

**MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE**

(UGC-AUTONOMOUS)

**B.Tech I Year II Semester Regular & Supplementary End Semester Examinations – May 2017**

(Regulations: R14)

**TECHNICAL REPORT WRITING**

(Common to All Branches)

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. How do you ensure that your communication is successful? 1M
  - ii. Define the term 'Grapevine' in one or two sentences? 1M
  - iii. What is Intensive reading skill? 1M
  - iv. In what way bar charts and pie charts contribute to reading? 1M
  - v. List out five basic elements of effective writing? 1M
  - vi. Correct the following sentence in a business letter. 1M  
Please send the latest files to Abraham and I.
  - vii. Choose the correct answer: 1M  
Presentation of routine information is called as -----report  
a. Routine b. Special c. Informational d. Analytical
  - viii. How do you draw conclusion in a report? 1M
  - ix. Explain in one or two sentences the importance of proof reading? 1M
  - x. What is the other way to frame the question, (Be precise) 1M  
"Give your age on 1<sup>st</sup> April 1999 -- -- years"
- 
- Q.2(A) What is communication process? What are the variables involved in communication process? 10M
- OR**
- Q.2(B) Explain the different types of formal communication networks? 10M
- 
- Q.3(A) What are the strategies involved in reading? 10M
- OR**
- Q.3(B) Our society is built with money for mortar; money is present in every point of circumstance. It might be named the social atmosphere, since in society it is by that men alone can continue to live and only through that they can reach or affect one another. Money gives us food, shelter and privacy; it permits us to be clean in person, opens for us the doors of the theatre, gains us books for study or pleasure, enables us to help the distresses of others and puts us above necessity so that we can choose the best of life. If we have scruples, it gives us an opportunity to be honest; if we have any bright designs, here is what will smooth the way to their accomplishment. Penury is the worst slavery and will soon lead to death. But money is only a means; it pre-supposes a man to use it. The rich man can go where he pleases, but perhaps pleases himself nowhere. He can buy a library or visit the whole world but has neither patience to read nor intelligence to see. The table may be loaded and the appetite wanting; the purse may be loaded and the heart empty. He may have gained the world and lost himself, with all his wealth around him in a great house. Without an appetite, without an aspiration, void of appreciation, bankrupt of desire and hope, 10M

there in his great house let him sit and look at his finger. It is perhaps more fortunate to have a taste of collecting shells than to be born a millionaire. Although neither is to be despised, it is always a better policy to learn an interest than to make a thousand pounds, for the money will soon be spent or perhaps you may feel no joy in spending it, but interest remains imperishable and ever now.

### Questions

1. Why does the writer give preference to collecting shells than to be born a very rich man?
2. What is the source of mutual relations in the world?
3. How does money give us the opportunity to choose the best of life?
4. Why does the writer consider the poverty as the worst slavery?
5. Why is it not possible for the rich man to enjoy his riches?

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Q.4(A) You are Abhay Dagar of Winston Book Centre, Mumbai, who sells university books on science and technology. Write a letter to the sales manager of Rocket publications in Delhi asking for their catalogue and enquiring about the possibility of being their distributor for the southern zone. 10M

OR

Q.4(B) Draft the role of engineers and the importance of engineering studies in 250-300 words. 10M

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Q.5(A) You are District Education Officer for Chittoor district in Andhra Pradesh. You have been directed by the secretary, Department of School education (DSE) to study and evaluate for June 2015-May 2016, the achievement of the objectives of the district's primary education programme given below. Follow the sample to write the report. 10M

- Making admissions available to all children from the age of five
- Making sure that children do not drop out from school.
- Providing lunch to children under the mid-day meal scheme in primary schools run by the government and aided managements.
- Supplying free text books to children of classes 1 to 5.
- Providing in-service training to primary teachers.

OR

Q.5(B) You, the Director of Consumer Studies Forum, Wishy Washy soaps have been asked by the marketing manager of the company to make a study of the consumer reaction to their detergent soap and also suggest measures to improve the image and the sales of their product. Draft a report of the study. 10M

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Q.6(A) You have designed your company's website. You are asked to prepare a report on the customer's satisfaction of your website. Prepare a questionnaire in order to know the audience satisfaction of your company's website. 10M

OR

Q.6(B) Your department has designed a new course in the university. Students have undertaken this course for a semester. The management wishes to study the student's response regarding the various aspects of the course. Prepare a questionnaire regarding this. 10M

\*\*\* END\*\*\*

## MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year II Semester Regular & Supplementary End Semester Examinations – May 2017

(Regulations: R14)

### Engineering Physics

(Common to All)

Time: 3Hrs

Max Marks: 60

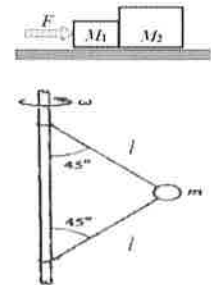
Attempt all the questions. All parts of the question must be answered in one place only.  
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either Part-A or B only

- Q.1
- i.  $\hat{r}$  and  $\hat{\theta}$  represent unit vectors in polar coordinate system. What is  $\hat{r} \cdot \hat{\theta}$ . 1M
  - ii. If an object has a mass of 100 kg, what is its weight? 1M
  - iii. Find the center of mass of a system of two masses 1 Kg and 2 Kg located at (0,1) and (1,0) respectively. 1M
  - iv. What is the law conservation of linear momentum? 1M
  - v. State work energy theorem? 1M
  - vi. What is the kinetic energy of the simple pendulum executing S.H.M at the mean position and extreme position? 1M
  - vii. Define standing wave ratio (SWR). 1M
  - viii. How the phase difference and path difference is related? 1M
  - ix. What are the conditions for interference? 1M
  - x. Give an example for interference formed by division of amplitude? 1M

- Q.2(A)
- i) State and explain scalar product of two vectors with an example. 4M
  - ii) If  $\vec{A} = \hat{i} + \hat{j} + 3\hat{k}$ ,  $\vec{B} = 2\hat{i} - 2\hat{j} + 6\hat{k}$  and  $\vec{C} = 4\hat{i} + 2\hat{j} - 4\hat{k}$ . Calculate a) unit vector along the direction of  $(\vec{A} + \vec{B} + \vec{C})$  and b)  $(3\vec{B} \times 2\vec{A}) \times \vec{C}$ . 6M

OR

- Q.2(B)
- i) Two blocks are in contact on a horizontal table. A horizontal force is applied to one of the blocks, as shown in the drawing. If  $M_1 = 1$  kg,  $M_2 = 2$  kg, and  $F = 3$  N, find the force of contact between the two blocks. 4M
  - ii) A mass  $m$  is connected to a vertical revolving axle by two strings of length  $l$  each making an angle of  $45^\circ$  with the axle, as shown. Both the axle and mass are revolving with angular velocity  $\omega$ . Gravity is directed downward. Find tension in the upper string and lower string. 6M



- Q.3(A) Derive rocket equation and discuss the motion of a rocket under a constant gravitational field? 10M

OR

- Q.3(B) Consider the one-dimensional elastic collision of two balls of masses  $m_1$  and  $m_2$ , with  $m_2 = 3m_1$ . Suppose that the balls have equal and opposite velocities  $v$  before the collision; find the final velocities. 10M

- Q.4(A) i) State and prove parallel axis theorem? 7M  
 ii) Obtain the expression for moment of inertia of uniform thin stick of mass  $M$ , length  $L$ , axis through the midpoint and perpendicular to the stick. 3M

OR

- Q.4(B) i) The displacement of a simple harmonic oscillator is given by  $x = A \sin(\omega t + \phi)$ . If the oscillation started at time  $t=0$  from a position  $x_0$  and  $v_0$ , show that  $A = \left(x_0^2 + \frac{v_0^2}{\omega^2}\right)^{1/2}$  and  $\tan\phi = \frac{\omega x_0}{v_0}$ . 4M

ii) Derive the differential equation of damped harmonic oscillations. 6M

- Q.5(A) Two vibrations at right angles to one another are described by the equations  $x = 5 \cos(\omega_1 t)$  and  $y = 5 \cos(\omega_2 t)$ . Construct the Lissajous figure of the combined motion with the frequency i)  $\omega_1 = \omega_2$  and ii)  $\omega_1 = 2\omega_2$  10M

OR

- Q.5(B) i) Find the beat period for given two vibrations along the same line  
 $X_1 = A \cos 12\pi t$  and  $X_2 = A \cos 10\pi t$ . 2M  
 ii) Obtain the relation between the phase velocity and group velocity. 6M  
 iii) A wavelength of a wave is 4 meters. How far apart are two points whose displacements are  $60^\circ$  apart in phase? 2M

- Q.6(A) i) Describe and explain the formation of Newton's rings. Prove that 8M  
 a) diameters of dark rings are proportional to the square root of natural numbers.  
 b) diameters of bright rings are proportional to the square root of odd natural numbers.  
 ii) Find diameter of 10<sup>th</sup> Newton's ring using source of wavelength  $6250 \text{ \AA}$  and radius of curvature of plano convex lens 100 cm. 2M

OR

- Q.6(B) i) What is grating element? With a neat diagram, describe Fraunhofer diffraction due to multiple slits or grating. 10M

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**MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE**

(UGC-AUTONOMOUS)

B.Tech I Year II Semester (R14) Regular &amp; Supplementary End Semester Examinations –May 2017

**ENGINEERING CHEMISTRY**

(Common to All Branches)

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

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|-----------|---|----------|
| Q.1       | i. Define ion exchange resins.  | 1M       |
|           | ii. What is chlorination?   | 1M       |
|           | iii. Define Second Law of thermodynamics.   | 1M       |
|           | iv. Write the Arrhenius equation and define all terms.  | 1M       |
|           | v. Give an example for the addition reaction.   | 1M       |
|           | vi. Write the structure of Nylon 66.  | 1M       |
|           | vii. Define galvanic cell.  | 1M       |
|           | viii. Explain the working principle of Hydrogen – Oxygen fuel cells.  | 1M       |
|           | ix. What is initial and final setting time of cement?   | 1M       |
|           | x. What are the characteristics of a good lubricant?  | 1M       |
|           |   |          |
| Q.2(A)    | What are ion-exchange resins? How will you purify water by using them?  | 10M      |
| <b>OR</b> |   |          |
| Q.2(B)    | Write a note on estimation of dissolved oxygen in water.  | 10M      |
|           |   |          |
| Q.3(A)    | i) Calculate the work of expansion accompanying the complete combustion of 1.0 g of glucose to carbon dioxide and (a) liquid water, (b) water vapor at 20°C when the external pressure is 1.0 atm.  | 5M       |
|           | ii) The change in Gibbs energy that accompanies the oxidation of C <sub>6</sub> H <sub>12</sub> O <sub>6</sub> (s) to carbon dioxide and water vapor at 25°C is -2828 kJ mol <sup>-1</sup> . How much glucose does a person of mass 65 kg need to consume to climb through 10 m?                    | 5M       |
| <b>OR</b> |   |          |
| Q.3(B)    | The decomposition of aqueous hydrogen peroxide to gaseous oxygen and water is a first-order reaction. If it takes 6.5 hours for the concentration of H <sub>2</sub> O <sub>2</sub> to decrease from 0.70 to 0.35, how many hours are required for the concentration to decrease from 0.40 to 0.10 ? | 10M      |
|           |   |          |
| Q.4(A)    | Describe the Principle and Instrumentation of Infrared spectroscopy   | 10M      |
| <b>OR</b> |   |          |
| Q.4(B)    | Write a short note on<br>a. Thermoplastics (4M)    b. Polyurethane (3M)    c. Bakelite (3M)   | 10M      |
|           |   |          |
| Q.5(A)    | Explain in detail (i) Ni – Cd and (ii) Lithium ion batteries and their significant uses.  | 10M      |
| <b>OR</b> |   |          |
| Q.5(B)    | Give an account on<br>a. Corrosion control methods (6M)    b. Protective coatings (4M)  | 10M      |
|           |   |          |
| Q.6(A)    | (i) Write a note on flash and pour points.<br>(ii) Discuss the important functions of lubricants.   | 5M<br>5M |
| <b>OR</b> |   |          |
| Q.6(B)    | What are nanoparticles? Explain the sol-gel method for the synthesis of nanoparticles.  | 10M      |

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**MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE**

(UGC-AUTONOMOUS)

**B.Tech I Year II Semester Regular & Supplementary End Semester Examinations – May 2017**

(Regulations: R14)

**LINEAR ALGEBRA & COMPLEX ANALYSIS**

(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. Define rank of a matrix. 1M
  - ii. Write any two properties of a vector space. 1M
  - iii. Define Range of a linear transformation. 1M
  - iv. Find the Eigen values of  $\begin{bmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{bmatrix}$  1M
  - v. If  $z_1 = 3 - 2i$  and  $z_2 = 1 + i$  then find  $z_1 + z_2$  1M
  - vi. When can you say that a given function is continuous? 1M
  - vii. Define a singular point. 1M
  - viii. Write the statement of Morera's theorem. 1M
  - ix. Determine the poles of the function  $\cot z$  1M
  - x. State Cauchy-Residue theorem 1M

- 
- Q.2(A) i) Solve the system of linear equations: 5M  
 $5x + 3y + 7z = 4, \quad 3x + 26y + 2z = 9, \quad 7x + 2y + 10z = 5.$

- ii) Find the inverse of  $A = \begin{pmatrix} 2 & 1 & 1 \\ 0 & 1 & 0 \\ 1 & 1 & 2 \end{pmatrix}$  by the method of inverse. 5M

**OR**

- Q.2(B) Find the rank of the matrix  $\begin{pmatrix} -1 & -3 & 3 & -1 \\ 1 & 1 & -1 & 0 \\ 2 & -5 & 2 & -3 \\ -1 & 1 & 0 & 1 \end{pmatrix}$  10M

- 
- Q.3(A) Let  $L: R^3 \rightarrow R^3$  given by  $L \left( \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} \right) = \begin{bmatrix} 1 & -1 & 5 \\ -2 & 3 & -13 \\ 3 & -3 & 15 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix}$ . Find a basis for  $\ker(L)$  and a basis for  $\text{Range}(L)$ . Verify that  $\dim(\ker(L)) + \dim(\text{Range}(L)) = \dim(R^3)$  10M

**OR**

Q.3(B) Find the Eigen values and the corresponding Eigen vectors for

10M

$$A = \begin{bmatrix} 8 & -6 & 2 \\ -6 & 7 & -4 \\ 2 & -4 & 3 \end{bmatrix}$$

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Q.4(A) Find the derivative of  $w = f(z) = z^3 - 2z$  at the point by using the definition of derivative. Where i)  $z = z_0$  ii)  $z = 1$ . iii)  $z = 2i$ . 10M

OR

Q.4(B) Verify Cauchy-Riemann equations at  $z = (0,0)$  for the function defined by 10M

$$f(z) = \begin{cases} \bar{z}^2, & \text{when } z \neq 0 \\ 0, & \text{when } z = 0 \end{cases}, \text{ yet } f'(0) \text{ doesn't exist.}$$

---

Q.5(A) i. Find all values of  $\tan^{-1}(2i)$  5M

ii. Find all roots of the equation  $\sin z = 2$  5M

OR

Q.5(B) Evaluate  $\int_c \frac{z+4}{z^2+2z+5} dz$  where  $c$  is the circle i)  $|z+1-i| = 2$  ii)  $|z+1+i| = 2$  10M

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Q.6(A) i. State and prove Liouville's theorem. 8M

ii. Find the residue at  $z = 0$  of the function  $\frac{z - \sin z}{z}$  2M

OR

Q.6(B) Give two Laurent series expansions in powers of  $z$  for the function  $f(z) = \frac{1}{z^2(1-z)}$  10M  
and specify the regions in which those expansions are valid.

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## MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

**B.Tech I Year II Semester Regular & Supplementary End Semester Examinations – May 2017**

(Regulations: R14)

**COMPUTER PROGRAMMING**

(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. Define keyword.	1M
	ii. Write syntax for ternary operator in C.	1M
	iii. Define function.	1M
	iv. What is pointer?	1M
	v. What is the meaning of 0, '0' and "0" ?	1M
	vi. Write syntax for fseek function.	1M
	vii. What is an object	1M
	viii. What are advantages of arrays?	1M
	ix. Define data structure.	1M
	x. What are different types of queues?	1M
<hr/>		
Q.2(A)	i) Differentiate between while and do-while statements with example.	5M
	ii) Distinguish between break and continue statements with example.	5M
<b>OR</b>		
Q.2(B)	What is a token? Explain different kinds tokens in C.	10M
<hr/>		
Q.3(A)	Explain bubble sort with example. Write a C program to implement bubble sort.	10M
<b>OR</b>		
Q.3(B)	i) Explain different storage classes in C	5M
	ii) Write a C program to print elements of an array in reverse order.	5M
<hr/>		
Q.4(A)	i) What is a string? Explain different ways of initializing string variables.	5M
	ii) What is a structure? Compare arrays and structures.	5M
<b>OR</b>		
Q.4(B)	Define structure? Write a C program to find the student grade by using structures.	10M
<hr/>		
Q.5(A)	i) What is inheritance? Explain different types of inheritance with suitable examples.	5M
	ii) Analyze the use of public, private and protected access controls in C++.	5M
<b>OR</b>		
Q.5(B)	What is constructor? Explain different forms of constructors with examples.	10M
<hr/>		
Q.6(A)	Write a C program using functions to implement various stack operations.	10M
<b>OR</b>		
Q.6(B)	i) Explain classification of data structures.	5M
	ii) Write a function to count number of nodes in a linked list.	5M

\*\*\* END\*\*\*



Hall Ticket No:

Question Paper Code:14EEE12T01

# MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year II Semester Regular & Supplementary End Semester Examinations – May / June 2017

(Regulations: R14)

## BASIC ELECTRICAL & ELECTRONICS ENGINEERING

(Common to All)

Time: 3Hrs

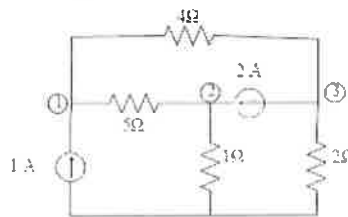
Max Marks: 60

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 Part-A or B only

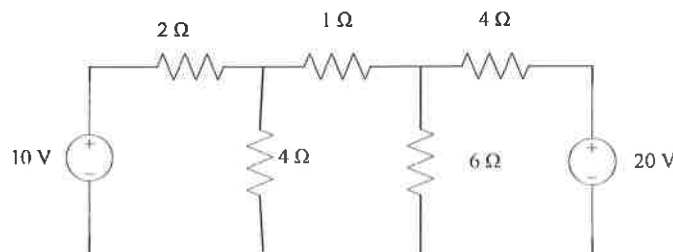
- Q.1
- Two resistors of resistance values  $2\Omega$  and  $4\Omega$  are connected in parallel across a voltage source  $10V$ , calculate current delivered by source. 1M
  - Define KCL? 1M
  - Draw the phasor diagram of voltage and current in a pure capacitor? 1M
  - What is the relationship between line currents and phase currents, Line voltages and phase voltages in case of star type of three phase connection? 1M
  - Write the relationship between B and H. 1M
  - Define Voltage regulation of a transformer? 1M
  - Classify the types of DC generators depending on connection of field winding to the armature winding? 1M
  - A synchronous motor having 4 poles and operating with a frequency of  $50Hz$ . Calculate its speed. 1M
  - What is forward bias of a diode? 1M
  - Draw the circuit symbol of NPN transistor. 1M

- Q.2(A) In the network shown below find the current and voltage drops through  $5\Omega$  resistor using nodal analysis? 10M

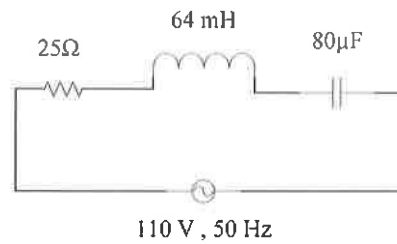


OR

- Q.2(B) Calculate current through  $6\Omega$  resistance using Mesh analysis 10M



- Q.3(A) A series circuit consists of  $25\ \Omega$  resistor,  $64\text{mH}$  inductor,  $80\ \mu\text{F}$  capacitor is connected to a  $110\ \text{V}$ ,  $50\ \text{Hz}$ , single phase supply as shown in figure. Calculate the current, voltage across individual element and overall p.f? 10M



**OR**

- Q.3(B) A  $50\text{Hz}$  sinusoidal voltage  $v = 311 \sin \omega t$  is applied to a RL series circuit. If the magnitude of resistance  $5\ \Omega$  and that of inductance  $0.02\text{H}$ . 10M
- Calculate the r.m.s. or effective value of steady state current and relative phase angle
  - Obtain the expression for the instantaneous current
  - Compute the effective magnitude and phase of voltage drops appearing across each circuit element.

- 
- Q.4(A) Draw the equivalent circuits of a single-phase transformer as referred to 10M
- Primary side and
  - Secondary side.

**OR**

- Q.4(B) Drive the EMF equation of transformer 10M

- 
- Q.5(A) Explain the construction and operation of induction motor 10M

**OR**

- Q.5(B) Explain the armature reaction in DC machines? 10M

- 
- Q.6(A) Write in detail about the operation of full-wave rectifier, with a neat diagram. 10M

**OR**

- Q.6(B) With the volt-ampere characteristics, explain the working principle of the P-N junction diode. 10M

**\*\*\* END\*\*\***

**MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE**

(UGC-AUTONOMOUS)

B.Tech I Year II Semester Regular &amp; Supplementary End Semester Examinations – May / June 2017

(Regulations: R14)

**Engineering Graphics**

(Mechanical Engineering)

Time: 3Hrs

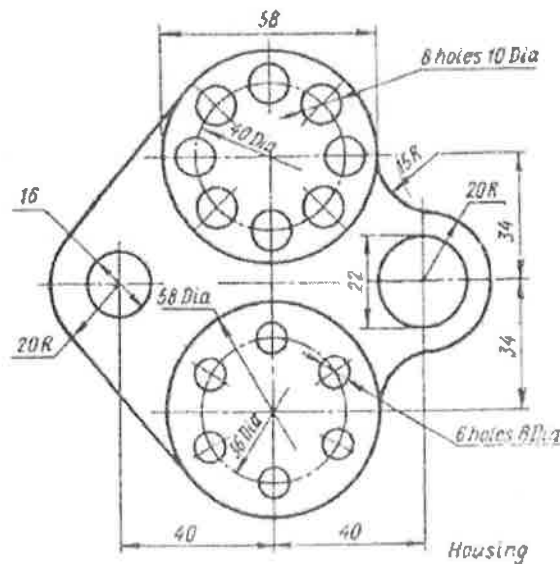
Max Marks: 60

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)

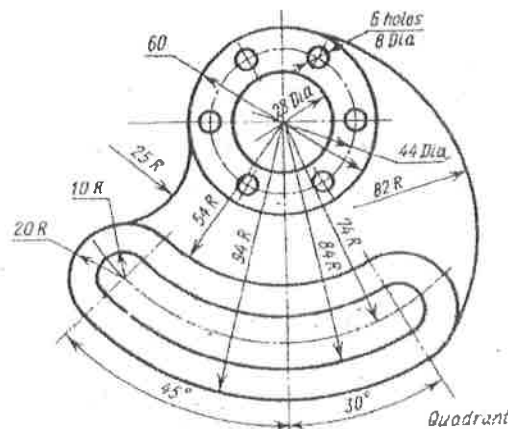
12M



OR

Q.1(B)

12M



Q.2(A) Draw the projections of the following points on the same line PQ, keeping the distance between the projectors is 25 mm. Name the quadrant.

Point A, on HP and 40mm in front of VP

3M

Point B, 55 mm above the HP and 55mm behind the VP

3M

Point C 50 mm below the HP and 50 mm in front of VP

3M

Point D, 50 mm above HP on VP

3M

OR

Q.2(B) Draw the projections of line AB, 75 mm long has its end A 35 mm above HP and 20 mm in front of VP. It is inclined at an angle of  $50^\circ$  to HP and  $40^\circ$  to VP. 12M

Q.3(A) A circular plate of 50 mm diameter appears as an ellipse in the front view, having its major axis 50 mm long and minor axis 30 mm long. Draw the top view, when the major axis of the ellipse is horizontal. 12M

OR

Q.3(B) A pentagonal pyramid, base 25 mm side and axis 50 mm long has one its triangular faces in the VP and the edge of the base contained by that face makes an angle of  $30^\circ$  with the HP. Draw its projections. 12M

Q.4(A) A cube of side 40 mm, is resting on HP on one of its faces, with a vertical face inclined at  $45^\circ$  to HP and passing through the axis at 8 mm from the top surface. Draw the front view, sectional top view and true shape of the section. 12M

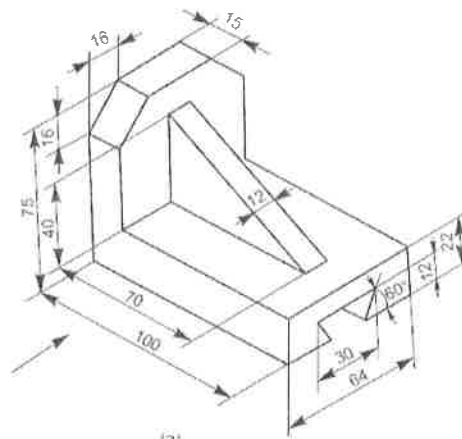
OR

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

Q.5(A) A vertical cylinder of 60 mm diameter is penetrated by another cylinder of 60 mm diameter. The axes of the two cylinders are intersecting at right angles. Draw the projections of the two cylinders, showing the lines of intersection. Assume suitable length of the cylinder. 12M

OR

Q.5(B) 12M



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# MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year II Semester Regular &amp; Supplementary End Semester Examinations – May / June 2017

(Regulations: R14)

## Engineering Graphics

(Mechanical Engineering)

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

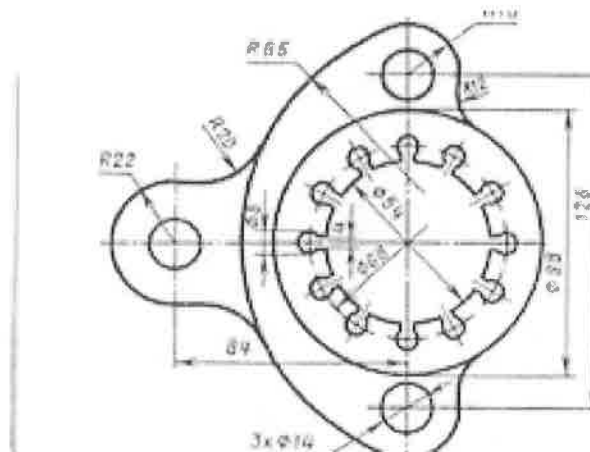
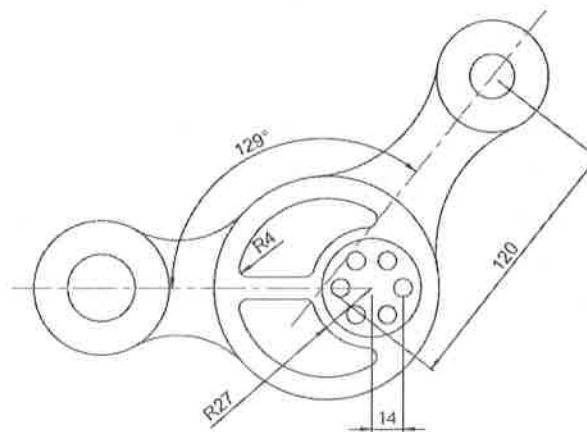
Q.1(A)

12M

OR

Q.1(B)

12M



- Q.2(A) (i) A point A is 15 mm above HP and 20 mm in front of VP. Another point B is 25 mm behind VP and 40 mm below HP. Draw the projections of A & B, keeping the distance between the projectors equal to 90. Draw straight lines, joining (i) the top views and (ii) the front views. 6M
- (ii) A point A is on HP and 40 mm in front of VP. Another point B is on VP and below HP. The line joining their front views makes an angle of  $45^\circ$  with  $xy$ , while the line

joining their top views makes an angle of  $30^\circ$ . Find the distance of the point B from HP. 6M

OR

Q.2(B) A line CD of length 65 mm is inclined at  $45^\circ$  to HP and  $30^\circ$  to VP. The end D is 50 mm above HP and 45 mm in front of VP. Draw the projections of the line and locate its traces. 12M

Q.3(A) A regular pentagonal lamina of 30 mm base edges rests on one of its corner on HP. Draw its projections when the surface of the plate makes  $60^\circ$  with HP and the top view of the diagonal passing through that corner on HP makes  $45^\circ$  with the reference line. 12M

OR

Q.3(B) A thin hexagonal plate of side 30 mm is touching VP on one of its corner. Draw its projections when the surface makes  $45^\circ$  with VP and the front view of the diagonal passing through the corner resting on VP, makes  $30^\circ$  with the reference line. 12M

Q.4(A) A hexagonal prism of 30 mm base edges and axis 70 mm long is resting on one of its corner. Corner is inclined at  $30^\circ$  to HP. Draw its projections when the vertical plane through its axis makes an angle of  $60^\circ$  with the VP. 12M

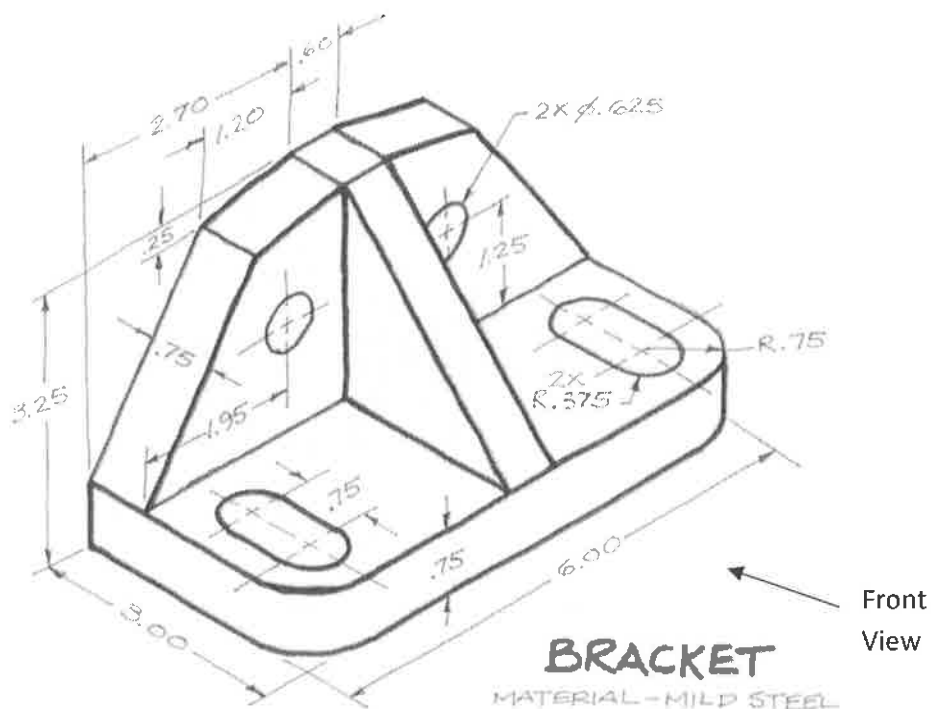
OR

Q.4(B) A cone of diameter 50 mm and altitude 55 mm rests on its base on the HP. It is sectioned by a plane perpendicular to both HP and the VP and is placed at 10 mm to the left of the axis. Draw the top view, front view and sectional end view. 12M

Q.5(A) 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

OR

Q.5(B) 12M



\*\*\* END\*\*\*



Hall Ticket No:

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Question Paper Code: 14ME11T01

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

B.Tech I Year II Semester Regular & Supplementary End Semester Examinations – May / June 2017  
(Regulations: R14)

**Engineering Graphics**  
(Common to CE, EEE)

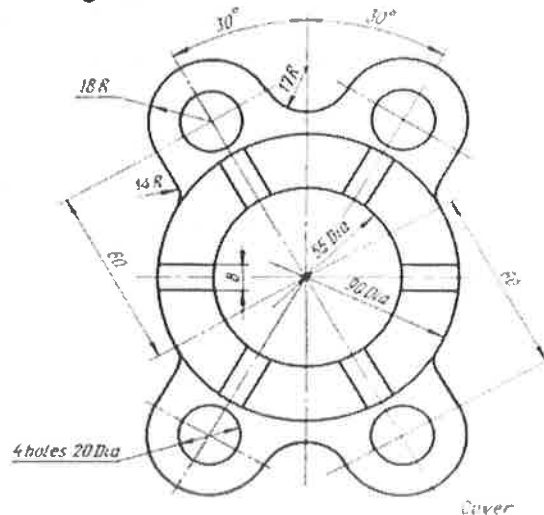
Time: 3Hrs

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 1 to 5 answer either Part-A or B only

Q.1(A) Draw the given figure using Auto CAD commands

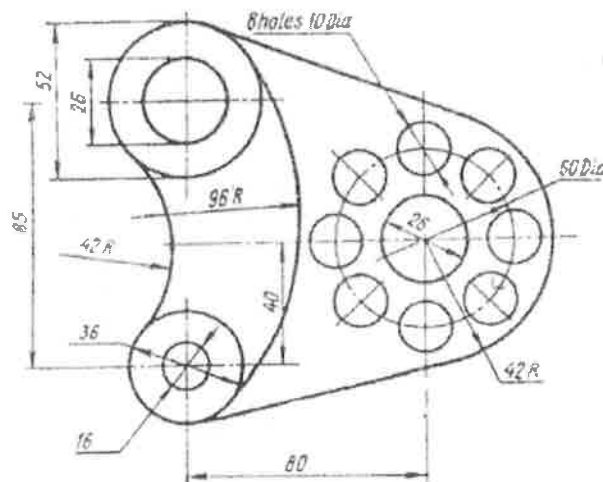
12M



OR

Q.1(B) Draw the following figure using Auto CAD commands

12M



Q.2(A) A point P is 15mm from both the reference planes. Draw the projections of the points in possible positions and state the quadrants in which they lie.

12M

OR

Q.2(B) A line CD, 90mm long, measures 72mm in front view and 65mm in top view. Point C is 20 mm above HP and 15 mm in front of VP. Draw its projections and determine the true inclinations of the line.

12M

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

OR

Q.3(B) A Pentagonal Prism having its base edge 25 mm and axis 60mm long is resting on an edge of its base in the H.P and one of its side is perpendicular to VP. The axis of the solid is inclined at an angle of  $50^\circ$  to H.P and parallel to V.P. Draw its projections. 12M

Q.4(A) A cone of base diameter 50mm and axis 60mm is resting on its base on the H.P. It is cut by a section plane perpendicular to VP and inclined at  $45^\circ$  to the HP and passing through the midpoint of the axis. Draw the development of its lateral surface. 12M

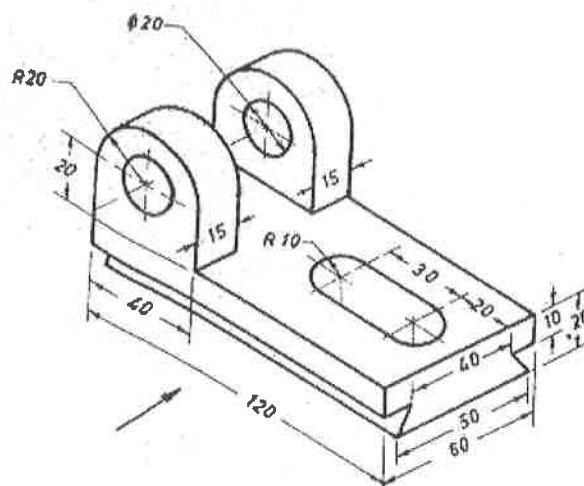
OR

Q.4(B) A square prism side of base 40mm is resting on the HP. One of its side is inclined at  $45^\circ$  to VP. It is cut by a section plane inclined at  $40^\circ$  to HP and perpendicular to VP passing through the point 15 mm above its base. Draw the front view and the sectional top view. 12M

Q.5(A) A vertical square prism, base 50mm side and height 90mm has a face inclined at  $45^\circ$  to the VP. It is completely penetrated by another square prism, base 40mm side and 100mm long, faces of which are equally inclined to the VP. The axes of the two prisms are parallel to the VP and bisect each other at right angles. Draw the projections showing lines of the intersection. 12M

OR

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



\*\*\* END\*\*\*

Hall Ticket No:

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Question Paper Code: 14ME11T01

# MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year II Semester Regular &amp; Supplementary End Semester Examinations – May / June 2017

(Regulations: R14)

## Engineering Graphics

(Common to CE, EEE)

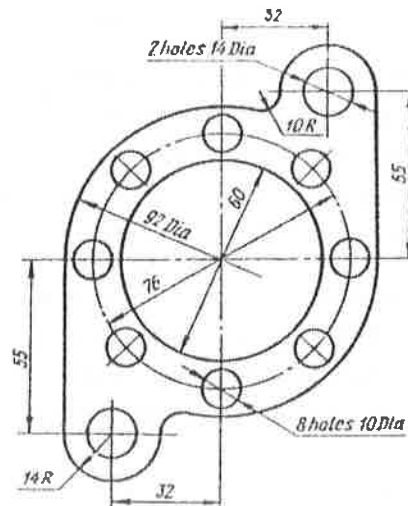
Time: 3Hrs

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 1 to 5 answer either Part-A or B only**

Q.1(A) Draw the following figure using Auto CAD commands

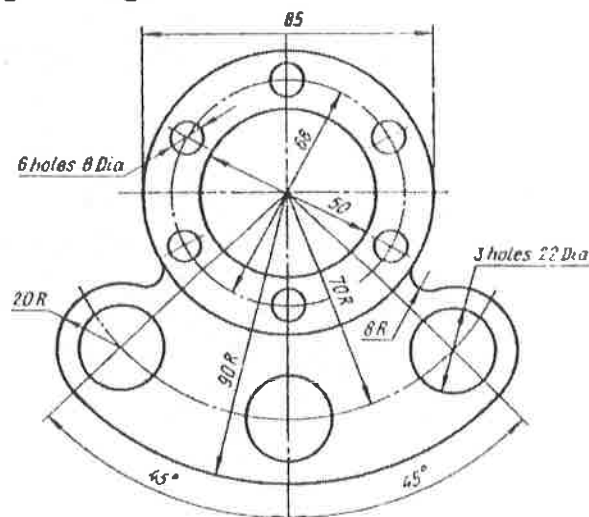
12M



OR

Q.1(B) Draw the following figure using Auto CAD commands

12M



Q.2(A) i. A point M is 15mm above H.P, 10mm in front of V.P and 10mm in front of P.P. 6M  
 Draw front view, top view and left side view of the point.

ii. Two points M and N lie in the VP. The point M is above the HP and the point N is 6M  
 40mm below the HP. The perpendicular distance between their projectors is  
 60mm. The line joining the front views makes  $60^\circ$  with XY. Draw the projections of  
 the points. Find the height of point M from the HP.

OR

Q.2(B) A line AB, 50mm long, has its ends A in the both the HP and the VP. It is inclined at  $30^\circ$  to the HP and at  $45^\circ$  to the VP. Draw its projections. 12M

Q.3(A) A semicircular plane of 60 mm diameter with its surface inclined at  $60^\circ$  to the VP. Its straight edge is in the VP and inclined to the HP at  $45^\circ$ . Draw its views. 12M

OR

Q.3(B) A Hexagonal Pyramid 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  $45^\circ$  to H.P. Draw its projections. 12M

Q.4(A) A pentagonal prism of base side 30mm and height 70 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  $45^\circ$  to the H.P and passing through the midpoint of the axis. Draw the development of the lateral surface of the truncated prism. 12M

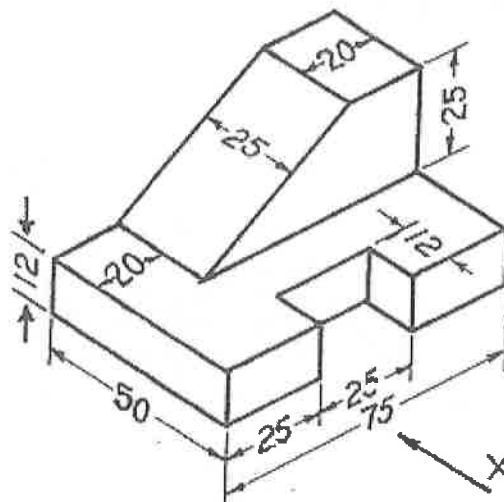
OR

Q.4(B) A cylinder of 40 mm diameter, 60 mm height and having its axis vertical. The base is resting on the HP. It is cut by a section plane, perpendicular to the VP, inclined at  $45^\circ$  to the HP and passing through the point at the axis 20 mm above the base. Draw its front view, top view and the sectional top view. 12M

Q.5(A) A vertical cylinder, 50mm in diameter and 70 mm in length, is resting on its base, with its axis perpendicular to the HP. It is completely penetrated by another horizontal cylinder 45 mm in diameter and 80 mm in length. The axis of the horizontal cylinder is parallel to the VP and the two axes bisect each other. Draw the projections showing the curves of intersection. 12M

OR

Q.5(B) Draw the front view and top view of the given figure. 12M



\*\*\* END\*\*\*

Hall Ticket No: 

Question Paper Code: 14ME11T01

**MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE**

(UGC-AUTONOMOUS)

B.Tech I Year II Semester Regular &amp; Supplementary End Semester Examinations –May / June 2017

(Regulations: R14)

**Engineering Graphics**

(Common to ALL)

Time: 3Hrs

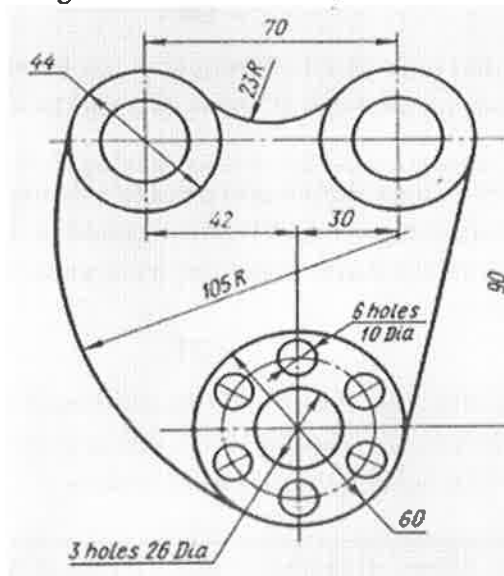
Max Marks: 60

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 given figure using autocad commands.

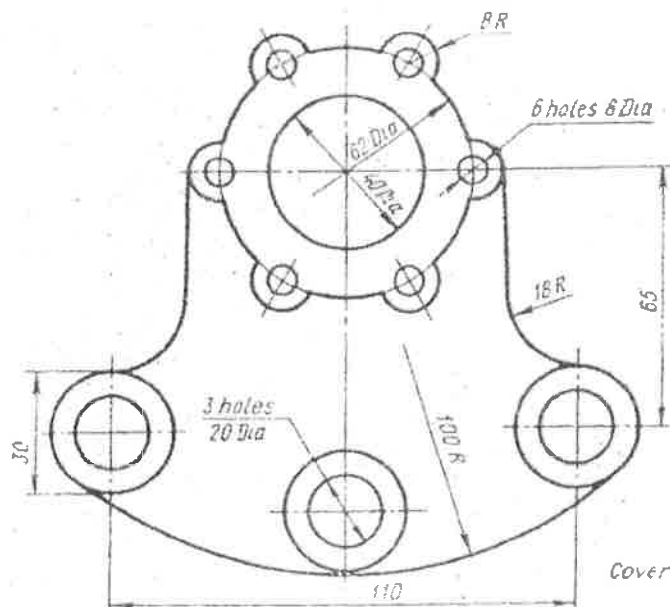
12M



OR

Q.1(B) Draw the above figure using autocad commands.

12M



- Q.2(A) i. A point A is 2.5 cm above HP and 3 cm in front of VP. Draw its projections. 3M  
 ii. A point A is 2 cm below HP and 4 cm behind VP. Draw its projections. 3M  
 iii. Two points A & B are in HP. The point A is 30 mm in front of VP, while B is behind VP. The distance between their projectors is 75 mm and the line joining their top views makes an angle of  $45^\circ$  with XY. Find the distance of point B from VP. 6M

OR

- Q.2(B) A line AB 80mm long is inclined  $30^\circ$  to HP and  $45^\circ$  to VP. 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 hexagonal plate of negligible thickness having 30mm edge length is resting on one of its side on HP. The surface makes an inclination of  $30^\circ$  to HP and resting side makes an inclination of  $60^\circ$  to VP. Draw the projection of the plate. 12M

OR

- Q.3(B) A Hexagonal Pyramid of Base side 30mm and axis 60mm is lying on a slant edge on the H.P with the axis parallel to V.P. Draw its projections. 12M

- Q.4(A) A cylinder diameter of base 40mm and axis 60mm long is resting on its base on HP. A section plane perpendicular to VP and inclined at  $45^\circ$  to HP cuts the axis at a height of 30mm from the base. Draw the front view, sectional Top view and true shape of the section. 12M

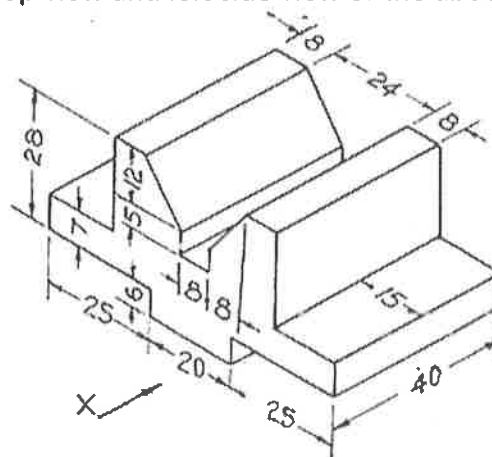
OR

- Q.4(B) A square pyramid with side of base 30mm and height 60 mm is resting on its base with its one base side perpendicular to VP. The section plane is inclined at an angle of  $45^\circ$  to the HP and is cutting the axis at its midpoint. Draw the development. 12M

- Q.5(A) A vertical cylinder, 50mm in diameter and 70 mm in length, is resting on its base, with its axis perpendicular to the HP. It is completely penetrated by another horizontal cylinder 45 mm in diameter and 80 mm in length. The axis of the horizontal cylinder is parallel to the VP and the two axes bisect each other. Draw the projections showing the curves of intersection. 12M

OR

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



\*\*\* END\*\*\*

Hall Ticket No:

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Question Paper Code: 14ME11T01

# MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year II Semester Regular &amp; Supplementary End Semester Examinations –May / June 2017

(Regulations: R14)

## Engineering Graphics

(Common to ALL)

Time: 3Hrs

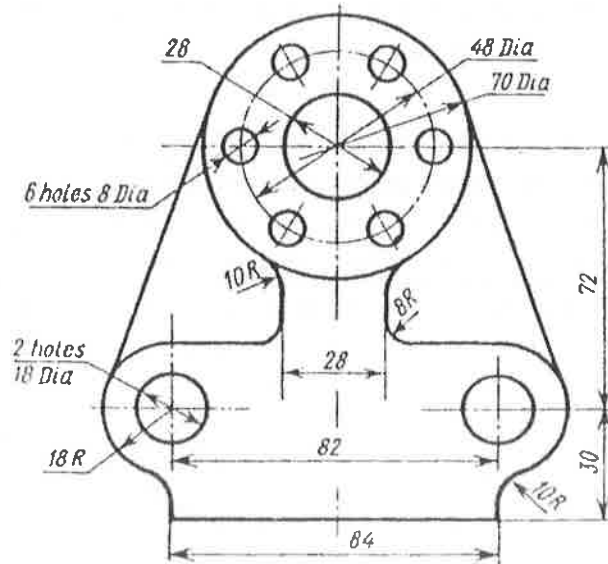
Max Marks: 60

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 figure below using Auto CAD commands

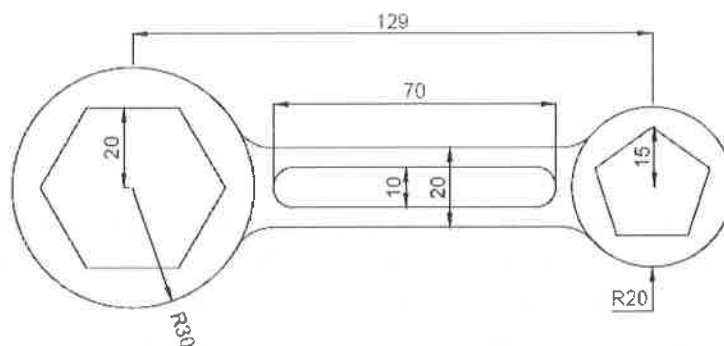
12M



OR

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

12M



Q.2(A) Draw the projections of the following points on the same ground line, keeping the projectors 20mm apart. 12M

- Point A, in the V.P. and 60mm above the H.P.
- Point B, 45mm below the H.P. and 45mm behind the V.P.
- Point C, 25mm above the H.P. and 0mm behind the V.P.
- Point D, 40mm below the H.P. and 45mm in front of the V.P.

OR

Q.2(B) A line AB measuring 70mm has its end A 20mm above H.P and 15mm in front of V.P and the other end B is 60mm in front of V.P and 50mm above H.P. Draw the projections of the line and find the inclinations of the line. 12M

Q.3(A) A thin circular plate of 50 mm diameter is resting on its circumference such that its plane is inclined  $40^\circ$  to the H.P. and  $45^\circ$  to the V.P. Draw the projections of the plate. 12M

OR

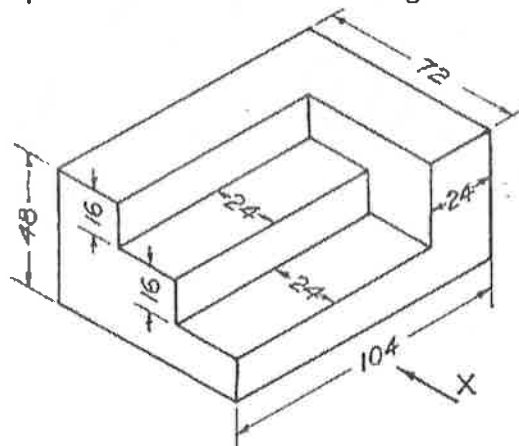
Q.3(B) A hexagonal prism with side of base 40mm and axis 100mm long is resting with an edge of its base on H.P., such that the rectangular face containing that edge is inclined at  $30^\circ$  to HP. Draw the projections of the prism when its axis is parallel to V.P. 12M

Q.4(A) A pentagonal pyramid of base side 40mm and height 60mm is resting on HP on its base. One side of the base is perpendicular to the VP. It is cut by a section plane at 25 mm above the base and is inclined at  $30^\circ$  to the HP. Draw the development of truncated portion of the pyramid. 12M

OR

Q.4(B) A pentagonal prism of base side 30 mm and axis length 60 mm is resting on H.P. on one of its rectangular faces, with its axis perpendicular to V.P. It is cut by a plane inclined at  $50^\circ$  to V.P. and perpendicular to H.P. and passing through a point 25 mm from rear base of the prism. Draw its top view and sectional front view of solid. 12M

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



OR

Q.5(B) A vertical square prism of base 50 mm side is penetrated by a horizontal square prism of base 40 mm side such that, the axes intersect. The axis of the horizontal prism is parallel to VP and the faces are equally inclined to VP. Draw the projections of the two prisms, showing the line of intersection. Assume suitable length of the square prism. 12M

\*\*\* END\*\*\*