AR18

CODE: 18HST302 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Regular Examinations, September-2021

HUMAN VALUES

(Common to CE, CSE & IT)

Time: 3 Hours **Max Marks:5x12= 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a) Explain the purpose and process of self-exploration.
   b) Identify the basic aspiration of Human Being and write the requirements and the program to achieve the basic aspiration?

(OR)

2. a) "Values and Skills both are complementary to each other" justify with two examples.
   b) Write about natural acceptance and write the dialogue to initiate natural acceptance?

UNIT-II

3. a) "I am the Seer. I am the Doer. I am the Enjoyer". The Body is my essential Instrument. Explain
   b) "Physical needs are changing from time to time"-Discuss with any two daily life examples.

(OR)

4. a) "Self is consciousness entity and Body is material entity" - Discuss
   b) "Imagination is influenced by sensations and pre-conditions". Write the result of this influence on imagination and the way to channelise it?

UNIT-III

5. a) Can we create the relationship? What is essential in all relationships?
   b) Explain the term Excellence and discuss the difference between to be special and excellence with your examples.

(OR)

6. a) "Intention is natural acceptance and Competence is ability" - Justify
   b) How do we differentiate in relationships on the basis of body, physical facilities or beliefs? What problems do we face because of such differentiation?

UNIT-IV

7. a) What are the natural characteristics (swabhava) of human order? Explain.
   b) What do you mean by co-existence?

(OR)

8. a) What is utility value and artistic value? How are both important in human life? Explain with example.
   b) Explain the basic activity in the four orders in nature.

UNIT-V

9. a) What do you mean by competence in professional ethics? Elaborate with examples.
   b) What is ethical conduct? Explain in terms of values, policies and character.

(OR)

10. a) What would be the pragmatic implications of value-based living at the four levels? Briefly explain.
    b) Write a short note on the need for value education in today's scenario.

AR18

CODE: 18EET314 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Regular Examinations, September-2021

SWITCHGEAR AND PROTECTION

(Electrical and Electronics Engineering)

Time: 3 Hours **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	Explain about energy balance theory of arc interruption in a circuit breaker.	6M
	b)	Explain the necessity of resistance switching in a circuit breaker. Also derive the expression for critical resistance.	6M
		(OR)	
2.	a)	Explain the construction, working and principle of vacuum circuit breaker.	6M
	b)	Describe the phenomenon of current chopping in a circuit breaker.	6M

UNIT-II

3.	a)	Describe the operation of shaded pole type induction relay with a neat diagram.	6M
	b)	Compare the time-current characteristics of inverse, IDMT and very inverse over current relays. Discuss their area of applications.	6M
		(OR)	
4.	a)	Explain the working principle, operation and characteristics of mho relay with neat diagram using universal torque equation.	6M
	b)	With a neat sketch explain the principle of operation of percentage differential relay.	6M

UNIT-III

5.	a)	Discuss the protection employed against loss of excitation of an alternator.	6M
	b)	What do you understand by field suppression of an alternator? How is it achieved?.	6M
		(OR)	
6.	a)	Explain differential protection of transformers with a neat diagram.	6M
	b)	What is magnetising inrush current? Explain the protective scheme employed against magnetising inrush current.	6M

UNIT-IV

7.	a)	What are the essential qualities of feeder protection? Explain.	6M
	b)	Explain about over current protection of feeder.	6M
		(OR)	
8.	a)	Explain carrier blocking scheme with a neat diagram.	6M
	b)	Describe differential protection scheme for bus-bar.	6M

UNIT-V

9.	a)	Describe the principle of metal oxide surge arrester.	6M
	b)	What is BIL? Explain the method of choosing BIL s for different electrical apparatus.	6M
		(OR)	
10.	a)	Explain about solid grounding with phasor diagram.	6M
	b)	A 33 kV,3 phase 50Hz, overhead line 60km long has a capacitance to ground of each line equals to 0.015 micro Farad per km. Determine the inductance and kVA rating of the Peterson coil.	6M

AR18

CODE: 18MET313 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Regular Examinations, September-2021

CAD/CAM

(Mechanical Engineering)

Time: 3 Hours **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a) Explain briefly about Raster Scan and Random Scan Image drawing techniques. 6M
   b) Perform a 45^0 rotation of a triangle A (0,0), B(1,1) and C (5,2) about the origin. 6M

(OR)

2. a) Discuss the benefits of CAD/CAM. 6M
   b) Explain the following transformations in 2D and 3D concept of computer graphics with an example: 6M
      i) Translation ii) Scaling iii) Rotation

UNIT-II

3. a) Explain B-Representation with an example. 6M
   b) Enlist various types of Wireframe models? Briefly explain them with neat diagrams. 6M

(OR)

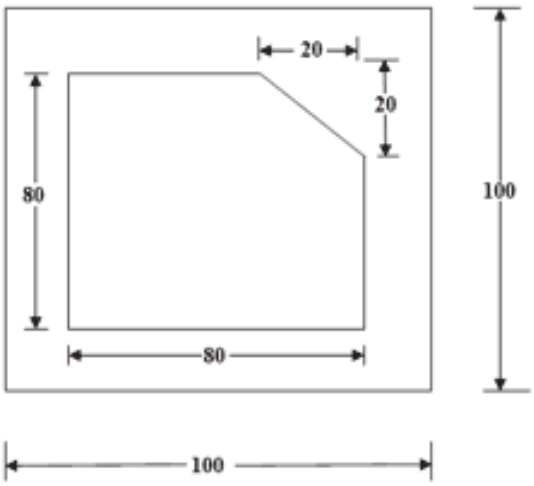
4. a) Explain CSG representation in solid modeling and state the importance of the CSG solid models with examples. 6M
   b) Discuss the important properties of Bezier Curve & B-Spline Curve. 6M

UNIT-III

5. a) Discuss about Basic components of NC systems. 6M
   b) Compare NC, CNC and DNC Systems. 6M

(OR)

6. a) Draw the block diagram of DNC and list advantages of DNC. 6M
   b) Write CNC part program for profile milling operation for the following figure. 6M



All dimensions are in mm

UNIT-IV

7. a) Describe the factors considered in selecting a part in parts classification and coding system. 6M
   b) Describe the Form Code using OPITZ Coding System with an example 6M

(OR)

8. a) Discuss in detail about Variant CAPP Approach. 6M
   b) Apply the Rank Order Clustering technique to the machine-part incidence matrix in the following table to identify logical part families and machine groups. Parts are identified by letters, and machines are identified numerically. 6M

	Parts								
Machines	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**
1	0	0	1	1	1	0	0	0	0
2	1	1	0	0	0	0	1	1	1
3	0	0	0	0	0	1	1	1	0
4	1	1	0	1	0	0	0	0	0
5	0	0	1	0	1	0	0	0	0
6	0	1	0	0	0	0	0	1	1
7	1	0	1	1	0	0	0	0	0
8	0	1	0	0	0	1	0	1	1

UNIT-V

9. a) Discuss about various functions performed by the FMS Computer Control System. 6M
   b) Explain In-Line Layout configuration with a neat sketch. 6M

(OR)

10. a) Discuss in detail about four basic components of FMS. 6M
    b) Explain about types of workstations used in FMS. 6M

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AR18

CODE: 18BST309 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Regular Examinations, September-2021

BIOLOGY

(Electronics and Communication Engineering)

Time: 3 Hours **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	What is the need to study biology and explain the differences between biology and engineering with reference to one live example	6M
	b)	What are the cotemporary aspects of biology as an independent scientific discipline	6M
		(OR)	
2.	a)	How the biological investigations lead to the development of engineering during 18^{th} century	6M
	b)	Explain the phenomenon of Brownian movement in respect of cytoplasm	6M

UNIT-II

3.	a)	Describe the ultra structure of an Eukaryotic Cell with neat labelled diagram	6M
	b)	Explain the principles and functions of light microscope	6M
		(OR)	
4.	a)	Sketch the classification of microorganisms based on three major kingdoms of life	6M
	b)	Describe the methods of physical and chemical sterilization	6M

UNIT-III

5.	a)	Enumerate the contributions and results of John Gregor Mendel	6M
	b)	Discuss any two bio molecules studied by you	6M
		(OR)	
6.	a)	What is Meiosis, where it occurs and write its significance	6M
	b)	What is rDNA technology and discuss steps involved in it.	6M

UNIT-IV

7.	a)	Explain the classification of Enzymes	6M
	b)	Describe the Mechanism of enzyme action	6M
		(OR)	
8.	a)	Discuss in detail about the Enzyme kinetics	6M
	b)	Examine the role of proteins as enzyme transporters and receptors	6M

UNIT-V

9.	a)	Explain the process of Glycolysis and its cycle	6M
	b)	Explain the light reaction of Photosynthesis in plants	6M
		(OR)	
10.	a)	Demonstrate the energy yield in Krebs cycle	6M
	b)	Evaluate the process of CO_2 fixation through the Kelvin cycle	6M

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AR16

CODE: 16CE3019 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech. II Semester Regular & Supplementary Examinations, September, 2021

PRE-STRESSED CONCRETE

(Civil Engineering)

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1	a)	Explain the principles of pre and post tensioning.	7M
	b)	Explain stress concept in prestressing	7M
		(OR)	
2	a)	Explain the Hoyer's system with a neat sketch.	7M
	b)	What are the advantages and limitations of prestressed concrete?	7M

UNIT-II

3		A prestressed concrete beam, 200 mm wide and 300 mm deep, is prestressed with wires (area =320 mm^2) located at a constant eccentricity of 500 mm and carrying an initial stress of 1000 N/mm^2. The span of the beam is 10 m. Calculate the percentage loss of stress in wires if the beam is post-tensioned, using the following data: E_S = 210 kN/mm^2 and E_C = 35 kN/mm^2 Relaxation of steel stress = 5 percent of initial stress. Slip at anchorage = 1 mm Shrinkage of concrete = 200×10^{-6} for post tensioning. Assume any other missing data.	14M
		(OR)	
4		A rectangular concrete beam 100 mm wide by 250 mm deep spanning over 8 m is prestressed by a straight cable carrying an effective prestressing force of 250 kN located at an eccentricity of 40 mm. The beam supports a live load of 1.2 kN/m a) Calculate the resultant stress distribution for the centre of span cross section of the beam assuming the density of concrete as 24 kN/m^3 b) Find the magnitude of prestressing force with an eccentricity of 40 mm which can balance the stresses due to dead load and live load at the soffit of the centre span section	14M

UNIT-III

5 The support section of a prestressed concrete beam 100 x 250mm is required to support an ultimate shear force of 60kN. The compressive prestress at the centroidal axis is 5N/mm^2. The characteristic strength of concrete is 40N/mm^2. The cover to the tension reinforcement is 50mm. If the characteristic tensile strength of steel in stirrup is 250N/mm^2, design suitable shear reinforcement. 14M

(OR)

6 Discuss briefly about the Guyons's method with a neat sketch. 14M

UNIT-IV

7 A composite prestressed concrete beam consists of a prefabricated stem of 325mm x 820 mm and a cast in situ slab of 820mm x 150mm. If the differential shrinkage is 1.2 x 10^{-4} mm/mm, evaluate the shrinkage stresses at the extreme edges of the slab and the stem. Take $E_c = 2.75 \times 10^4$ N/mm^2. 14M

(OR)

8 Briefly explain the necessity of using composite sections in PSC structures. Also discuss the shear in composite beams.What are the provisions usually made to counteract the effects. 14M

UNIT-V

9. a) What are the factors influencing deflections 4M

b) A Prestressed concrete beam of rectangular section 120 mm wide by 300 mm deep, spans over 6 m. The beam is prestressed by a straight cable carrying an effective force of 200 kN at an eccentricity of 50 mm. The modulus of elasticity of concrete is 38 kN/mm^2. Compute the deflection at centre of span for the following cases: 10M

i) Deflection under (Prestress + Self weight)

ii) Find the magnitude of the UDL which will nullify the deflection due to prestress and self weight.

(OR)

10 Explain in detail about effect of tendon profile on deflections for the following 14M

i) Straight Tendons

ii) Trapezoidal Tendons

iii) Parabolic Tendons (Central and Eccentric Anchors)

iv) Sloping Tendons (Eccentric Anchors)

v) Parabolic and straight tendons

vi) Parabolic and straight tendons(Eccentric Anchors)

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AR16

CODE: 16EC3020/EEE **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech. II Semester Regular & Supplementary Examinations, September, 2021

MICROPROCESSORS AND MICROCONTROLLERS

(Electrical and Electronics Engineering)

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	Explain the architecture of 8086 microprocessor.	10M
	b)	Find the physical memory address if CS : IP is 5050H:399EH?	4M
		(OR)	
2.	a)	Illustrate the interrupt vector table of 8086 microprocessor.	10M
	b)	Show the write cycle timing diagram for minimum mode 8086 system.	4M

UNIT-II

3.	a)	Construct an assembly language program to count number of logical 1's in a given word.	8M
	b)	Identify the below instructions are valid or not and justify your answer. i) MOV DS, 2000H ii) MOV DS, CS	6M
		(OR)	
4.	a)	Construct an assembly language program to move a string from one location to another location.	8M
	b)	Justify the use of CALL and RET instructions while calling the procedures	6M

UNIT-III

5.	a)	Explain the modes of operation of 80386 microprocessor.	8M
	b)	Illustrate the concept of physical address calculation in 80386 microprocessor with an example	6M
		(OR)	
6.	a)	Explain the architecture of 80386 microprocessor.	8M
	b)	Mention the features of 80486 microprocessor.	6M

UNIT-IV

7.	a)	Mention the format of control word register in 8255 PPI for IO mode and BSR mode.	8M
	b)	Explain the purpose of programmable interrupt controller 8259A.	6M
		(OR)	
8.	a)	What is the purpose of 8279 Keyboard/display controller	6M
	b)	Explain the interfacing of 8257 DMA controller.	8M

UNIT-V

9.	a)	Explain the features of 8051 microcontroller.	8M
	b)	Differentiate the immediate addressing mode and direct addressing mode of 8051 microcontroller with example.	6M
		(OR)	
10.	a)	Explain internal RAM organization in 8051 microcontroller.	8M
	b)	Illustrate the features of PIC microcontroller.	6M

AR16

CODE: 16ME3020 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech. II Semester Supplementary Examinations, September, 2021

CAD/CAM

(Mechanical Engineering)

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	Discuss various CAD input devices with suitable diagrams.	6M
	b)	Discuss in detail the various types of sweep techniques available for 3D geometric construction.	8M
		(OR)	
2.	a)	Discuss the requirements of geometric modelling?	7M
	b)	Write any four differences between Transformations and Mapping of geometric models.	7M

UNIT-II

3.	a)	Write the properties of Bezier and B-Spline curves.	6M
	b)	Find the equation of a line is that tangent to a circle whose equation is $X^2+Y^2=49$ and passing through the point (15, 6).	8M
		(OR)	
4.	a)	Discuss the Fundamentals of solid modelling	5M
	b)	Explain the Constructive Solid Geometry (CSG) method to create models	9M

UNIT-III

5.	a)	Explain any four Basic components of NC systems.	6M
	b)	Explain the concept of adaptive control of NC machines.	8M
		(OR)	
6.	a)	Write a part program for the component shown in figure 1	9M

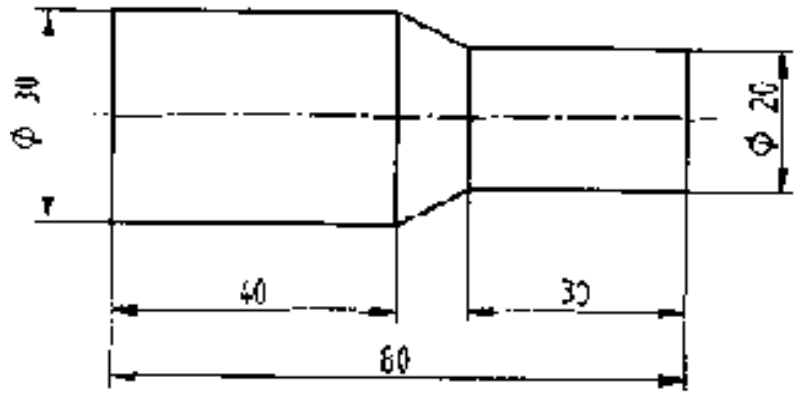

figure 1

Work material : mild steel Work size : 32 mm; dia Length : 90 mm ;
Speed : 800 r.p.m. Feed : 200 mm/min; Depth of cut :2mm; Assume other data.

	b)	Explain various steps involved in CNC part programming.	5M

UNIT-IV

7.	a)	Discuss how part classification is done in the context of GT.	5M
	b)	Explain OPITZ coding systems in GT.	9M
		(OR)	
8.	a)	Explain computer aided process planning?	5M
	b)	What is generative and variant approaches in process planning and differentiate both approaches?	9M

UNIT-V

9.	a)	Draw the FMS layout and explain the function of each component of FMS.	8M
	b)	Discuss the following types of layouts in the design of FMS: (i) Circular layer (ii) Linear layers (iii) Loop layers	6M
		(OR)	
10.	a)	Write the advantage of material handling system.	5M
	b)	Discuss the Computer control system and its functions.	9M

AR16

CODE: 16EC3019 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech. II Semester Regular & Supplementary Examinations, September, 2021

ANTENNA AND WAVE PROPAGATION

(Electronics and Communication Engineering)

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.		What is a Hertzian dipole? Discuss the time variations of the current and charges Associated with the Hertzian dipole. Also discuss the characteristics of the Electromagnetic field due to the Hertzian dipole.	14M

(OR)

2.	a)	Prove that Radiation Resistance of half wave dipole is 73Ω.	7M
	b)	Prove the Reciprocity theorem for antennas.	7M

UNIT-II

3.	a)	Explain the principle of pattern multiplication	7M
	b)	Find the radiation Patten of 4 & 8 isotropic elements fed in spaced λ/2 apart by using Pattern multiplication.	7M

(OR)

4.	a)	Evaluate the expression for the radiation pattern for an end fire array of N identical elements.	10M
	b)	What are the advantages and disadvantages of binomial array?	4M

UNIT-III

5.		With neat diagram explain yagi-uda antenna operation? What are the advantages and disadvantages of yagi-uda antenna.	14M

(OR)

6.	a)	Explain the different modes of operation of helical antenna in detail.	7M
	b)	What is meant by rhombic antenna? How it is constructed? How unidirectional pattern is obtained in properly terminated antenna?	7M

UNIT-IV

7.	a)	What is praboloidal dish? Explain the principle of operation?	7M
	b)	With neat diagram explain the principle of lens antenna?	7M

(OR)

8.	a)	With the help of suitable diagram explain the measurement of radiation pattern of an antenna.	7M
	b)	With neat diagram explain the cassegrain feeding system and offset feeding system in for parabolic antenna	7M

UNIT-V

9.	a)	What are the different layers in Ionosphere and explain about ionosphere?	7M
	b)	Define skip distance also explain MUF for flat and curved earths	7M

(OR)

10.	a)	Deduce an expression for the critical frequency of an ionized region in terms of its maximum ionization density.	7M
	b)	Explain in detail about Sky wave propagation	7M

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AR16

CODE: 16CS3016 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech. II Semester Regular & Supplementary Examinations, September, 2021

WEB TECHNOLOGIES

(Common to CSE & IT)

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	Explain the purpose of using a table in HTML. Explain the need of Cell padding and Cell spacing attributes.	7M
	b)	Outline the usage of Internal Style Sheet of CSS with an example	7M
		(OR)	
2.	a)	How to create an hyperlink in HTML. What are the important tags to make an image a link? Give an example	7M
	b)	Develop a code to create an external CSS along with its steps.	7M

UNIT-II

3.	a)	List the steps to embed JavaScript in an HTML page	7M
	b)	Discuss about any 3 Mouse events	7M
		(OR)	
4.	a)	Explain the usage of Variables & Arrays in Java Script with an example	7M
	b)	Write the steps to create a simple AJAX Application	7M

UNIT-III

5.	a)	How to write XML schema? Explain with an example	7M
	b)	Compare and contrast DOM with SAX	7M
		(OR)	
6.	a)	What are XML components	7M
	b)	How to declare a DTD. Explain its purpose	7M

UNIT-IV

7.	a)	Explain JDBC interfaces in the Java.sql package?	7M
	b)	Write the features of Java Servlets	7M
		(OR)	
8.	a)	Develop a program to insert the marks of 5 courses for all 30 students into a database (Stud_db) by establishing database connection and print the average for each student.	7M
	b)	Differentiate between Servlet Config and Servlet Context	7M

UNIT-V

9.	a)	Explain the life cycle of JSP	7M
	b)	Develop a code to access a database from a JSP Page	7M
		(OR)	
10.	a)	Write any 7 JSP Implicit Objects	7M
	b)	Explain session tracking with the help of a code	7M