AR16

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Supplementary Examinations, January-2019

CONCRETE TECHNOLOGY
(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 different types of cement in detail.	7M
	b)	Describe the setting time and soundness test of cement.	7M
		(OR)	
2.	a)	Explain the role of chemical and mineral admixtures in concrete	7M
	b)	Explain the classification of aggregate based on size, shape and texture.	7M

UNIT-II

3.	a)	What is meant by workability? Explain factors effecting workability?	8M
	b)	Discuss about quality of mixing water in manufacture of concrete?	6M
		(OR)	
4.	a)	Explain the procedure to find out initial and final setting times of concrete.	8M
	b)	What is segregation and explain the precautions to control segregation.	6M

UNIT-III

5.	a)	What is Abram's law? How does it affect concrete?	7M
	b)	Explain briefly about Tension test?	7M
		(OR)	
6.	a)	What are the various factors affecting strength of hardened concrete?	7M
	b)	What is curing? Explain different methods of curing?	7M

UNIT-IV

7.	a)	Describe quality control of concrete.	7M
	b)	Explain the factors that influence the choice of mix design.	7M
		(OR)	
8.		Design the concrete mix for the following date: characteristic compressive strength=35mpa, maximum size of aggregate=20mm (angular), degree of workability=0.9CF, degree of quality control =good and type of exposure=severe. Water absorption by CA=1% and moisture content in FA =1.5%. Assume any suitable missing data.	14M

UNIT-V

9.		Write about	14M
		i)Cellular concrete. ii)No fines concrete. . iii) Light weight concrete	
		(OR)	
10.	a)	What are the basic properties of fibre – reinforced concrete which can be advantageously made use of in the design of structural elements?	7M
	b)	Explain the properties of polymer Impregnated Concrete.	7M

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AR16

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Supplementary Examinations, January-2019

ELECTRICAL MACHINES-III
(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) Prove that a single phase motor winding when excited by a   7 M
      single phase supply produces two equal and opposite
      revolving fields.
   b) The following test results were obtained in case of a 220V,   7 M
      single –phase induction motor:
         No-load test   :   220V,6.15A,348W
         Blocked rotor test   :   126V, 15A, 577W.
         Stator winding resistance = 1.5Ω.
      Determine the approximate equivalent circuit of the motor.

(OR)

2. a) Draw and explain the equivalent circuit of a single phase   7 M
      induction motor how can the performance of the motor be
      analyzed.
   b) Find the mechanical power output of 185watts, 4 pole   7 M
      110Volts, 50Hz single phase induction motor whose constants
      are given below at a slip of 0.05.
      $R_1 = 1.86 \ \Omega$, $X_1 = 2.56 \ \Omega$, $X_m = 53.5 \ \Omega$, $R_2 = 3.56 \ \Omega$, $X_2 = 2.56$
      Ω Core loss = 40 watts and friction and windage losses = 13
      watts.

UNIT-II

3. a) Conclude how starting torque is obtained in split phase single   7 M
      phase induction motors?
   b) Discuss the modification necessary to operate a dc series   7 M
      motor satisfactorily on a single phase ac supply.

(OR)

4.	a)	How is starting torque produced in a shaded-pole motor?	7 M
	b)	Describe the construction, working and application of AC series motor.	7 M

UNIT-III

5.	a)	Explain the operation of a stepper motor.	7 M
	b)	Write short notes on hybrid stepper motor with relevant diagram	7 M

(OR)

6.	a)	What is the difference between a permanent-magnet type of stepper motor and a Reluctance-type stepper motor?	7 M
	b)	Classify the modes of excitation of stepping motors and their characteristics.	7 M

UNIT-IV

7.	a)	What are the advantages and disadvantages of brush less de motors compared to ordinary brush dc motors?	7 M
	b)	With a neat block diagram, explain the closed loop control of a BLDC motor.	7 M

(OR)

8.	a)	Illustrate the working of different types of power controllers used for the control of permanent magnet brushless D.C. Motors.	7 M
	b)	Write short notes on torque and emf equation of permanent magnet brushless D.C. Motor.	7 M

UNIT-V

9.		Select the Linear Induction Motor for electric traction application and discuss the merits and demerits.	14 M

(OR)

10.	a)	Discuss working principle and constructional details of LIM	8 M
	b)	Explain the applications of Linear Induction Motor	6 M

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AR16

CODE: 16ME3017   SET-1

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Supplementary Examinations, January-2019

INSTRUMENTATION AND CONTROL SYSTEMS
(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) With the help of a block diagram, show the three stages of Generalized   7M
       Measurement System. Also explain the functions of each stage.
    b) Explain Linear Variable Differential Transformer with a neat sketch for the   7M
       measurement of linear displacements.

(OR)

2. a) Sketch and explain variable capacitive transducer elements with applications.   7M
    b) Explain the construction, principle of working and advantages of Variable   7M
       resistance vibration sensor.

UNIT-II

3. a) Explain the construction and working of strain gauge load cell for the measurement   7M
       of force.
    b) What are the different instruments that are used to measure torque? Explain   7M
       anyone with neat sketches

(OR)

4. a) Derive, from first principles, the relationship for gauge factor of a strain gauge.   7M
    b) Explain principle and operation of stroboscope for speed measurement?   7M

UNIT-III

5. a) Describe with a neat sketch the principle of working of bourdon tube pressure   7M
       gauge and also mention its advantages and disadvantages.
    b) Discuss the construction and working of thermocouple type thermal conductivity   7M
       gauge for low pressure measurement.

(OR)

6. a) Explain the disappearing filament pyrometer setup and explain its operation.   7M
    b) How to measure the level using anyone of the transducer?   7M

UNIT-IV

7. Explain the construction, working and applications of the following types of flow   14M
    Meters: (a) Magnetic flow meter (b) Turbine flow meter.

(OR)

8. a) Explain the measurement of humidity using Recording Type Psychrometer   7M
    b) Draw and explain Dew point meter for Measurement of moisture?   7M

UNIT-V

9. a) Describe with neat sketch the open loop speed control system.   8M
    b) State Functions of P+I+D controller   6M

(OR)

10. a) Discuss advantages and disadvantages of open loop and closed control systems?   6M
    b) Explain P+I control algorithm and write their advantages and disadvantages?   8M

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AR16

CODE: 16EC3018   **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Supplementary Examinations, January-2019
ELECTRONIC MEASUREMENTS AND INSTRUMENTATION
(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.	a)	Explain about different types of errors that occur in measurements	8M
	b)	Discuss about AC voltmeters.	6M
		(OR)	
2.	a)	Describe the basic performance characteristics of a system? Explain	8M
	b)	Explain briefly about voltmeter range extension .	6M

UNIT-II

3.	a)	Explain how a Function Generator works?	6M
	b)	Explain the working principle of wave analyzer with neat block diagram.	8M
		(OR)	
4.	a)	With a neat block diagram discuss about an AF sine wave generator	8M
	b)	List out the applications of Spectrum Analyzer?	6M

UNIT-III

5.	With a block diagram explain the operation of a Digital storage Oscilloscope?	14M
	(OR)	
6. a)	Explain briefly the Basic Features of a analog storage Oscilloscope?	5M
b)	Explain the working of Dual trace CRO with neat block diagram	9M

UNIT-IV

7.	a)	Explain the basic principle of wheat stone bridge and derive the expression for unknown resistance	7M
	b)	Draw the circuit diagram of a wien bridge, explain its working and derive the equation for frequency?	7M
		(OR)	
8.	a)	In a certain Wheatstone bridge circuit measurements, RA=200k Ω, RB=400k Ω, RC=100k Ω, RD=300k Ω. E=1.5V, Rg=100 Ω, with usual notation. Determine the current through the detector galvonometer	6M
	b)	Explain the Kelvin Bridge with neat diagram and derive the expression for unknown resistance.	8M

UNIT-V

9.	a)	Define a transducer? Write the classifications of transducers?	6M
	b)	Explain working of strain gauge and what are its specific advantages?	8M
		(OR)	
10.	a)	Explain the operation of a Piezo electric transducer	7M
	b)	Explain the desirable characteristics of thermocouples?	7M

AR16

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Supplementary Examinations, January-2019

JAVA PROGRAMMING
(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 briefly about the Data Types. What is Type Conversion and Casting in Java, Explain with a suitable example?	9 M
	b)	Explain briefly about Java Buzz words.	5 M

(OR)

2.	a)	Demonstrate different ways of reading data dynamically in java with examples.	6M
	b)	Explain about string class and its methods with an example.	8 M

UNIT-II

3.	a)	Write syntax for defining a class and how to access members of class through an object, Explain with a suitable example.	7 M
	b)	Explain the usage of 'this' keyword with an example	7 M

(OR)

4.	a)	Demonstrate how to create a constructor in java with an example.	7 M
	b)	Write a java program to demonstrate static methods.	7 M

UNIT-III

5.	a)	Explain about usage of final keyword in inheritance with an example.	7 M
	b)	Explain the difference between method overloading and method overriding with an example.	7 M

(OR)

6.	a)	What is the purpose of interfaces in java and how to create an interface?	7 M
	b)	Distinguish abstract classes Vs interfaces.	7 M

UNIT-IV

7.	a)	What is the purpose of super keyword? Explain with an example.	7 M
	b)	Demonstrate multiple inheritance using interface with an example.	7 M

(OR)

8.	a)	What is a package? Explain it with an example and also write how to import packages.	9 M
	b)	What is an abstract class and explain with an example.	5 M

UNIT-V

9.	a)	Write the differences between process and thread. Explain thread life cycle methods	7 M
	b)	Explain how to create multiple threads in java with an example.	7 M

(OR)

|			
10.	a)	Draw an Applet Life cycle diagram and explain the methods in it.	7 M
	b)	Write a java Applet program to explain parameter passing technique with an example.	7 M

AR13

SET-1

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Supplementary Examinations, January-2019

BUILDING PLANNING AND DRAWING
(Civil Engineering)

Time: 3 Hours   Max Marks: 70

PART-A

Answer any THREE questions Part-A   [3 X 14 = 42 M]

1.	a	Write short notes on (i) lighting and ventilation (ii) floor space index (FSI)	7M
	b	What are the principles underlying with building byelaws	7M
2.	a	Explain the term Grouping with examples	7M
	b	Write the importance and necessity in planning of buildings for recreation	7M
3.		Write classification of buildings? Also explain any three types of buildings?	14M
4	a	Explain different features of hospitals, institutional, and buildings for recreation?	7M
	b	Explain different principles used while planning a hospital in rural areas?	7M
5.	a	Discuss about bar charts with an example	7M
	b	Explain different types of floats involved in CPM	7M

PART-B

Answer any **one** question Part-B   [1x28=28M]

UNIT-I

6.	a	What are the merits and demerits of English bond over Flemish bond	**8M**
	b	Draw elevation and sectional plan of Panelled window of size 1200X1000 mm.	**20M**
7.		Draw the plan, section and elevation of the given line diagram?	[28M]
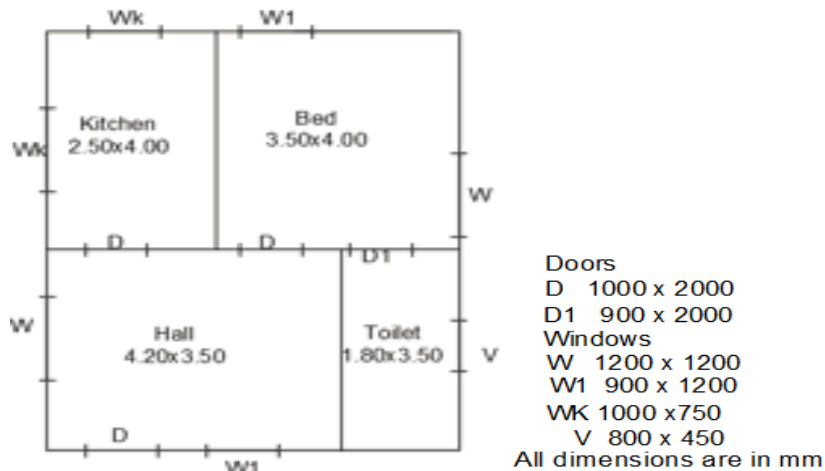
AR13

PART-A

ANSWER ALL QUESTIONS   [1 x 10 = 10 M]

1. a) Define pitch factor.
   b) What in the nature of armature reaction for leading pf load.
   c) What is voltage regulation of alternator.
   d) Why MMF method is called optimistic method.
   e) What are the conditions for parallel operation of alternator.
   f) State the characteristics of a infinite bus.
   g) Why synchronous motor is also called as synchronous condenser.
   h) What is hunting
   i) What is capacitor start and run single phase induction motor.
   j) Write any two application of shaded pole motor.

PART-B

Answer one question from each unit   [5x12=60M]
UNIT-I

2. a) Explain the advantages of stationery armature winding.   **[8M]**
   b) A 16 pole alternator has 144 slots. if the coil pitch is kept 5 slots, then calculate its pitch factor.   **[4M]**

(OR)

3. Explain the effect of armature reaction on the performance of an alternator. How it depends on the load power factor? Explain with suitable diagrams   **[12M]**

UNIT-II

4. a) Explain the merits and demerits of e.m.f and m.m.f method.   **[6M]**
   b) A 3-Phase, Star connected alternator is rated at 1600 KVA, 13500 V. The armature effective resistance and synchronous reactance are 2 ohms and 20 ohms respectively per phase. Calculate the percentage regulation for a load of 1200 kW at power factors of (i) 0.85 leading   **[6M]**

(OR)

5. a) Derive the expression for finding regulation of salient pole alternator using two reaction theory. Draw its phasor diagram.   **[6M]**
   b) Describe the slip test method for measurement of Xd and Xq of synchronous machine   **[6M]**

AR13

UNIT-III

6. a) Derive the expression for load sharing between dissimilar alternator. **[6M]**

   b) Two synchronous generators are connected to bus-bar having a constant voltage of $10000\angle 0^0$ Generator A has an induced e.m.f of $13000\angle 22.6^0$ and a reactance of 2 ohm; generator B has an e.m.f of $12500 \angle 36.9^0$ V and a reactance of 3 ohms. Find the current, KW and KVAR supplied by each generator **[6M]**

(OR)

7. a) What are the condition to be fulfilled for running two generators in parallel ? **[4M]**

   b) Two identical 3 phase star connected generator operating in parallel. share equally a total load of 750KW at 6000V and power factor 0.8. The synchronous reactance and resistance of each machine are respectively 50 ohm and 2.5 ohm respectively per phase. The field of the first generator is excited so that the armature current is 40A (lagging). Find i) armature current of second alternator, each machine **[8M]**

UNIT-IV

8. a) Explain the principle of operation of a 3- phase synchronous motor. **[6M]**

   b) A 2000 V, 3-phase star-connected synchronous motor has an effective resistance and synchronous reactance per phase of 0.2 ohms and 2.2 ohms respectively. The input is 800 KW at normal voltage and induced line e.m.f is 2500 V. Calculate line current and power factor. **[6M]**

(OR)

9. a) Explain the effects of varying excitation on armature current and power factor in a synchronous motor. Draw 'V' curves **[6M]**

   b) Draw the phasor diagram of a synchronous motor. Explain the effect of change of excitation if load is constant. **[6M]**

UNIT-V

10. a) Explain the construction features and principle of operation of single phase induction motor. **[8M]**

    b) Draw the neat diagrams the following types of single phase induction motors: (i) Capacitor start induction motor (ii) Capacitor start and capacitor run induction motor. **[4M]**

(OR)

11. Explain the construction and principle of operation of AC series motor. Also draw n its phasor diagram. Discuss its applications. **[12M]**

AR13

PART-A

ANSWER ALL QUESTIONS   **[1 x 10 = 10 M]**

1. a) What are methods which can lead to increase in thermal efficiency of Rankine cycle?
    b) Discuss in brief with their function i) Fusible Plug ii)Man hole
    c) What is the function of a steam nozzle?
    d) What are the effects of supersaturation flow?
    e) Explain the principle of working of an impulse turbine?
    f) Define blade efficiency and stage efficiency?
    g) Write the function of the condenser?
    h) Define Condenser efficiency?
    i) Define isentropic efficiency of a compressor and turbine?
    j) What are the principles of jet and rocket propulsion?

PART-B

Answer one question from each unit   **[5x12=60M]**

UNIT-I

2. a) Define pure substance and give some examples?   4M
    b) A steam power plant operating on the Rankine cycle, steam enters the turbine at 4 Mpa, 350^0 and exits at a pressure of 15 kPa. Then it enters the condenser and exits as saturated water. Next, a pump feeds back the water to the boiler. The isentropic efficiency of the turbine is 90%. Determine i) Net work output of the cycle ii) Heat supplied to the cycle   8M

(OR)

3. a) Define Latent heat of vaporisation, Latent heat of fusion and Latent heat of sublimation with an example?   4M
    b) A steam power plant operates on an ideal regenerative rankine cycle with two open feed water heaters. Steam enter the turbine at 10MPa And 600^0C, and exhausts to the condenser at 5KPa. Steam is extracted from the turbine at 0.6 and 0.2 MPa. Water leaves both feed water heaters as a saturated liquid the mass flow rate of steam through the boiler is 22kg/s. show the cycle on a T-S diagram and determine a) the net power output of plant b) thermal efficiency of the cycle   8M

UNIT-II

4. a) Differentiate between Water tube and Fire tube boilers with proper examples?   5M
    b) Briefly explain the working of Babcock and Wilcox boiler with a neat sketch?   7M

(OR)

5. a) Write the components of super critical and sub critical Boilers?   4M
    b) A boiler uses 16kg of air per kg of fuel, when the fuel consumption is at the rate of 1800kg/h. Actual draught required is 20mm of water when all losses are considered. The surrounding air temperature is 27^{0c} and the flue gas temperature is 277^{0c}. Determine the chimney height and its diameter if actual velocity of flue gases is 0.35 times the theoretical velocity due to roughness of interior surfaces of the chimney.   8M

UNIT-III

6. a) Explain the phenomenon of Wilson line ?   5M

   b) Dry saturated steam at a pressure of 20 bar enters a Convergent – Divergent nozzle and leaves at a pressure of 2 bar. If the flow is adiabatic and frictionless determine :   7M
   i) The exit velocity of the steam
   ii) Ratio of cross section at exit and that at throat

(OR)

7. a) Explain the working of a high level Counter flow jet condenser with a neat diagram?   5M

   b) The temperature in a surface condenser is 37.31^{0c} and the vaccum is 698mm of Hg and the barometer reads 755.2 mm of Hg. Correct the vaccum reading to a standard barometer of 760mm and hence determine (i) the partial pressure of steam and air, and (ii) the mass of air associated with one kg of steam.   7M

UNIT-IV

8. a) Explain the pressure-velocity compounding with a neat sketch?   5M

   b) Steam enters a reaction turbine with parson's blading at a speed of 100 m/s at a pressure of 10 bar and dry saturated condition. The mean blade height is 40 mm and the rotor exit angle is 20^0. The axial velocity of steam is ¾ of blade velocity at mean radius. Steam flow rate is 9000 kg/hr. The effect of blade thickness on the annulus area can be neglected. Calculate :   7M
   i) The rotational speed of the wheel
   ii) The diagram power
   iii) The diagram efficiency
   iv) The enthalpy drop of the steam in the stage

(OR)

9. a) Define the term 'Degree of reaction' as applied to a steam turbine. Show that for Parsons turbine the degree of reaction is 50%.   6M

   b) Steam enters the blade row of an impulse turbine with a velocity of 600 m/s at angle of 25^0 to the plane of rotation of the blades. The mean blade speed is 255 m/s. The blade angle on the exit side is 30^0. The blade friction coefficient is 10%. Determine   6M
   i) Work done per kg of steam
   ii) Diagram efficiency   iii) Axial thrust per kg of steam

UNIT-V

10. a) Differentiate between closed cycle gas turbine and open cycle gas turbine?   4M

    b) In a Gas turbine plant working on the Brayton cycle the air at Inlet is 27^0C and 0.1 Mpa. The pressure ratio is 6.25 and maximum temperature is 800^0 C. The Turbine and compressor efficiencies are each 80%. Find (i) the heat supplied per kg, (ii) The cycle efficiency, and (iii) the turbine exhaust temperature   8M

(OR)

11. a) Discuss the following (i) Engine Thrust (ii) Propulsive power (iii) Propulsive Efficiency   6M

    b) A turbojet flies with a speed of 700km/h at an ambient pressure of 60kpa. The properties of gas entering the nozzle are 300Kpa and 250degree centigrade. The mass flow rate is 18kg/s. assuming air is working fluid. Find the thrust developed, thrust power and propulsive efficiency. Take r=1.4.   6M

AR13

SET-1
ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Supplementary Examinations, January-2019

ELECTRONIC MEASUREMENTS AND INSTRUMENTATION
(Electronics and Communication Engineering)

Time: 3 Hours   Max Marks: 70

PART-A
ANSWER ALL QUESTIONS   [1 x 10 = 10 M]

1. a) Define accuracy.
   b) What are the advantages of digital multimeter?
   c) Name the circuit that generates square waves?
   d) What is the difference between CRO and Spectrum Analyser?
   e) What is use of time base circuit in a CRO?
   f) What is disadvantage of Storage Oscilloscope?
   g) What are the sources of errors in a AC bridge?
   h) What type of bridge circuit is used for measurement of less than 1ohm resistance?
   i) What is difference between active and passive transducer?
   j) Define term gauge factor?

PART-B

Answer one question from each unit   **[5x12=60M]**

UNIT-I

2. a) Discuss about various types of errors in Instrumentation   6M
      system?
   b) Explain procedure for extending range of given   6M
      Voltmeter?

(OR)

3. a) Explain the procedure for design of series and shunt type   6M
      ohmmeter?
   b) What are advantages of digital multimeter over analog   6M
      type?

UNIT-II

4. a) Draw block diagram of function generator and explain function of each block? 6M

   b) Explain measurement of frequency spectrum of AC signal using spectrum analyser? 6M

(OR)

5. a) With a neat circuit explain working of a square wave generator? 8M

   b) Explain various types of errors encountered in signal generators? 4M

UNIT-III

6. a) Draw the cross sectional view of a CRT and explain its working? 6M

   b) Explain how saw tooth waveform is generated from a time based circuit? 6M

(OR)

7. a) Explain different types of delay lines used in CRO? 6M

   b) Expalin working principle of a storage CRT? 6M

UNIT-IV

8. a) Explain different sources of errors in a wheatstone bridge? 6M

   b) Derive the expression for balancing conditions for AC bridge? 6M

(OR)

9. a) Explain measurement of unknown inductance using Anderson's bridge? 6M

   b) Derive expression for balancing frequency of a wein bridge circuit? 6M

UNIT-V

10. a) Explain how displacement is measured using Inductive type transducer? 6M

    b) Explain principle of piezoelectric transducer in force measurement? 6M

(OR)

11. a) Explain measurement of temperature using Thermocouples? 6M

    b) Draw block diagram of digital DAS and explain function of each block? 6M

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AR13

CODE: 13CS3014 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Supplementary Examinations, January-2019

OPERATING SYSTEMS
(Common to CSE & IT)

Time: 3 Hours   Max Marks: 70

PART-A

ANSWER ALL QUESTIONS   [1 x 10 = 10 M]

1. a) List various functions of Operating System.
    b) Define Starvation.
    c) What is a critical section or critical region?
    d) Classify the necessary conditions for deadlock.
    e) A system contains three programs and each requires three tape units for its operation. How many minimum number of tape units which the system must have such that deadlocks never arise is?
    f) What is page fault?
    g) Segmentation suffers from which type of fragmentation?
    h) Categorize types of files.
    i) Give some file attributes.
    j) List at least four device drivers.

PART-B

Answer one question from each unit   [5x12=60M]

UNIT-I

2. a) Briefly explain different Types of Operating Systems.   6M

    b) Write about following factors related to scheduling criteria.   6M
        A) CPU utilization   B) ThroughputC) Turnaround time
        D) Waiting time   E) Response time

(OR)

3. a) What is the purpose of PCB? Explain various pieces of information contained in   6M
        PCB.

    b) Consider the following processes, with the priority of process and the length of the   6M
        CPU burst given in milliseconds.

Process	Burst Time	Priority
P_1	10	3
P_2	1	1
P_3	2	4
P_4	1	5
P_5	5	2

Calculate average waiting time using Priority CPU Scheduling algorithm.

UNIT-II

4. a) Briefly discuss about Peterson's Solution.   6M

   b) Consider the snapshot of a system   6M
   Processes p0, p1, p2, p3, p4
   Resources A, B, C

Processes	Allocation.			Max			Available		
	A	B	C	A	B	C	A	B	C
P_0	0	1	0	7	5	3	3	3	2
P_1	2	0	0	3	2	2			
P_2	3	0	2	9	0	2			
P_3	2	1	1	2	2	2			
P_4	0	0	2	4	3	3			

   i) What will be the content of the Need matrix?
   ii) Is the system in safe state? If Yes, then what is the safe sequence?

   (OR)

5. a) Outline the principles of deadlock.   4M

   b) List and explain different methods used for handling deadlocks?   8M

UNIT-III

6. Explain different techniques for structuring the page table.   12 M

   (OR)

7. a) Consider the reference string   7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0,1 Calculate no of page faults using   8M

   1. FIFO page replacement algorithm
   2. LRU page replacement algorithm.

   b) What are the issues on allocation of frames?   4M

UNIT-IV

8. Overview the types of Directory Structure.   12M

   (OR)

9. a) Illustrate file access methods and explain any two access methods.   6M
   b) Describe the protection problems that could arise.   6M

UNIT-V

10. Differentiate SCAN, C-SCAN and LOOK disk scheduling algorithms with an example?   12M

    (OR)

11. a) What is the importance of Disk scheduling? Explain FCFS with an example.   6M
    b) Write about Access Control Lists and Capability Lists.   6M