

Hall Ticket No:

| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|

Question Paper Code: 14ENG12T02

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year I & II Semester(R14) Regular & Supplementary End Semester Examinations – May 2019

TECHNICAL REPORT WRITING

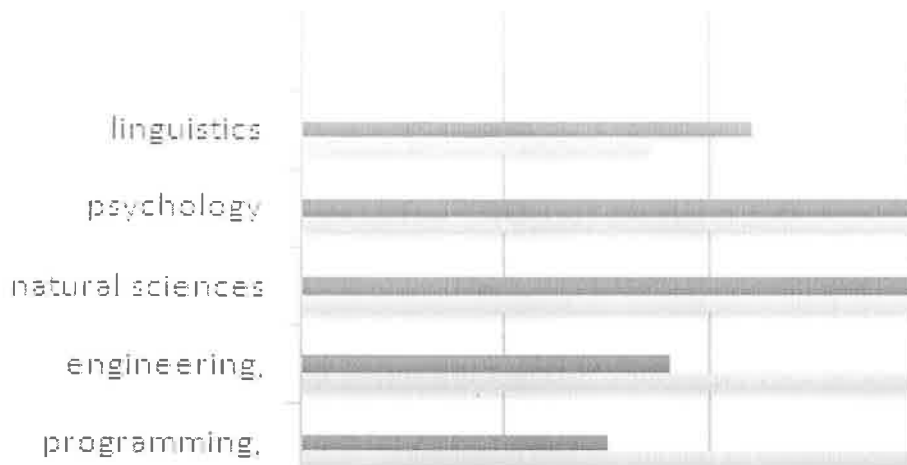
(Common to All)

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. | What is the purpose of bar charts and diagrams? | 1M |
| | ii. | What is the importance of proof reading in technical writing? | 1M |
| | iii. | What is the difference between formal and informal communication? | 1M |
| | iv. | What is scanning? | 1M |
| | v. | Mention a reason for poor reading comprehension | 1M |
| | vi. | Define communication | 1M |
| | vii. | What is the advantage of bias-free writing? | 1M |
| | viii. | What is the difference between primary and secondary data? | 1M |
| | ix. | What is a questionnaire? | 1M |
| | x. | Explain the importance of recommendations in report writing? | 1M |
| <hr/> | | | |
| Q.2(A) | | Suggest the ways to overcome communication barriers | 10M |
| | | OR | |
| Q.2(B) | | Distinguish general and business communication | 10M |
| <hr/> | | | |
| Q.3(A) | | Explain how reading strategies can enhance total comprehension | 10M |
| | | OR | |
| Q.3(B) | | Write in detail about the sources and methods that you can use for collecting data for your report. | 10M |
| <hr/> | | | |
| Q.4(A) | | Write a letter to the principal of your college requesting to start the students club. | 10M |
| | | OR | |
| Q.4(B) | | Explain the characteristics of a good report | 10M |
| <hr/> | | | |
| Q.5(A) | | Assume that your manager wants to introduce a new chocolate. Investigate the situation and write a report so that it should be sold as hot cake in the market. | 10M |
| | | OR | |
| Q.5(B) | | Assume that you have been given the responsibility of admitting foreign students for an Engineering college. Prepare a mail questionnaire to be sent to each student regarding the facilities available in the college. | 10M |
| <hr/> | | | |
| Q.6(A) | | The bar graph below shows the numbers of male and female research students studying six computer science subjects at a US university in 2011. Summarize the information by selecting and reporting the main features, and make comparisons where relevant. Write at least 150 words. | 10M |



OR

Q.6(B) **Read the following passage carefully and answer questions that follow**

10 M

With the recent growth of mass media technology advertising has begun to play a significant role in the national economy. Thousands of people are working to promote the sale of each new product or to boost the sale of a product already in the market. In fact, advertising as an industry now enjoys a respectable status and is regarded by many as a service to society.

The avowed purpose of advertising is to inform the audience and to influence it to buy a particular product. The customer is made aware of goods and services available, their merits, uses and value. Advertising thus helps him in choosing what he actually needs of what he should have to add to his comfort and improve his standard of living. But the sale of a product does not depend on advertisement alone. The quality of a product must be good and its price within the reach of those for whom it is intended. If exaggerated claims are made or the price is too high, advertising, howsoever powerful, will not prove effective.

India's advertising industry is about 75 years old. The British firms in India were the first to make use of advertising for marketing purposes in the beginning of the twentieth century. The advertising agencies opened by them gave an opportunity to the Indian staff to get training and set up their own establishments in due course. The first Indian advertising agency, B.Dattaram and Co., started functioning in 1903.

When India became free, Five-Year Plans were launched, economic activities increased at a tremendous pace. Many new industries were set up and gradually a large number of products, which were imported earlier, began to be manufactured in the country. Under these circumstances naturally advertising received a big boost. Now hordes of specialist agencies have come into existence to look after particular aspects of the advertising industry.

1. What is the main function of advertising?
2. What factors have contributed to the growth of advertising as an industry?
3. Why advertising is considered an important activity of modern activity?
4. Under what conditions can advertising prove effective?
5. Why did the advertising industry in India get a boost after independence?

*** END***

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year I & II Semester (R14) Supplementary End Semester Examinations – MAY 2019**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. Find a unit vector along the direction of the vector $A (2, -3, 4)$. 1M
 - ii. What are the applications of friction? 1M
 - iii. The initial momentum of a system is 15 Kg-m/s. What is the momentum of the system after one hour when there is no external force acting on it. 1M
 - iv. What is the centre of mass of a system of two masses 3Kg and 2Kg located at $(2,0,1)$ and $(1,4,5)$ 1M
 - v. the escape Find the energy needed to eject a 100 Kg spacecraft from the surface of the earth on which velocity is 11.2 Km/s. 1M
 - vi. What is the kinetic Energy of the simple pendulum of mass m in SHM at the extreme position and mean positions? 1M
 - vii. Two vibrations along the same line are described by the equations $Y_1 = A \cos 10\pi t$, $Y_2 = A \cos 12\pi t$. Find the beat period. 1M
 - viii. What do you mean by quality factor of an oscillator 1M
 - ix. What is phase difference equivalent to a path difference of $\lambda/2$? 1M
 - x. Write any two difference between interference and diffraction? 1M

-
- Q.2(A) i). State and explain scalar product of two vectors and write its properties? 7M
- ii). If $\vec{A} = \hat{i} + 2\hat{j} + \hat{k}$, $\vec{B} = 2\hat{i} + 3\hat{j} + \hat{k}$ and $\vec{C} = 2\hat{i} - \hat{j} + 2\hat{k}$ Find $|\vec{A} + \vec{B} + \vec{C}|$ 3M

OR

- Q.2(B) i) The position of a particle is given by $r = A (e^{at} \hat{i} - e^{-at} \hat{j})$, where a is a constant. Find the velocity, acceleration and sketch the trajectory? 8M
- ii) Write an expression for acceleration in polar coordinates? 2M

-
- Q.3(A) i) Show that the final velocity of a rocket is independent of how the mass is released when it moves in a free space? 7M
- ii) A rod of length L has a non-uniform density. The mass per unit length of the rod, λ , varies as $\lambda = \lambda_0 (x/L)$, where λ_0 is a constant and x is the distance from the end marked 0. Find its center of mass? 3M

OR

- Q.3(B) A 50 Kg skater travelling at 4 m/s overtakes a 60 Kg skater travelling at 2 m/s in the same direction and collides with her. If the two skaters remain in contact, what is their final velocity? How much kinetic energy is lost? 10M

- Q.4(A) i) State and prove parallel axis theorem of moment of inertia? 8M
ii) Calculate moment of inertia of a uniform thin rod of mass 15kg and length 4 meters about at one end and perpendicular to the stick? 2M

OR

- Q.4(B) What is harmonic oscillator? Derive the differential equation of damped harmonic oscillations and discuss the any two cases of damped oscillations? 10M

-
- Q.5(A) i) On which factors the shape of Lissajous figures depends 3M
ii) Construct the Lissajous figures for the motion described by $x = 5 \cos(\omega t)$ and $y = 5 \cos(\omega t)$. 7M

OR

- Q.5(B) i) Write the relation between group velocity and phase velocity? 2M
ii) A long uniform string of mass density 0.1 kg/m is stretched with a force of 40 N. One end of the string is oscillated transversely with amplitude of 0.02m and a period of 0.1 sec, so that travelling waves are set up in +x direction. 8M
a) What is the velocity of the waves?
b) What is the wavelength?
c) If at the driving end the displacement at $x=0$ and $t=0$ is 0.0173m with dy/dt negative, what is the equation of the travelling waves?

-
- Q.6(A) i) Explain how the radius of curvature of a given plano-convex lens is determined by forming Newton's rings. 8M
ii) Find diameter of 10th Newton's ring using source of wavelength 6000 Å and radius of curvature of plano-convex lens 100cm. 2M

OR

- Q.6(B) Describe Fraunhofer diffraction due to single slit with a suitable diagram. And obtain the conditions for maxima, minima, and secondary maxima intensities in the diffracted spectrum. 10M

*** END***

| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year I & II Semester (R14) Supplementary End Semester Examinations – June 2019

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. No.1. | (i) Which are the salts that cause hardness to the water? | 1 M |
| | (ii) Expand the 'ppm'. | 1 M |
| | (iii) Define closed and open system | 1 M |
| | (iv) Define 'First Law of Thermodynamics' | 1 M |
| | (v) Write the monomers of 'Buna-S rubber' | 1 M |
| | (vi) Write any two applications of 'paper chromatography' | 1 M |
| | (vii) What is secondary battery? Give an example? | 1 M |
| | (viii) Define electrochemical Series. | 1 M |
| | (ix) Explain cloud point and pour point of lubricant? | 1 M |
| | (x) Write any two applications of liquid crystals. | 1 M |
| | | |
| Q.2(A) | Explain the method for the estimation of hardness of water sample by using standard EDTA solution. | 10M |
| OR | | |
| Q.2(B) | Explain the ion exchange process for softening of water? | 10M |
| | | |
| Q.3(A) | i. Derive the equation for the reversible expansion of ideal gas at isothermal condition. | 5M |
| | ii. Consider an ideal gas in a piston chamber, where the initial volume is 2.00 L and the initial pressure is 8.00 atm. Assume that the piston is moving up (that is, the system is expanding) to a final volume of 5.50 L against a constant external pressure of 1.75 atm. Also assume constant temperature for the process. Calculate the work for the process. | 5M |
| OR | | |
| Q.3(B) | Derive integrated first order rate equation, and half-life from it. | 10 M |
| | | |
| Q.4(A) | Explain the thin-layer chromatography in detailed. | 10 M |
| OR | | |
| Q.4(B) | Mention the monomers of Nylon 6,6 and discuss its preparation, properties and applications. | 10 M |
| | | |
| Q.5(A) | Explain charging, discharging and applications of lead-acid battery? | 10 M |
| OR | | |
| Q.5(B) | Explain the various influencing factors influencing the rate of corrosion. | 10 M |
| | | |
| Q.6(A) | i. Define and classify lubricants. | 5 M |
| | ii. Explain extreme pressure lubrication mechanism. | 5 M |
| OR | | |
| Q.6(B) | Describe the synthesis of nanomaterial using sol-gel process. | 10 M |

***END**

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

B.Tech I Year I & II Semester (R14) supplementary End Semester Examinations – May/June 2019

LINEAR ALGEBRA AND 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. Define Basis of a vector space 1M
 - iii. Find the matrix for Linear Transformation $L: R^3 \rightarrow R^3$ given by $L([x, y, z]) = [-6x + 4y - z, -2x + 3y - 5z, 3x - y + 7z]$ with respect to the standard ordered bases for R^3 1M
 - iv. Find the Eigenvalues of the matrix $\begin{bmatrix} -2 & 4 \\ 0 & 3 \end{bmatrix}$ 1M
 - v. Find the principal root of $(i)^{(1/2)}$ 1M
 - vi. State the Cauchy-Riemann equations in Cartesian coordinates 1M
 - vii. Find all values of z such that $e^z = -2$ 1M
 - viii. State Cauchy Integral formula 1M
 - ix. Find the residue at $z = 0$ of the function $f(z) = \frac{1}{z + z^2}$ 1M
 - x. Find the residue of the function $f(z) = \frac{z^2 - 2z + 3}{z - 3}$ 1M

- Q.2(A) Find the rank of the matrix $A = \begin{bmatrix} 1 & 1 & -7 & 4 \\ 1 & -3 & 9 & -8 \\ 1 & 0 & 3 & 6 \\ 2 & 1 & -6 & 12 \end{bmatrix}$ 10M

OR

- Q.2(B) Prove that $S = \{x^4, x^4 - x^3, x^4 - x^3 + x^2, x^4 - x^3 + x^2 - x, x^3 - 1\}$ is a basis for $P_4(x)$ 10M

- Q.3(A) Let $L: R^5 \rightarrow R^4$ given by $L(X) = AX$, where $A = \begin{bmatrix} 8 & 4 & 16 & 32 & 0 \\ 4 & 2 & 10 & 22 & -4 \\ -2 & -1 & -5 & -11 & 7 \\ 6 & 3 & 15 & 33 & -7 \end{bmatrix}$. Find a basis 10M

for $\ker(L)$ and a basis for $\text{range}(L)$. Verify that $\dim(\ker(L)) + \dim(\text{range}(L)) = \dim(R^5)$

OR

- Q.3(B) Find eigenvalues and eigenvectors for the matrix $A = \begin{bmatrix} -4 & 8 & -12 \\ 6 & -6 & 12 \\ 6 & -8 & 14 \end{bmatrix}$ 10M

Q.4(A) Show that the limit of a function $f(z) = \left(\frac{z}{\bar{z}}\right)^2$ as z tends to 0 does not exist. 10M
OR

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

$$f(z) = \begin{cases} \bar{z}^2, & \text{when } z \neq 0 \\ 0, & \text{when } z = 0 \end{cases}$$

Q.5(A) Find the values of (a) $\log(e)$ (b) $\log(i)$ 10M

OR

Q.5(B) Evaluate $\int_c \frac{z^2+5}{z-3} dz$ where c is (a) $|z-2|=5$ (b) $|z|=1$ 10M

Q.6(A) Give two Laurent series expansions in powers of z for the function 10M

$$f(z) = \frac{1}{(z-2)(1-z)}$$

and specify the regions in which those expansions are valid.

OR

Q.6(B) By using Cauchy-Residue theorem, evaluate $\int_c \frac{5z-2}{z(z-1)} dz$ where $C: |z|=2$. 10M
*** END***

Hall Ticket No:

| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|

Question Paper Code: 14CSU12T01

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year I & II Semester (R14) Supplementary End Semester Examinations – May 2019

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. List various Data types in C? | 1M |
| | ii. Give two differences between While and do-While? | 1M |
| | iii. Define an Array and give its declaration? | 1M |
| | iv. What is the relation between Array and Pointer? | 1M |
| | v. List and give the syntax of File Handling Functions? | 1M |
| | vi. Which mode does not create an empty file? | 1M |
| | vii. Give the properties of Constructor? | 1M |
| | viii. Explain 'new' and 'delete' operators? | 1M |
| | ix. List various operations of Stack? | 1M |
| | x. Give the disadvantages of Queue? | 1M |
| | | |
| Q.2(A) | i)What is the difference between call by value and call by reference? Discuss the problems associated with each? | 05M |
| | ii) Differentiate Local and Global Variables? | 05M |
| | OR | |
| Q.2(B) | Explain the use of if-else construct with that of conditional operator. Explain with examples. | 10M |
| | | |
| Q.3(A) | Demonstrate Linear Search with following elements 10,5,16,89,2,23,99,27. | 10M |
| | OR | |
| Q.3(B) | Explain Merge Sort with an example? | 10M |
| | | |
| Q.4(A) | List and Explain various String Handling Functions in C? | 10M |
| | OR | |
| Q.4(B) | i) Write a program to copy contents of file to another file? | 05M |
| | ii) Write a program to display the contents of a file? | 05M |
| | | |
| Q.5(A) | Define Inheritance and explain in detail about various types of inheritace? | 10M |
| | OR | |
| Q.5(B) | i)What is a constructor? Write an example program? | 05M |
| | ii) What is a destructor? Write an example program? | 05M |
| | | |
| Q.6(A) | Explain the 'insertion' operation in Single Linked List in detail? | 10M |
| | OR | |
| Q.6(B) | i) Illustrate the stack operation in detail? | 05M |
| | ii) Explain the operations of Queue? | 05M |

*** END***

Hall Ticket No:

| | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

Question Paper Code: 14EEE12T01

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year I & II Semester (R14) Supplementary End Semester Examinations – June 2019

BASIC ELECTRICAL & ELECTRONICS ENGINEERING

(Common to All)

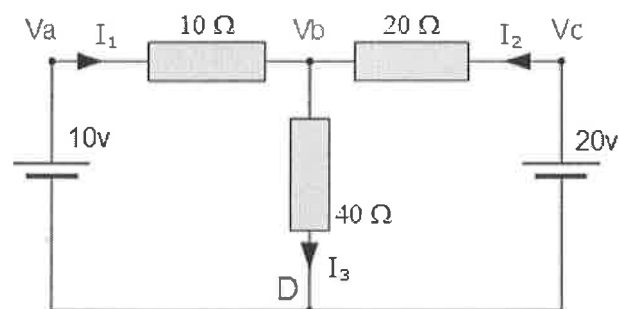
Time: 3Hrs

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

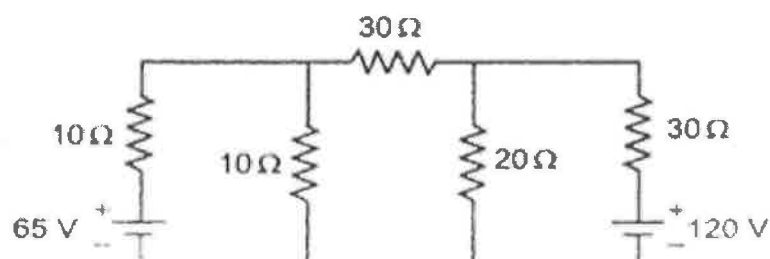
- | | |
|-----|--|
| Q.1 | <ul style="list-style-type: none"> i. An 80W electric light bulb is connected to a 240V supply. Determine the resistance of the bulb. 1M ii. Give the classification sources. 1M iii. If an R-L load is drawing 10 kW at a power factor of 0.9 (lagging) from a single-phase A.C. supply, find the apparent power drawn by the load. 1M iv. Write the relation between line voltage and phase voltage and also line current and phase current in delta connection of a three phase circuit. 1M v. Find the transformation ratio of a 220 V/2200 V, 50 Hz, single-phase transformer. 1M vi. Write the relationship between magnetic flux density and field intensity (B and H). 1M vii. Define faraday's law of electromagnetic induction. 1M viii. List out the different methods of excitation in dc machines. 1M ix. What is the value of voltage drop across an ideal P-N junction silicon diode in forward-bias condition? 1M x. Draw the circuit symbol of NPN Transistor. 1M |
|-----|--|

- Q.2(A) Apply Kirchoff's laws to find the currents I_1 , I_2 , and I_3 in the circuit drawn below. 10M



OR

- Q.2(B) Find the current through each resistor in the circuit shown below using Mesh analysis 10M



- Q.3(A) i. Discuss about the following 5M
(a) Average value (b) RMS value (c) Form factor (d) Crest factor.
ii. An alternating voltage is given by $v(t) = 220 \sin(314t)$ volts. Find (a) Peak value, (b) R.M.S. value, (c) Frequency and (d) Average value. 5M

OR

- Q.3(B) i) Write the advantages of three phase system. 4M
ii) Derive the relationship between phase and line voltage in a balanced three phase star connected system. 6M

-
- Q.4(A) i. Derive EMF equation of a 1-phase transformer from its fundamentals. 5M
ii. A 150 kVA, 2000V/200V, 50Hz single-phase transformer has 200 secondary turns. Determine (a) the primary and secondary current, (b) the number of primary turns. 5M

OR

- Q.4(B) Draw the equivalent circuit of a transformer. i) With respect to Primary side ii) With respect to secondary side. 10M

-
- Q.5(A) Explain the armature and flux methods of speed control of DC motors with necessary diagrams. 10M

OR

- Q.5(B) Explain construction aspects of Three-Phase induction motor and hence it's working with necessary diagrams. 10M

-
- Q.6(A) Analyze the input and output characteristics of a PN junction diode. 10M

OR

- Q.6(B) Draw the circuit diagram of a bridge rectifier and hence explain its working in detail. 10M

*** END***

Hall Ticket No:

Question Paper Code: 14ME11T01

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

B.Tech I Year I & II Semester (R14) Supplementary End Semester Examinations –JUNE 2019

Engineering Graphics

(Common to All)

Time: 3Hrs

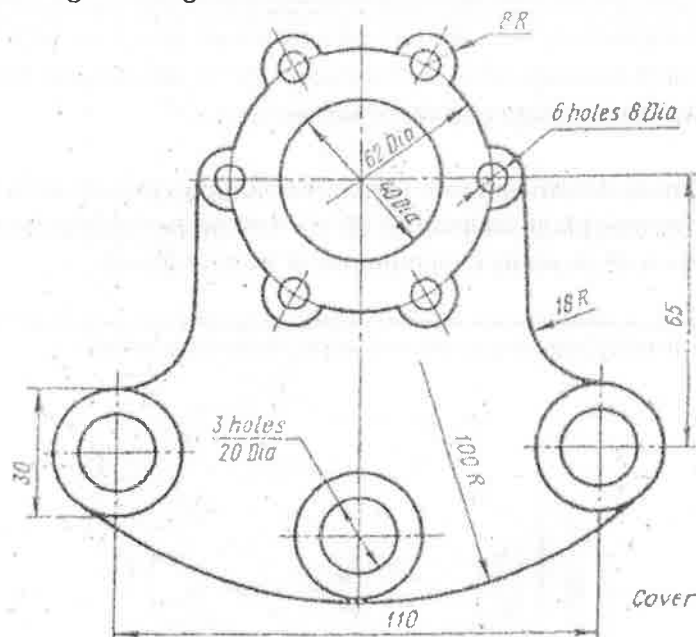
Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.

In Q.no 1 to 5 answer either Part-A or B only

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

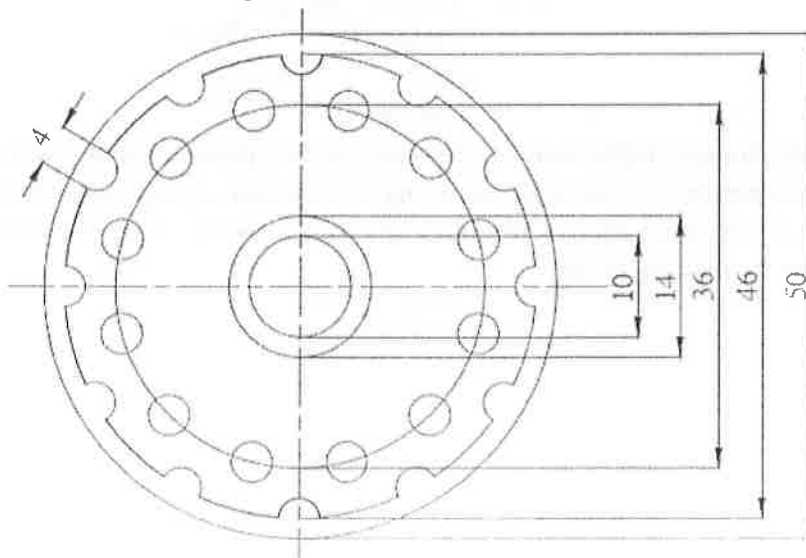
12M



OR

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

12M



- Q.2(A) Draw the projections of the following points on the same reference line by keeping the distance between projection lines as 60mm 12M
 A – 40mm below HP and point on VP
 B – 60mm below HP and 40mm in front of VP
 C – Point on HP and 60mm in front of VP

OR

- Q.2(B) A line AB 80mm long is inclined at an angle of 30° to H.P and 45° to V.P. The point A is 20mm above H.P and 30mm in front of V.P. Draw its Projections 12M

- Q.3(A) A pentagonal plate of 50mm side has a circular hole of 25mm diameter in its center. The plane stands on one of its sides on the H.P. with its plane perpendicular to V.P. and 45° inclined to H.P. Draw its projections. 12M

OR

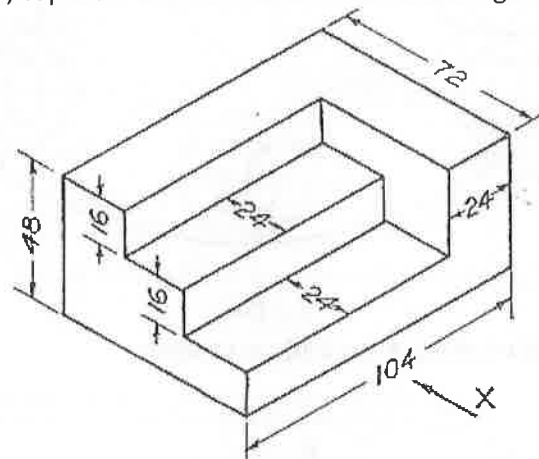
- Q.3(B) A Hexagonal Pyramid of Base side 30mm and axis 60mm is lying on a slant edge on the H.P with the axis parallel to V.P. Draw its projections. 12M

- Q.4(A) A Hexagonal prism base 40mm side and axis 80mm is resting with its base on the Ground. The section plane which is inclined at 45° to HP and parallel to VP bisecting the axis. Draw its front, side and sectional top view. 12M

OR

- Q.4(B) A cylinder of base 40mm and axis 65mm is resting on ground with its axis vertical. It is cut by a section plane inclined at 45° to H.P and perpendicular to the VP which is bisecting the axis. Draw its development of its lateral surface. 12M

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



OR

- Q.5(B) A Vertical cylinder of 80mm diameter is completely penetrated by another cylinder of 60mm diameter, their axes bisecting each other at right angles. Draw their projections showing curves of penetration, assuming the axis of penetrating cylinder to be parallel to the V.P. 12M

*** END***

Hall Ticket No:

| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|

Question Paper Code: 14ME11T01

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

B.Tech I Year I & II Semester (R14) Supplementary End Semester Examinations –May 2019

ENGINEERING GRAPHICS

(Common to All)

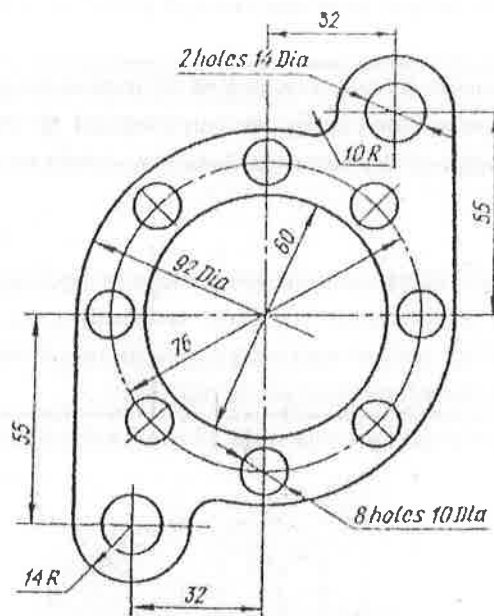
Time: 3Hrs

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

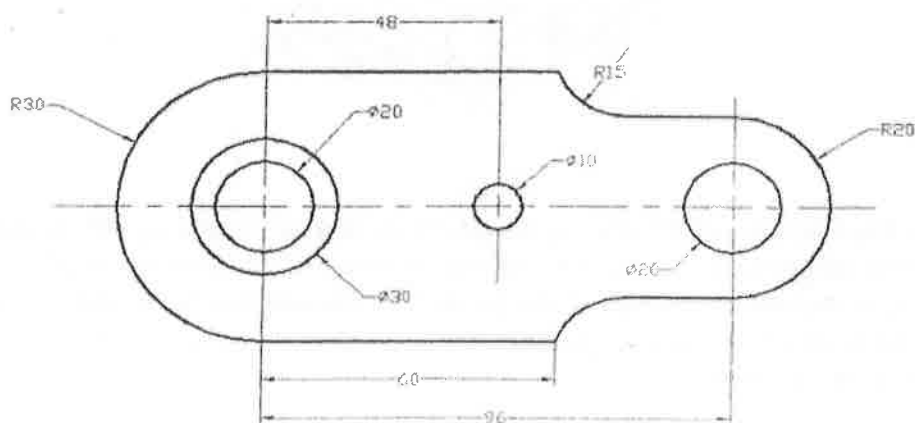
12M



OR

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

12M



- Q.2(A) Draw the projections of the following points on the same reference line xy , and keeping the distance between the projectors is 50mm apart. 12M
 A – 30mm above HP and 60mm in front of VP
 B – 60mm below HP and 40mm in front of VP
 C – 50mm below HP and 80mm behind VP

OR

- Q.2(B) A line AB 80mm long is inclined at an angle of 30° to H.P and 45° to V.P. The point A is 20mm above H.P and 30mm in front of V.P. Draw its Projections. 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° to the HP and the top view of the diameter AB making an angle of 30° with the VP. 12M

OR

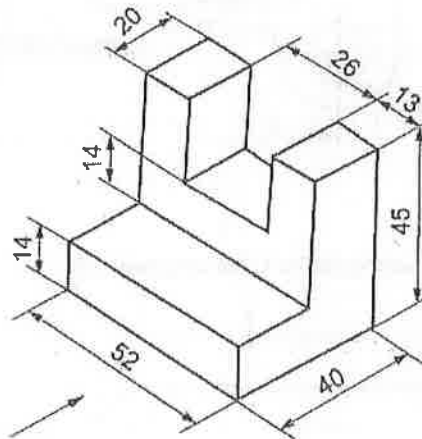
- Q.3(B) A hexagonal prism with side of base 30 and axis 55 long is resting on one of its corner of its base on HP. Draw the projections of prism when axis is making 30° to HP and parallel to VP 12M

- 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 and true shape. 12M

OR

- Q.4(B) A square prism of base side 30mm and height 80mm resting on H.P. with its base and one of its sides is 35° with the V.P. A plane cuts the prism, which is perpendicular V.P. and 40° to H.P. and passing through axis 40mm above the base. Draw the development the lower portion of the solid. 12M

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



OR

- Q.5(B) A cone having diameter 70mm and height 80mm resting on its base on the ground is completely penetrated by a cylinder having diameter 40mm and length 80mm. The axis of the cylinder is parallel to the HP and VP and intersects the axis of the cone at a point 25mm above the base. Draw the projections of the solids showing the curves of intersection. 12M

*** END***

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year I & II Semester (R14) Supplementary End Semester Examinations – JUNE 2019**ADVANCED CALCULUS**

(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. Write polar equation for the circle $(x-4)^2 + y^2 = 16$. 1M
 - ii. Find the velocity of $r(t) = (t \sin t)i + (t \cos t)j$ 1M
 - iii. Find f_x and f_y , if $f(x, y) = \ln(x+2y)$ 1M
 - iv. Find the domain and range of the function $w = xy \ln z$. 1M
 - v. 1M
 - vi. Evaluate $\iint_R xy \, dA$; $R: 0 \leq x \leq 4, 1 \leq y \leq 2$ 1M
 - vii. Evaluate $\int_0^2 \int_0^2 \int_0^2 xyz \, dx \, dy \, dz$ 1M
 - viii. Write the condition for the field to be conservative. 1M
 - ix. State Greens' theorem 1M
 - x. Test whether the series $1 + \left(\frac{2}{3}\right) + \left(\frac{2}{3}\right)^2 + \left(\frac{2}{3}\right)^3 + \dots$ converges or diverges 1M
 - x. State the Leibnitz's Test 1M

Q.2(A) Graph the curve $r^2 = 4 \cos 2\theta$ 10M

OR

Q.2(B) Find T, N and K for the plane curve $r(t) = (\cos t + t \sin t)i + (\sin t - t \cos t)j$ 10M

Q.3(A) i. Graph $f(x, y) = 100 - x^2 - y^2$ and plot the level curves $f(x, y) = 0$, $f(x, y) = 51$ and $f(x, y) = 75$ in the domain of f in the plane. 5 M

ii. Find $\frac{dw}{dt}$, if $w = xy + z$, $x = \cos t$, $y = \sin t$, $z = t$ at $t = 0$. 5 M

OR

Q.3(B) Find the maximum and minimum values of the function $f(x, y) = 3x + 4y$ on the circle $x^2 + y^2 = 1$ 10M

Q.4(A) Using polar integration, find the area of the region R in the xy-plane enclosed by the circle $x^2 + y^2 = 4$ above the line $y = 1$ and below the line $y = \sqrt{3}x$ 10M

OR

Q.4(B) Find the volume of the "Ice cream cone" D cut from the solid sphere $\rho \leq 1$ by the cone $\phi = \pi/3$. 10M

Q.5(A) Find the circulation of the field $F = (x^2 - y)i + 4zj + x^2k$ around the curve C in which the plane $z = 2$ meets the cone $z = \sqrt{x^2 + y^2}$ counterclockwise as viewed from above. 10M

OR

Q.5(B) Use Stokes theorem to evaluate $\int_C F \cdot dr$. If $F = xz\bar{i} + xy\bar{j} + 3xz\bar{k}$ and C is boundary of the portion of the plane $2x+y+z = 2$ in the first octant traversed counter clockwise direction. 10M

Q.6(A) Test the convergence of the series i) $\sum_{n=1}^{\infty} \frac{\cos n\pi}{n^2}$ ii) $\sum_{n=2}^{\infty} \frac{n+5}{n^2-n}$ 10M

OR

Q.6(B) Find the Taylor's series expansion of $f(x) = e^{-x}$ at $x = 1$. 10M

*** END***

| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year I & II Semester (R14) Supplementary End Semester Examinations –June 2019

FUNCTIONAL 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 A or B only

- Q.1
- i. Fill in the blank with appropriate article. 1M
_____ Nile flows into the Mediterranean.
 - ii. Write the noun for the given verb in brackets. (sing) 1M
 - iii. Use the phrase *in touch with* in your own sentences. 1M
 - iv. Change the following sentence into passive voice. 1M
I ring the bell
 - v. Make the following sentence more emphatic by using *what/the thing*. 1M
You need a good night's sleep
 - vi. Write one word Substitute for the following sentence. 1M
One who does not believe in the existence of God
 - vii. Rewrite the following sentences using 'otherwise'. 1M
They must be expecting guests. The house wouldn't be so tidy.
 - viii. Write one example of written English. 1M
 - ix. Write one word Substitute for the following sentence. 1M
One who believes in fate.
 - x. Use the idiom *once in a blue moon* in your own sentences 1M

Q.2(A) Write about dangerous sports and the issues in them in 300 words. 10M

OR

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

- i. She _____ (work) ten hours a day.
- ii. Are you still _____ (go) out with Linda?.
- iii. I have just _____ (start) a new job.
- iv. When I _____ (arrive) every one _____ (finish) eating .
- v. He _____ (*finish*) *the work at 10 o' clock to night.*
- vi. They _____ (sing) a song yesterday.
- vii. They _____ (play) cricket yesterday by this time.
- viii. He _____ (speak) in English every day.
- ix. The sugar _____ (taste) sweet.

Q.3(A) Fill the gaps with the Words from the box. 10M

| | | |
|-------------|----------|------------|
| grievance | feel | appreciate |
| time | designed | percent |
| astonishing | time | truth |

Mothers who _____ their children do not _____ them can add another _____ to the list: half the _____, their offspring are lying to them. A study _____ to reveal the _____ about lying shows that undergraduates lie to their mothers in 46 _____ of their conversations. Still, mums _____ better than total strangers, who are told an _____ percent of the _____.

OR

Q.3(B) i. Write a paragraph using the hints on E-mail communication. 5M

E-mail communication inexpensive safe easy
fastest form eco-friendly information access storage data online

ii. Arrange the jumbled sentences in order to construct a coherent paragraph. 5M

- i. A message can reach the masses faster with movies.
- ii. While novels can read only by literate people, movies can be watched by anyone.
- iii. Movies are another medium which create a great impact.
- iv. Many popular novels have been adapted as movies.
- v. Hence novels also influence to some extent.

Q.4(A) i. Rewrite the following sentences using 'must/might/can't' whichever is appropriate 5M

- i. Perhaps they're having lunch in the canteen.
- ii. She was obviously driving too fast.
- iii. I'm sure you were surprised
- iv. You didn't enjoy that much, I'm quite sure.
- v. I'm quite sure you are joking.

ii. Rewrite the following sentences using certain to/likely to /unlikely to whichever is appropriate 5M

- i. Unless we go there, we have got very little chance of getting ticket.
- ii. She is quite sure she'll be given one more chance.
- iii. Don't worry. You probably won't be punished.
- iv. They fear there'll be a heavy rain tomorrow.
- v. If they carry water bottle, they probably won't have any problem.

OR

Q.4(B) Write suitable dialogues for the following situations 10M

- a) Conversation between you and your friends about the hobbies enjoyed.
- b) Conversation between you and your friend about the place spent during childhood.

Q.5(A) Correct the following sentences . 10M

- i. The doctor suggested the patient should take a vacation.
- ii. Learning the French is not easy.
- iii. I need good sleep
- iv. We had great time on the top of the mountain
- v. I am going to the hospital to see a friend who has undergone the operation.
- vi. The more you read the lesser you understand.
- vii. On the way home, I saw an old beggar accompanied with a child.
- viii. Will you please borrow me a copy of 'The Old Man and the Sea'?
- ix. The man who knocked at the door was a stranger.
- x. What is the difference among these two cars?

OR

Q.5(B) success and failures are common in business. Justify the statement in 300 words. 10M

Q.6(A) Read the following passage and answer the questions given below.

10M

For human development to continue, we need to find conventional sources of renewable energy. Wind energy conversion has to be seriously explored because in the past it has been highly useful and its future is promising. The wind turbine can provide free, reliable and non-polluting power for our daily needs. Researchers have made available a patented polypropylene blade design which would allow the wind turbine to function at full power in great speeds, of up to 150 miles per hour. On the whole, wind turbines may satisfy part of our power needs in the near future.

- 1) _____ future is promising
A. conventional sources B. Human development C. Wind energy conversion
D. all of these
- 2) _____ can be provided by wind turbine
A. free power B. Reliable power C. non-polluting power D. All of these
- 3) _____ has to be seriously exposed
A. conventional sources B. Human development C. Wind energy conversion
D. all of these
- 4) _____ would allow the wind turbine to function at full power in great speeds
A. researchers B. patented polypropylene blade design C. Wind turbine
D. all of these
- 5) Wind turbines may satisfy _____ in the near future
A. power needs B. Part of our power needs C. All or needs D. Full of our needs

OR

Q.6(B) Write about the importance of discipline in day to day life in 300 words

10M

***** END*****

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year I & II Semester (R14) Supplementary End Semester Examinations – JUNE 2019**ENVIRONMENTAL SCIENCE**

(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. What are important components of environment? | 1M |
| | ii. Define the working principle of wind mill? | 1M |
| | iii. Define food chain. | 1M |
| | iv. What are producers? | 1M |
| | v. List out the two hot spots of Biodiversity in India. | 1M |
| | vi. What do you mean by genetic diversity? | 1M |
| | vii. Write any two sources for soil pollution. | 1M |
| | viii. Define earth quake? | 1M |
| | ix. What is population explosion? | 1M |
| | x. Write any three greenhouse gases. | 1M |
| <hr/> | | |
| Q.2(A) | What is Environment? Discuss its scope and importance. | 10M |
| | OR | |
| Q.2(B) | Explain in detail about the renewable energy sources with suitable examples. | 10M |
| <hr/> | | |
| Q.3(A) | Explain characteristic features, structure and functions of grassland ecosystem. | 10M |
| | OR | |
| Q.3(B) | Discuss the various-types of nutrient cycle present in an ecosystem? | 10M |
| <hr/> | | |
| Q.4(A) | What are the major hotspots of biodiversity in our country and give the necessity of preserving these areas. | 10M |
| | OR | |
| Q.4(B) | Explain why India is a Mega diversity nation? | 5M |
| <hr/> | | |
| Q.5(A) | i. Describe source, effects and control of noise pollution. | 5M |
| | ii. Discuss the various methods of solid waste management. | 5M |
| | OR | |
| Q.5(B) | Discuss about Floods and Earth quakes. | 10M |
| <hr/> | | |
| Q.6(A) | i. Write a short on (a) acid rain, (b) Ozone layer depletion | 5M |
| | ii. Discuss about the different methods of Water conservation. | 5M |
| | OR | |
| Q.6(B) | What is global warming and its impact on environment? | 10M |

*** END***

