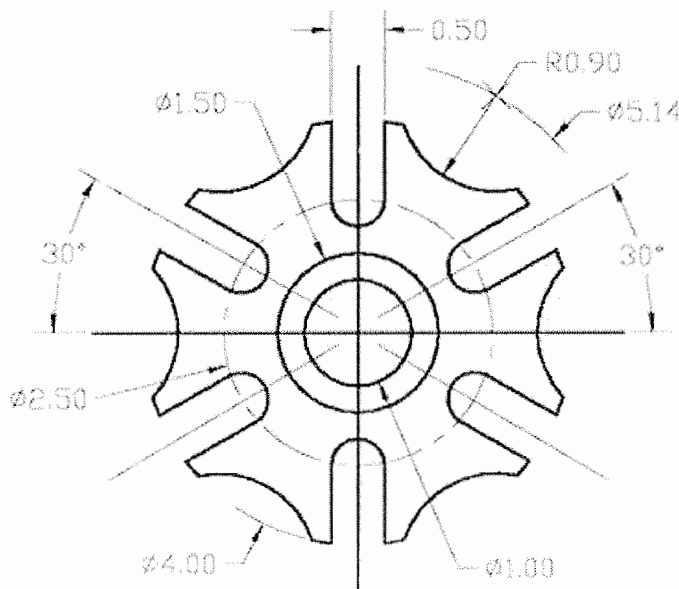Time: 3Hrs   Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 1 to 5 answer either Part-A or B only

Q.1(A)   Draw the below figure using Auto CAD commands and dimension it.   12M

OR

Q.1(B)   Draw the below figure using Auto CAD commands and dimension it.   12M

Q.2(A)	i. Two points P and Q are in the H.P. The point P is 30mm in front of V.P and Q is behind the V.P. The distance between their projectors is 80mm and line joining their top views makes an angle of 40º with the xy line. Find the distance of the point Q from the V.P.	6M
	ii. A point F is 30mm below H.P and 50 mm behind the V.P. Also the point F is 15mm in front of the P.P. Draw the front view, top view and left side view of the point.	6M

OR

Q.2(B)	Draw the three views of a 90mm long line in the following positions	12M

i. Inclined at 30^0 to H.P, its one end 20mm above H.P, parallel to and 30mm infront of V.P

ii. Inclined at 60^0 to V.P, its one end 15mm infront of V.P. Parallel to and 25mm above H.P

Q.3(A)	Draw the projections of a regular pentagon of 30mm side having one of its sides in the H.P and inclined at 60^0 to V.P and its surface making an angle of 45^0 with H.P.	12M

OR

Q.3(B)	A pentagonal pyramid of base side 30mm and axis 60mm has an edge of base parallel to H.P. Its axis is parallel to V.P and inclined at 45^0 to H.P. Draw its projections when the apex lies in the H.P.	12M

Q.4(A)	A cube of 65 mm long edges has its vertical faces equally inclined to the V.P. it is cut by a section plane, perpendicular to the V.P., so that the true shape of the section is a regular hexagon. Determine the inclination of the cutting plane with the H.P. and draw the sectional top view and true shape of the section.	12M

OR

Q.4(B)	A Cylinder of diameter of base 40 and axis 55 long is resting on its base on H.P. It is cut by a section plane perpendicular to V.P and inclined at $45°$ to V.P. The section plane is passing through the midpoint of the axis. Draw the development of lateral surface of the cut cylinder.	12M

Q.5(A)	Draw the elevation, plan and left and right side views of the bracket shown in the picture below	12M
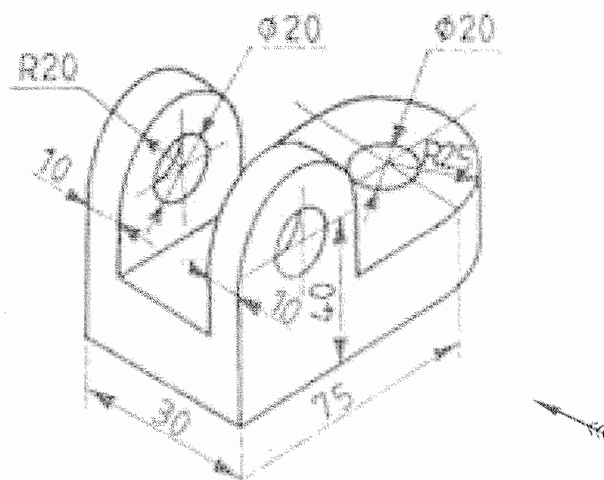
OR

Q.5(B)	A vertical pipe of 64 mm diameter is welded to a pipe of diameter 32 mm. The axis of the second pipe is inclined at $60°$ to HP, parallel to VP. Draw the projections showing the curves of intersection.	12M

*** END***

Hall Ticket No:

Question Paper Code: 18ME101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
B.Tech I Year I Semester (R18) Regular End Semester Examinations –JAN 2020
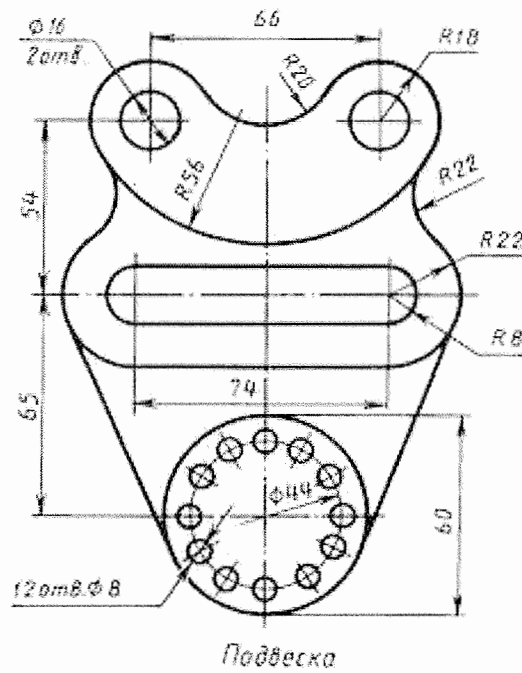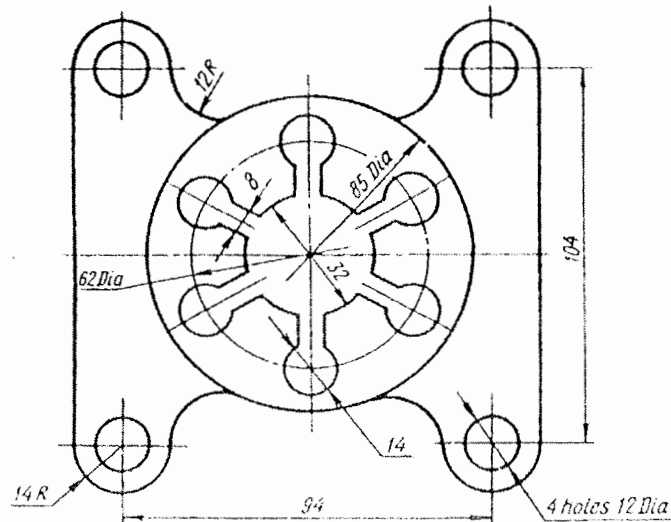## ENGINEERING GRAPHICS
(Common to All)

Time: 3Hrs
Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 1 to 5 answer either Part-A or B only

Q.1(A)   Draw the below figure using Auto CAD commands and dimension it.   12M

Подвеска

OR

Q.1(B)   Draw the below figure using Auto CAD commands and dimension it.   12M

Q.2(A)	Draw the projections for the following cases	12M
	a. Point A is situated at 40mm above HP and 50mm in front of VP	
	b. Point B is situated at 30mm above HP and 40mm behind VP	
	c. Point C is 40mm below HP and 50mm behind VP	
	d. Point D is situated 20mm below HP and 30mm in front of VP	

Q.2(A)   Draw the projections for the following cases   12M
                a. Point A is situated at 40mm above HP and 50mm in front of VP
                b. Point B is situated at 30mm above HP and 40mm behind VP
                c. Point C is 40mm below HP and 50mm behind VP
                d. Point D is situated 20mm below HP and 30mm in front of VP
Use the same XY line to show the projections for all the points. Keep the distance between the projectors as 30mm. Also state the quadrants in which they lie.

OR

Q.2(B)   A line AB 70mm long is inclined at 45^0 to HP and its top view makes an angle of 60^0 with the XY line. The end A of the line is 20mm above HP and 30mm in front of VP. Draw the projections of the line.   12M

Q.3(A)   A rectangular lamina with longer edge 175mm and smaller edge 100mm is resting on one of its smaller edges on the HP. It is inclined with the HP in such a way that its TV appears as a square with maximum dimensions. Draw projections if the smaller edge makes inclinations of 60^0 with the VP.   12M
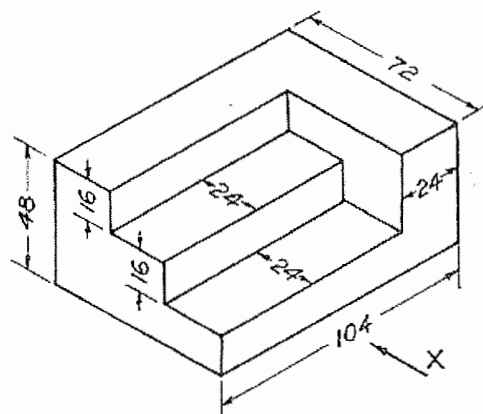
OR

Q.3(B)   A Pentagonal Prism of base edge 30 mm and axis 60mm has a corner on the H.P with its axis inclined at 45^0 to the H.P. Draw the projections when the plane containing the resting corner and the axis is parallel to V.P.   12M

Q.4(A)   A Hexagonal prism having 30mm base edge and 80mm height is standing on its base on the ground with its base edge parallel to VP. It is cut by a section plane inclined at 45^0 to HP and passing through a point 35mm above the base. Draw the development of lateral surface of the truncated prism.   12M

OR

Q.4(B)   A pentagonal prism of side of base 30 mm and axis 75 mm long is resting on its base on H.P. such that its one rectangular face is parallel to V.P. It is cut by a plane inclined at 30^0 to H.P and parallel to V.P. The section plane is bisecting the axis. Draw the development of the lateral surface of the remaining portion of the prism.   12M

Q.5(A)   Draw the front view, top view and right side view of the object shown below.   12M

OR

Q.5(B)   A Vertical square prism base 50mm side is completely penetrated by a horizontal square prism, base 35mm side, so that their axes intersect. The axis of the horizontal prism is parallel to the V.P., while the faces of the two prisms are equally inclined to the V.P. Draw the projections of the solids, showing lines of intersection. (Assume suitable lengths for the prisms).   12M

*** END***

Hall Ticket No: | | | | | | | | | | | Question Paper Code: 18ME101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
B.Tech I Year I Semester (R18) Regular End Semester Examinations –JAN 2020
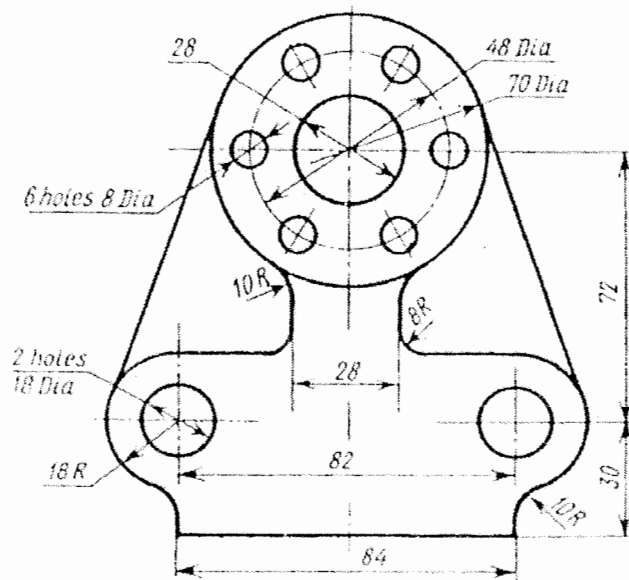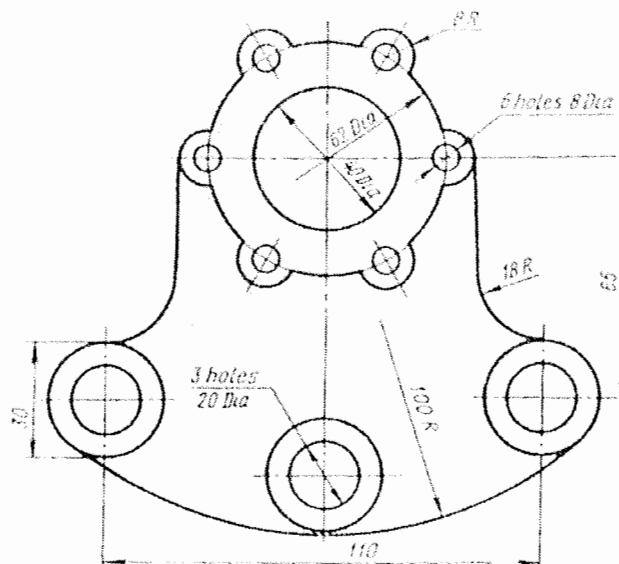## ENGINEERING GRAPHICS
(Common to All)

Time: 3Hrs   Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 1 to 5 answer either Part-A or B only

Q.1(A)   Draw the below figure using Auto CAD commands and dimension it.   12M

OR

Q.1(B)   Draw the below figure using Auto CAD commands and dimension it.   12M

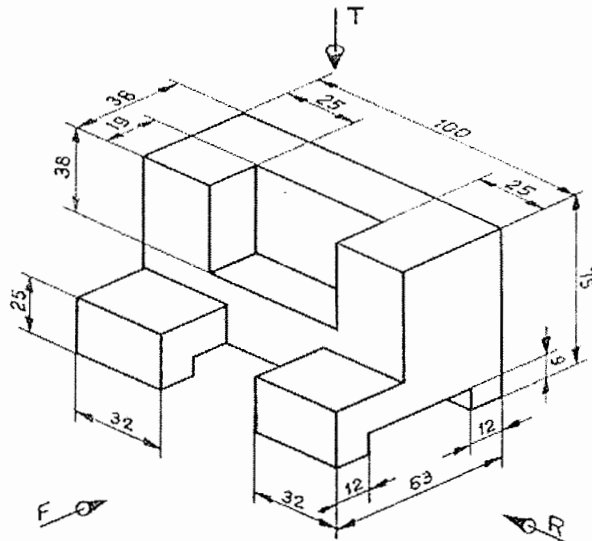| Q.2(A) | i. A point H is 15mm below H.P, 10mm behind V.P and 10mm in front of P.P. Draw front view, top view and left side view of the point. | 6M |
	ii. A point K is 10mm below H.P, 15mm behind V.P and 15mm in front of P.P. Draw front view, top view and left side view of the point.	6M
	OR	
Q.2(B)	A line AB 80mm long is inclined at an angle of 30^0 to H.P and 45^0 to V.P. The point A is 20mm above H.P and 30mm infront of V.P. Draw its Projections.	12M
Q.3(A)	i. A regular pentagon of 25 mm side has one side on the ground. Its plane is inclined 45^0 to the H.P and perpendicular to the VP. Draw its projections.	6M
	ii. Draw the projections of a circle of 50 mm diameter having its plane vertical and inclined at 30^0 to V.P. Its centre is 30 mm above HP and 20 mm in front of V.P.	6M
	OR	
Q.3(B)	A Hexagonal Pyramid of base edge 30 mm and height 60mm has a triangular face on the ground and the axis is parallel to V.P. Draw its projections.	12M
Q.4(A)	A cylinder of base diameter 40 mm and height 80 mm rests on its base on HP. It is cut by section plane perpendicular to VP and inclined at 45° to HP and passing through the axis at a distance 40 mm from base. Draw the front view and sectional top view.	12M
	OR	
Q.4(B)	A Hexagonal prism of side of base 30 mm and axis 70 mm long is resting on its base on H.P. such that its one rectangular face is parallel to V.P. It is cut by a plane inclined at 45^0 to H.P and parallel to V.P. The section plane is bisecting the axis. Draw the development of the lateral surface of the remaining portion of the prism.	12M
Q.5(A)	Draw the front view, top view and right side view of the object shown below.	12M

OR

| Q.5(B) | A cylinder of base diameter 50 mm and axis 75 mm long is standing on its base on the HP. It is completely penetrated by a horizontal cylinder of 45 mm diameter and axis 80 mm long, such that their axes intersect at right angles and at 40 mm above the base. Draw the curves of intersection of the solids at their interfaces. | 12M |

*** END***

Hall Ticket No: | | | | | | | | | | | | | Question Paper Code: 18ME101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
B.Tech I Year I & II Semester (R18) Supplementary End Semester Examinations –JAN 2020
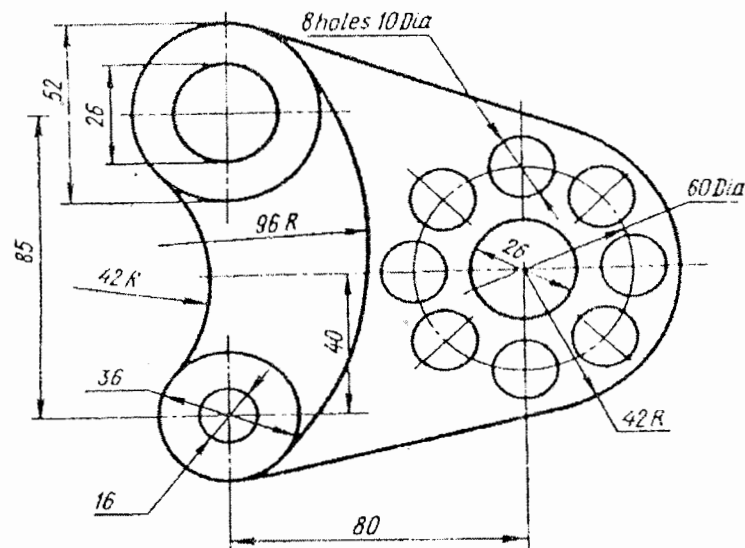## ENGINEERING GRAPHICS
(Common to All)

Time: 3Hrs   Max Marks: 60

All parts of the question must be answered in one place only.
In Q.no 1 to 5 answer either Part-A or B only

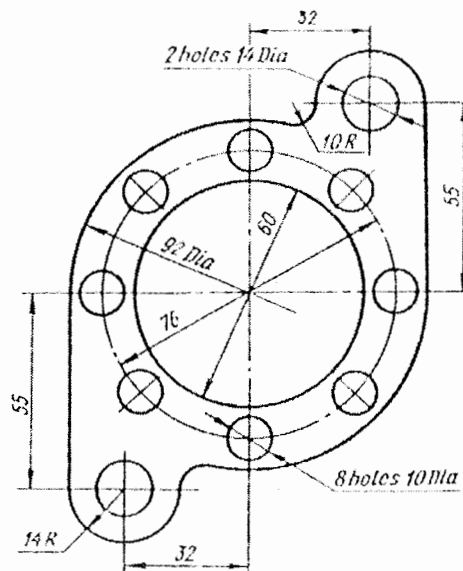Q.1(A)   Draw the below figure using Auto CAD commands and dimension it.   12M

OR

Q.1(B)   Draw the below figure using Auto CAD commands and dimension it.   12M

Q.2(A)	Draw the projections of the following points on the same reference line by keeping the distance between the projectors as 30mm, Also name the quadrants in which they lie.	12M

Point P, on V.P. and 40mm above the H.P.

Point Q, 35mm above the H.P. and 55mm behind the V.P.

Point R, 35mm below the H.P. and 50mm front the V.P.

Point S, 50mm below the H.P. and on V.P.

OR

Q.2(B)	The Top view of a 75mm long line measures 65mm. While the length of its Front view is 50mm. It's one end A is in H.P and 12mm infront of V.P. Draw the projections of line AB and determine its inclinations with H.P and V.P	12M

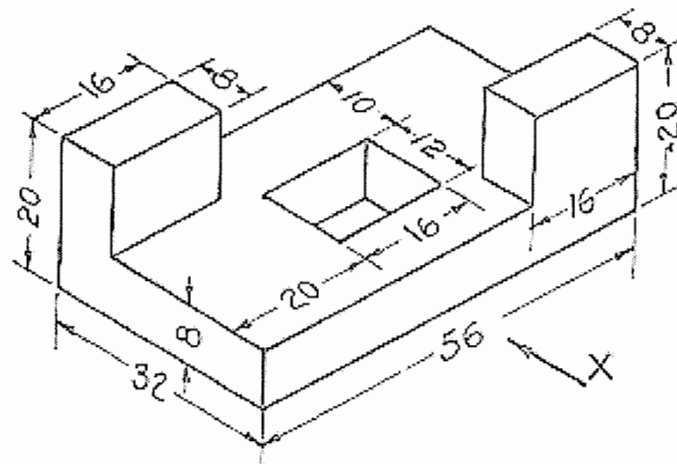|		
Q.3(A)	A square ABCD of 50mm side has its corner A in the H.P. its diagonal AC is inclined at 30^0 to the H.P and the diagonal BD inclined at 45^0 to the VP and parallel to H.P. Draw its projections.	12M

OR

Q.3(B)	A Pentagonal Prism of base edge 30 mm and axis 60mm rests on an edge of its base in the H.P. Its axis is parallel to V.P and inclined at 45^0 to H.P. Draw its projections.	12M

Q.4(A)	A cylinder of base 50mm and axis 60mm is resting on ground with its axis parallel to V.P. It is cut by a section plane perpendicular to V.P and inclined at 45^0 to H.P passing through one of the top of the generator and cuts all other generators. Draw its development of its lateral surface.	12M

OR

Q.4(B)	A pentagonal prism of base side 30 mm and axis length 60mm is resting on H.P on its base with one of its base side parallel to VP. It is cut by a plane inclined at 30^0 to H.P and perpendicular to VP and is bisecting the axis. Draw its front view and sectional top view.	12M

Q.5(A)	Draw the front view, top view and the side view for the figure given below	12M

OR

Q.5(B)	A cylinder of base diameter 50 mm and axis 75 mm long is standing on its base on the HP. It is completely penetrated by a horizontal cylinder of 45 mm diameter and axis 80 mm long, such that their axes intersect at right angles and at 40 mm above the base. Draw the curves of intersection of the solids at their interfaces.	12M

*** END***

Hall Ticket No: ⬜⬜⬜⬜⬜⬜⬜⬜⬜⬜ 　　Question Paper Code: 18ME101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
B.Tech I Year I Semester (R18) Regular End Semester Examinations –JAN 2020
ENGINEERING GRAPHICS
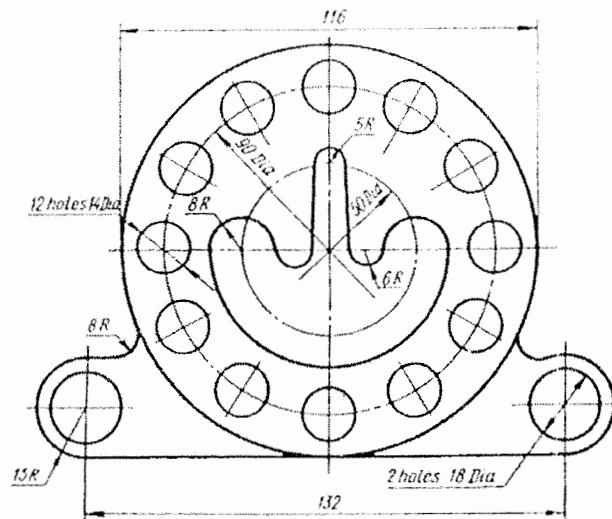(Common to All)

Time: 3Hrs 　　　　　　　　　　　　　　　　　　　　　　　Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 1 to 5 answer either Part-A or B only

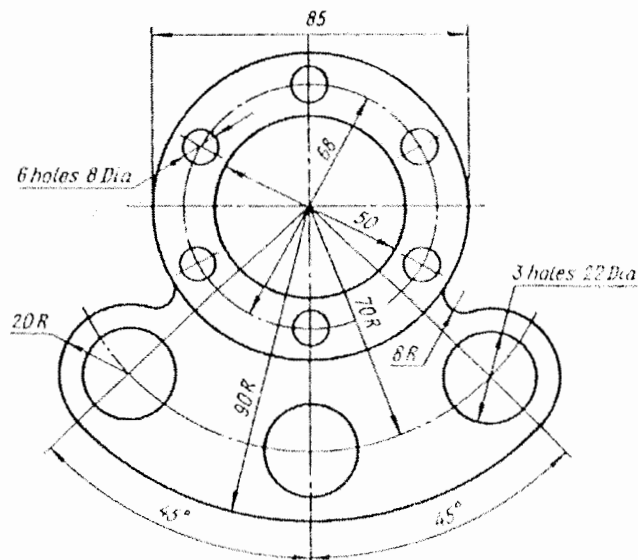Q.1(A)　Draw the below figure using Auto CAD commands and dimension it. 　　　　12M

OR

Q.1(B)　Draw the below figure using Auto CAD commands and dimension it. 　　　　12M

Q.2(A)	i. Two points F and G are on H.P. The point F being 15mm in front of V.P, while G is 20 behind V.P. The line joining their top views makes an angle of 45^0 with xy. Find the horizontal distance between two points.	8M
	ii. Draw the projections of the following points on the same ground line xy; keeping the distance between the projectors as 50mm.	4M
	A. Point A, in the V.P. and 15mm above the H.P.	
	B. Point B, 15mm below the H.P. and 10mm behind the V.P.	

OR

| Q.2(B) | A line CD, 90mm long, measures 72mm in front view and 65mm in top view. Draw the two views of the line if it fully lies in the first quadrant. Find the true inclinations of the line. Point C lies at a distance 20mm from the reference planes. | 12M |

| Q.3(A) | A rectangular plate of negligible thickness having 150mm length and 100mm width is resting on one of its smaller side on HP. The surface makes an inclination of 30^0 to HP and smaller side makes an inclination of 60^0 to VP. Draw the projection of the plate. | 12M |

OR

| Q.3(B) | A Cylinder of base diameter 50mm and axis 80mm is resting on HP with its generator. The axis of the cylinder is inclined at 45^0 to H.P. Draw its projections. | 12M |

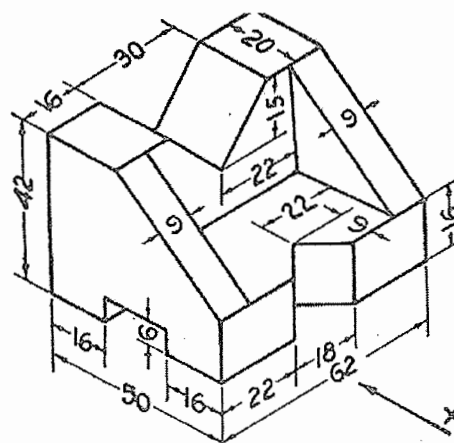| Q.4(A) | A cylinder of base diameter 40 mm and height 80 mm rests on its base on HP. It is cut by section plane perpendicular to VP and inclined at 35^0 to HP and passing through the axis at a distance 40 mm from Top face. Draw the front view and the sectional top view. | 12M |

OR

| Q.4(B) | A hexagonal prism of side of base 30 mm and axis 70 mm long is resting on its base on H.P. such that the base edge is parallel to V.P. It is cut by a cutting plane inclined at 30^0 to H.P and perpendicular to V.P. The cutting plane is bisecting the axis of the hexagonal prism. Draw the development of the lateral surface of the cut prism. | 12M |

| Q.5(A) | A Vertical square prism base 50mm side, is completely penetrated by a horizontal square prism, base 35mm side, so that their axes intersect. The axis of the horizontal prism is parallel to the V.P., while the faces of the two prisms are equally inclined to the V.P. Draw the projections of the solids, showing lines of intersection. (Assume suitable lengths for the prisms). | 12M |

OR

| Q.5(B) | Draw the front view, top view and side view of the above figure. | 12M |

*** END***