AR16

CODE: 16CE2008 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

II B.Tech II Semester Supplementary Examinations, July- 2019

STRUCTURAL ANALYSIS-I

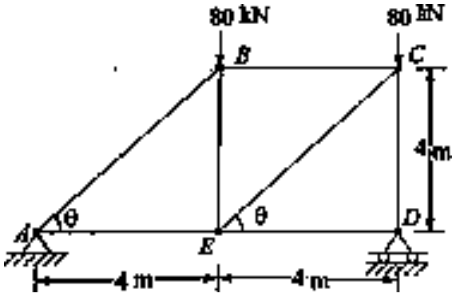
(Civil Engineering)

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

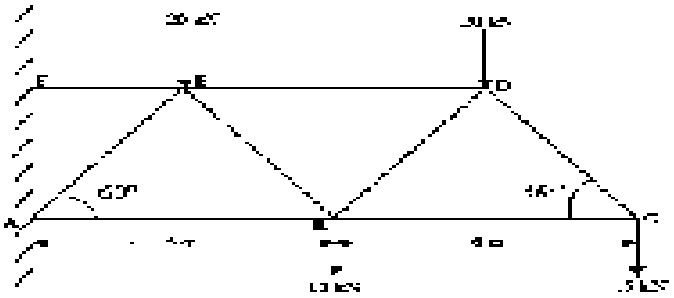
UNIT-I

1. Determine the forces in all the members shown in Fig. The cross sectional area of all members are same. 14m



(OR)

2. Determine the forces in the members DE, BE and AB of the truss, shown in Fig. by using method of sections. 14m



UNIT-II

3. Calculate the Prop reactions and draw the SFD and BMD for the propped cantilever carrying a uniformly distributed load of 20kN/m over a span 3m from left end, propped at end of the span. The total length of the span is 6m. 14m

(OR)

4. Draw S.F.D and B.M.D for a fixed beam carrying an eccentric point load at a distance 'a' from left end. Also find the point of contra flexure 14m

UNIT-III

5 Determine the support moments for given diagram as sown in figure 14m

(OR)

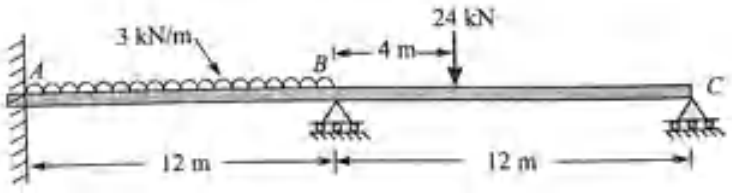
6 Derive them expression for Clapeyron's" Theorem of three movement equation Solution: If AB and BC are the two consecutive spans of continuous beam subjected to an external loading the supporting moments M_a, M_b, and Mc at the supports A, B and C. 14m

UNIT-IV

7. Analyse the continuous beam ABCD 20 m long is continuous over 3 spans. AB= 8m, BC=4m, and CD=8m. Moment inertia of AB is 2I, that of BC is I and that of CD is 2I. The spans AB and BC carrying an udl of 1.5 KN/m and point load 4 KN is acting at the center of span CD. The end supports are fixed supports and support B is simply supported, find the fixed end moments. I= 1600 $cm^{4,}$ E = $2*10^5$ mm^4. 14m

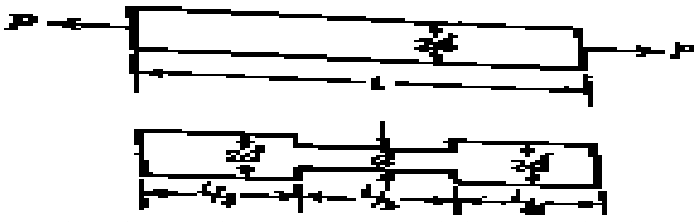
(OR)

8. Determine the fixed end moments of a given continuous beam is built-in at A and is carried over rollers at B and as shown in fig. AB=BC=12m. 14m



UNIT-V

9. a Compare the strain energy of two bars of same material and same length are subjected to an equal gradual applied tensile load as shown in fig. 8m



b Derive expression for strain energy stored due to axial loading. 6m

(OR)

10. a Derive expression for Castigliano's first theorem. 7m

b List the points to be considered to determine the SF and BM using Castigliano's first theorem. 7m

AR16

CODE: 16EE2012 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

II B.Tech II Semester Supplementary Examinations, July- 2019

ELECTRICAL MACHINES-II

(Electrical & 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 concept of production of rotating magnetic field.	8M
	b)	A three-phase , 6-pole,50Hz induction motor has a slip of 1% at no load, and 3% at full load. Determine (a) synchronous speed (b) no-load speed (c)full-load speed (d) frequency of rotor current at stand still (e) frequency of rotor current at full load.	6M

(OR)

2.	a)	Explain the constructional details of Three phase induction motor.	7M
	b)	Develop the expression for torque in an induction motor and also derive the condition for maximum torque.	7M

UNIT-II

3		A 50 KW , 6-pole, 50Hz,450V, three phase slip ring induction motor furnished the following test figures: No load test: 450V,20A,0.15pf. Blocked rotor test: 200V, 150A,0.3pf. The ratio of stator to rotor copper losses on short circuit was 5:4. Draw the circle diagram and determine from it (a) The full load current and power factor b) The maximum torque and maximum power input c) Slip at full load d) Efficiency at full load	14M

(OR)

4.	a)	Explain the Cascade method of speed controlling in induction motors.	7M
	b)	Explain the operation of Direct-on-line starter with a neat sketch.	7M

UNIT-III

5.	a)	Explain the constructional details of synchronous machines.	7M
	b)	Derive the emf equation of a synchronous machine.	7M

(OR)

6.	a)	Explain the principle of operation of synchronous generators.	7M
	b)	Explain the armature reaction effect in synchronous generators.	7M

UNIT-IV

7.	a)	A three phase, star connected alternator is rated at 1600KVA,13500V.The armature effective resistance and synchronous reactance are 1.5 ohm and 30 ohm respectively per phase. Calculate the percentage regulation for a load of 1280KW at power factors of (i) 0.8 pf leading (ii) 0.8 lagging using synchronous impedance method	8M
	b)	Discuss about synchronous impedance method.	6M

(OR)

8.	a)	Explain MMF method 0f synchronous machines.	7M
	b)	Discuss the significance of zero power factor method.	7M

UNIT-V

9.	a)	Discuss what are the auxillary means to start synchronous motors.	7M
	b)	Explain how the field current variation will affect the performance of a synchronous motor.	7M

(OR)

10.	a)	Illustrate the performance of a synchronous motor using V and inverted V curves.	7M
	b)	Explain synchronous condensers with neat diagrams.	7M

AR16

CODE: 16ME2010 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

II B.Tech II Semester Supplementary Examinations, July- 2019

THERMAL ENGINEERING - I

(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) Mention the assumptions made in air standard cycle and Fuel-air cycles. 6 M
   b) Explain briefly the valve timing and port timing of a four-stroke S.I engine and a two-stroke S.I engine respectively with neat sketches. 8 M

(OR)

2. a) What are the different types of ignition systems? Explain the working of a battery-ignition system with a neat sketch. 7 M
   b) In an engine working on Diesel cycle, inlet pressure and temperature are 1 bar and 17^0 C respectively. Pressure at the end of adiabatic compression is 35 bar. The ratio of expansion i.e. after constant pressure heat addition is 5. Calculate the heat addition, heat rejection and the efficiency of the cycle. Assume $\gamma = 1.4$, $C_p = 1.004$ kJ/kg K and $C_v = 0.717$ kJ/kg K. 7 M

UNIT-II

3. a) Explain the damaging effects of detonation in an S.I engine. Mention the major factors or engine variables that effect knocking. 6 M
   b) Explain the compression process in SI engine with pressure – crank angle diagram 8 M

(OR)

4. a) Discuss the effect of the following variables on ignition lag 8 M
   (i) nature of fuel and air/fuel ratio (ii) Initial temperature and pressure
   (iii) Compression ratio (iv) Turbulence and engine speed.
   b) What are the essential requirements of a Carburettor? Explain different Carburettors used in S.I engines. 6 M

UNIT-III

5. a) Explain the influence of following factors on delay period in C.I engines 8 M
   (i) Ignition quality of fuel (ii) Injection timing (iii) Compression ratio
   (iv) Air/fuel
   b) Describe with the help of a diagram the swirl chamber IDI type combustion chamber for a C.I engine. 6 M

(OR)

6. a) Explain briefly the stages of combustion in C.I engine with the help of pressure-crank angle (p-θ) diagram. 8 M
   b) Describe the Cetane number used in measuring the ignition quality of C.I engine fuels. 6 M

UNIT-IV

7. The following observations were recorded in a test of one hour duration on a single cylinder oil engine working on four stroke cycle: Bore = 300mm, Stroke = 450mm, fuel used = 8.8 kg, C.V.of fuel = 41800KJ/kg, average speed = 200 r.p.m, m.e.p. =5.8 bar, brake friction load = 1860N, quantity of cooling water = 650 kg, temperature rise = 22oC, diameter of the brake wheel = 1.22m, Calculate: i) Mechanical efficiency , and ii) Brake thermal efficiency, draw the heat balance sheet. 14 M

(OR)

8. Explain i) Indicated power ii) Break power iii) Indicated thermal efficiency iv) Break thermal efficiency v) Air fuel ratio vi) volumetric efficiency vii) Air standard efficiency. 14 M

UNIT-V

9. a) Differentiate between Root Blower Compressor and Vane Blower Compressor. 7 M
   b) Explain the working of centrifugal compression with neat sketch. 7 M

(OR)

10. a) Explain with a neat sketch the construction and working of Reciprocating compressor. 7 M
    b) Air is compressed in a single-stage reciprocating compressor from 1.013 bar and 15^0C to 7 bar. Calculate the indicated power required for a free air delivery of 0.3 m^3/min, when the compression process is: 7 M
    (i) Isentropic (ii) Reversible isothermal (iii) Polytropic, with n = 1.25

AR16

CODE: 16EC2009 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(An Autonomous Institution)

II B.Tech II Semester Supplementary Examinations, July- 2019

ELECTRONIC CIRCUITS- II

(Electronics and Communication Engineering)

Time: 3 hours **Max. Marks: 70M**

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. Why do we need three RC networks for a phase shift oscillator? Derive the frequency of oscillations and condition of oscillations. 14M

(OR)

2.a Explain the operation of Hartley oscillator and derive the expression for frequency of oscillations. 10M

b A Wien bridge oscillator has a frequency of 500kHZ, If the value of C is 1000pF, determine the value of R? 4M

UNIT-II

3.a Explain about the classification of multistage amplifiers based bandwidth and type of coupling. 7M

b Draw and explain the block diagram of n-stage cascaded amplifier. 7M

(OR)

4.a Explain the need of cascading amplifiers and what is the effect of cascading on gain. 7M

b What is the effect of coupling capacitor and bypass capacitor on the frequency response of RC coupled amplifier? 7M

UNIT-III

5.a Draw hybrid-π model and explain about various parameters used in π model. 8M

b A single stage CE amplifier is measured to have a bandwidth of 5MHz with R_L=500 ohms, Assume h_{fe}=100, g_m=100mA/V, $r_{bb'}$=100 ohms, C_C=1pF, and f_T=400MHz. (i) Find the value of source resistance (ii) find the midband voltage gain (V_o/V_s). 6M

(OR)

6.a Derive the expression for CE amplifier current gain with restive load at high frequencies. 8M

b. A BJT has the following parameters at I_C=1mA, h_{ie}=3kΩ, h_{fe}=100, C_C=2pF and C_e=18pF. Find $r_{b'e}$, $r_{bb'}$, g_m and f_H for R_L=1kΩ. 6M

UNIT-IV

7.a Draw the circuit diagram of complementary symmetry class-B push pull power amplifier and explain its working. 10M

b A sinusoidal signal V_s= 1.75 sin(600t) is fed to a power amplifier , the resulting output current is I_0=15 sin 600t+ 1.5 sin 1200t+ 1.2 sin 1800t +0.5 sin 2400t. Calculate the percentage increase in the power due to distortion. 4M

(OR)

8.a Distinguish between cross over distortion and harmonic distortion. How they can be eliminated? 7M

b A Class-B push pull amplifier drives a load of 16Ω, connected to the secondary of ideal transformer. The supply voltage is 25 Volts. If the number of turns on the primary is 200 and the number of turns on the secondary is 50. Calculate maximum power output, DC power input, efficiency, and maximum power dissipation per transistor. 7M

UNIT-V

9.a Explain the working of stagger tuned amplifier and draw its frequency response. 7M

b Explain the working of double tuned amplifier and draw its frequency response. 7M

(OR)

10. a. What is the function of Voltage regulator circuit? How it is different from unregulated supply. 7M

b Compare the merits and demerits of zener regulator over series and shunt regulators. 7M

AR16

CODE: 16CS2008 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

II B.Tech II Semester Supplementary Examinations, July- 2019

DATABASE MANAGEMENT SYSTEMS

(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 in detail about Database Management System advantages over file management system.	6M
	b)	Explain the architecture of DBMS.	8M
		(OR)	
2.	a)	Explain the role of a data base administrator.	6M
	b)	Explain about storage manager component.	8M

UNIT-II

3.	a)	Explain the following : (i) Key Constraints (ii) Integrity Constraints.	10M
	b)	Write about different types of attributes in ER model. Show the notation of each.	4M
		(OR)	
4.	a)	Why foreign key constraints are important? Explain with employee database.	8M
	b)	Design an ER diagram for the Students information system taking in account atleast four entities.	6M

UNIT-III

5.	a)	What is DML? Explain DML operations with examples.	8M
	b)	Illustrate the usage of SQL GROUP BY, ORDER BY and HAVING Clauses.	6M
		(OR)	
6.	a)	Explain the role of views. Why role got importance? What are the problems in view updating?	10M
	b)	List and explain aggregate functions used in SQL with examples.	4M

UNIT-IV

7.	a)	Explain the advantages of decomposition? Discuss the problems faced in decomposition.	8M
	b)	Explain the functional dependency with multi-valued dependencies with example.	6M
		(OR)	
8.	a)	Discuss various anomalies caused due to interleaved execution with examples.	8M
	b)	What is transaction? Mention the desirable properties of a transaction.	6M

UNIT-V

9.	a)	Define dynamic multilevel indexing how to implement it with the help of B+ trees Explain	8M
	b)	Distinguish between Primary and Secondary indexing.	6M
		(OR)	
10.		Construct B+ tree to insert the following (order of the tree is 3) 26,27,28,3,4,7,9,46,48,51,2,6	14M

AR13

CODE: 13CE2008 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

II B.Tech II Semester Supplementary Examinations, July- 2019

STRUCTURAL ANALYSIS-I

(Civil Engineering)

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

PART-A

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

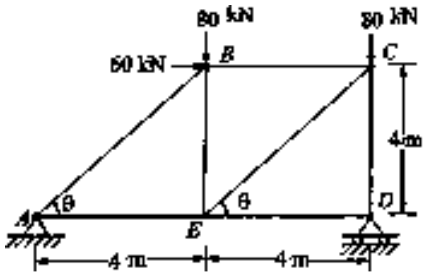
1. a) Define perfect frame.
   b) What is an arch?
   c) What is meant by sinking of support?
   d) Define point of contra flexure.
   e) What is the deflection at hinge support?
   f) Define fixed beam.
   g) Which type of structures analysed using Clapeyron's theorem?
   h) Define static indeterminacy.
   i) Define Influence line Diagram.
   j) Draw ILD for bending moment at the mid span in case of a cantilever beam of span 'L'.

PART-B

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

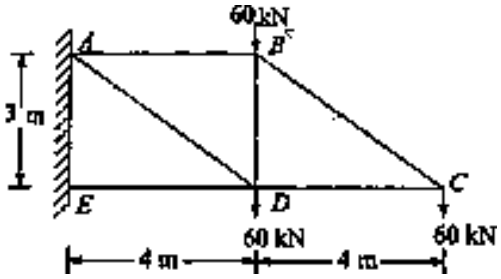
UNIT-I

2. Determine the forces in all the members shown in Fig. The cross sectional area of all members are same.



(OR)

3. Determine the forces in all the members shown in Fig. The cross sectional area of all members are same.



UNIT-II

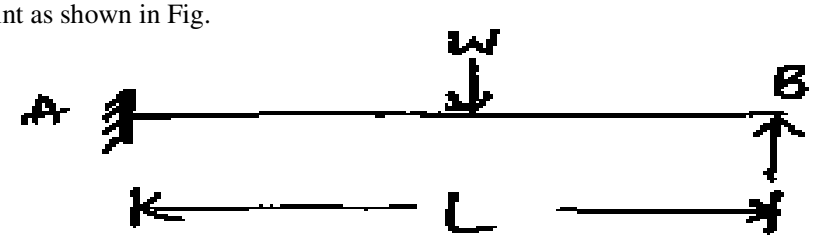
4. A Three hinged circular arch of span 16m and rise 4m is subjected to two point loads of 100kN and 80kN at the left and right quarters of the span points respectively. Find the reactions at supports also the bending moment, radial shear and normal thrust at 6m form left support.

(OR)

5. A three hinged parabolic arch carries a UDL of 30kN/m on the left half of the span. It has a span of 16m and central rise of 3m. Determine the resultant reaction of supports. Find the bending moment, normal thrust and radial shear at section x, and 2m from left support.

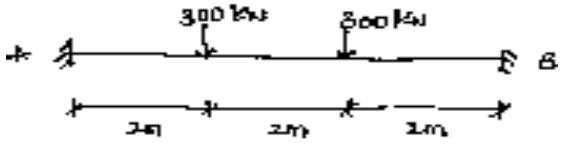
UNIT-III

6. Draw the bending moment diagram for the propped cantilever the load W is acting at the mid point as shown in Fig.



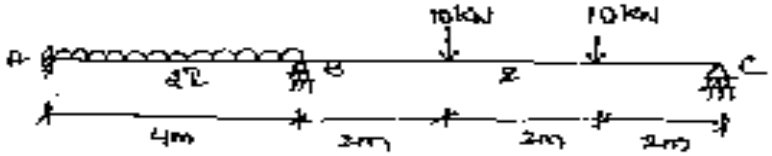
(OR)

7. Find the fixed end moment and plot SFD and BMD for the fixed beam loaded as shown in figure



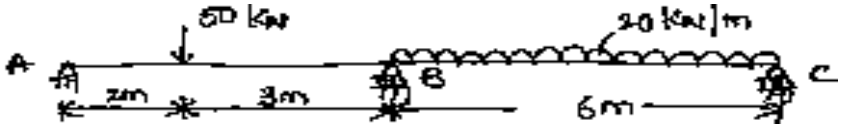
UNIT-IV

8. Analyse the continuous beam shown in figure using Clapeyron's theorem of three moments. Sketch SFD & BMD.



(OR)

9. Analyse the continuous beam shown in figure using Clapeyron's theorem of three moments and sketch BMD. EI is constant.



UNIT-V

10. Two wheel loads 200 kN and 100 kN spaced 3 m apart cross a simply supported girder of span 5 m with 100kN load leading. Draw the maximum shear force and maximum bending moment diagrams.

(OR)

11. A simply supported beam has a span of 15 m. A UDL of 40 kN/m and 5 m long crosses the girder from left to right. Draw ILD for shear force and bending moment at section 6 m from left end. Use this section to calculate the maximum shear force and bending moment at this section.

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AR13

CODE: 13EE2011 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech II Semester Supplementary Examinations, July- 2019

ELECTRICAL MACHINES – II
(Electrical and Electronics Engineering)

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

PART-A

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

1. a) What is the significance of open circuit and short circuits of a Transformer?
   b) Why is Iron used for the construction of a Transformer core?
   c) What are the different types of losses occur in a Transformer?.
   d) Mention any two comparisons between auto transformer and two winding transformer.
   e) Give two comparisons between squirrel cage and wound rotors.
   f) Define slip with equation.
   g) What are the commonly used starters for cage rotors.
   h) Define cogging,
   i) What are the methods employed for speed control of induction motors.
   j) Give the applications of induction generators.

PART-B

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

UNIT-I

2. a) Describe the construction of a Transformer. 5M
   b) Explain the working of single phase transformer on no load. 7M

(OR)

3. a) A 125 KVA transformer having primary voltage of 2000V at 50Hz has 182 primary and 40 secondary turns. Neglecting losses, calculate (i) the full load primary and secondary currents (ii) the No load secondary induced emf and (iii) the maximum flux in the core. 5M
   b) At 400V and 50Hz the total core loss of a transformer was found to be 2400W. When the transformer is supplied at 200V,and 25Hz, the core loss is 800W. Calculate the hysteresis and eddy current loss at 400V and 50Hz. 7M

UNIT-II

4. a) Explain the open circuit and short circuit tests on single phase transformer with neat sketches. 7M
   b) Describe the conditions must be fulfilled to perform parallel operation between two transformers? What are the advantages of parallel operation? 5M

(OR)

5 Explain the three-phase transformer connections with relevant diagrams. What are the factors affecting the choice of connections of transformers. 12M

UNIT-III

6. a) Explain the production of rotating magnetic field in three-phase induction motor. 7M
   b) Explain the principle of operation of a Three phase induction motor with neat diagrams. 5M

(OR)

7. a) Explain the constructional details of Three phase induction motors. 5M
   b) A 12 pole three phase alternator is coupled to an engine running at 500 RPM. It supplies an induction motor which has a full load speed of 1440 RPM. Find the slip and the number of poles of the motor. 7M

UNIT-IV

8 A 50 KW , 6-pole, 50Hz,450V, three phase slip ring induction motor furnished the following test figures: No load test: 450V,20A,0.15pf. Blocked rotor test: 200V, 150A,0.3pf. The ratio of stator to rotor copper losses on short circuit was 5:4. Draw the circle diagram and determine from it 12M

(a)The full load current and power factor
(b) The maximum torque and maximum power input
(c) Slip at full load (d) Efficiency at full load

(OR)

9. a) Explain the star-delta starting of Induction motor with neat sketch. 6M
   b) Explain the auto transformer starting of Induction motor with neat sketch. 6M

UNIT-V

10. a) Explain the Cascade method of speed control of induction motors with relevant sketches. 6M
    b) Explain the principle of operation of induction generators. 6M

(OR)

11. a) Explain the pole changing speed control method of induction motors. 6M
    b) Explain the variable frequency speed control method of induction motors. 6M

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AR13

CODE: 13ME2011 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech II Semester Supplementary Examinations, July- 2019

THERMAL ENGINEERING - I
(Mechanical Engineering)

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

PART-A

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

1. a) Define Heat Engine.
   b) What is the function of a Fly Wheel?
   c) What is Pumping Loads?
   d) What is a Performance Number?
   e) Define Swirl.
   f) What is the purpose of a "Float Chamber"?
   g) Define the term "Engine Friction".
   h) What is Boost Pressure?
   i) Define the term Lubrication.
   j) What are the stages of Combustion in SI Engine?

PART-B

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

UNIT-I

2. a) Explain the following I) Volumetric Efficiency ii) Loss due to rubbing Friction. [6M]
   b) Differentiate between Air Standard Cycle and Actual Cycles. [6M]

(OR)

3. a) Write the difference between Two Stroke Engine and Four-Stroke Engine with suitable Examples. [6M]
   b) Explain the Magneto Ignition System with a neat diagram. [6M]

UNIT-II

4. a) What is meant by Combustion? Explain about Normal Combustion using Pressure-Crank Angle diagram of a Petrol Engine. [7M]
   b) Explain the following i) Pre-ignition ii) Flame Speed [5M]

(OR)

5. a) Explain the Phenomenon of Auto-ignition. Explain how auto-ignition is responsible for knocking in SI Engine. [7M]
   b) Explain any one of the Combustion Chamber with a neat diagram. [5M]

UNIT-III

6. a) Explain the Effect of the following factors on Delay Period [8M]
i) Engine Speed ii) Intake Temperature iii) Compression Ratio.
b) What is Delay Period in CI Engine ? [4M]

(OR)

7. a) Explain the following i) Turbulent Combustion Chamber [6M]
ii) Pre-combustion Chamber.
b) Explain briefly the Effect of Engine Variables on Knock. [6M]

UNIT-IV

8. The following observations were recorded in a test of one hour duration on a single cylinder oil engine working on four stroke cycle: Bore = 300mm, Stroke = 450mm, fuel used = 8.8 kg, C.V.of fuel = 41800KJ/kg, average speed = 200 r.p.m, m.e.p. =5.8 bar, brake friction load = 1860N, quantity of cooling water = 650 kg, temperature rise = 22^{o}C, diameter of the brake wheel = 1.22m, Calculate: i) Mechanical efficiency , and ii) Brake thermal efficiency, draw the heat balance sheet. [12M]

(OR)

9. A six-cylinder, 4-stroke SI engine having a piston displacement of 700 cm^3 per cylinder developed 78 KW at 3200 r.p.m. and consumed 27 Kg of petrol per hour. The calorific value of petrol is 44 MJ/Kg. Estimate: i) The brake thermal efficiency, and ii) The brake torque. For air, R=0.287 KJ/Kg K. [12M]

UNIT-V

10. A two-stage single acting reciprocating compressor takes in air at the rate of 0.2m^3/s. The intake pressure and temperature of air are 0.1 MPa and 16^{o}C. The air is compressed to a final pressure of 0.7 MPa. The intermediate pressure is ideal and intercooling is perfect. The compression index in both the stages is 1.25 and the compressor runs at 600 r.p.m. Neglecting clearance, determine 1.The intermediate pressure, 2. The total volume of each cylinder, 3.The power required to drive the compressor, and 4.the rate of heat rejection in the intercooler. Take Cp = 1.005KJ/Kg K and R = 287 J/Kg K. [12M]

(OR)

11. a) Differentiate between Root Blower Compressor and Vane Blower Compressor. [6M]
b) Explain the working of centrifugal compression with neat sketch. [6M]

AR13

CODE: 13EC2008 **SET-I**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech II Semester Supplementary Examinations, July- 2019

ELECTRONIC CIRCUITS – II
(Electronics and Communication Engineering)

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

PART-A

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

1. a) What is the significance of Cascading?
   b) What is Darlington pair?
   c) Classify the Amplifiers
   d) What is the impact of negative feedback on noise in circuits?
   e) Define Barkhusan's Criterion.
   f) Define the term unloaded Q factor
   g) Define harmonic Distortions.
   h) Define Thermal stability.
   i) What is the purpose of staggered tuning
   j) Define Line Regulation.

PART-B

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

UNIT-I

2. a) Compare CE, CC and CB amplifier in terms of voltage gain, current gain, input and output impedances.
   b) How can you choose the transistor configuration in cascade amplifier.

(OR)

3. a) Draw and explain the working of a two stage RC Coupled amplifier. Derive the expression for voltage gain
   b) Distinguish between direct coupling and transformer coupling.

UNIT-II

4. a) What should be the amount of feedback, if the bandwidth is to be restricted to 1 MHz?
   b) Explain how negative feedback acts on bandwidth, distortion, Input Impedance and Output Impedance of a circuit.

(OR)

5. a) Give the advantages of negative feedback amplifier.
   b) Explain voltage series and voltage shunt feedback connections

UNIT-III

6. a) Write a note on frequency stability of oscillators.
   b) Draw the circuit diagram of a RC phases shift oscillator using BJT. Derive the expression for frequency of oscillation.

(OR)

7. a) Explain Wien bridge oscillator and derive its frequency of oscillation.
   b) Draw the circuit diagram of a Colpitts oscillator. Derive the expression for frequency of oscillation

UNIT-IV

8. a) Derive the expression for maximum value of conversion efficiency of class A power amplifier.
   b) What is the significance of Complementary Symmetry push pull amplifier? Explain with neat sketch.

(OR)

9. a) Derive the expression for maximum value of conversion efficiency of class B power amplifier.
   b) Explain about class D and class S power amplifiers. Mention their salient features and applications

UNIT-V

10. a) In a single tuned amplifier, the circuit bandwidth is 5KHz, and the voltage gain has maximum at 1000KHz, when the tuning capacitor is adjusted to 500pF. Calculate the Q of the circuit and the coil inductance.
    b) Define the terms (i) Load Regulation (ii) Line Regulation (iii) Ripple Rejection and (iv) Temperature Stability pertaining to voltage regulator ICs.

(OR)

11. a) Draw the equivalent circuit of a capacitance coupled single tuned amplifier and derive the equation for voltage gain
    b) Give the disadvantages of the series and shunt regulators?

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AR13

CODE: 13CS2007 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

II B.Tech II Semester Supplementary Examinations, July- 2019

DATABASE MANAGEMENT SYSTEMS

(Common to CSE & IT)

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

PART-A

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

1. a) What is the instance of a relation?
   b) List various types of database users.
   c) Define candidate key.
   d) Write the syntax to create a table in SQL.
   e) What are the major components used in E-R diagram design?
   f) What is Serializability?
   g) Define ISAM.
   h) What is functional dependency?
   i) What is internal hashing?
   j) Define Locking.

PART-B

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

UNIT-I

2. a) What are the different data models present and explain briefly? 6M
   b) Explain the difference between logical and physical data independence. 6M

(OR)

3. a) Explain the three schemas in DBMS. 8M
   b) Write the advantages of DBMS. 4M

UNIT-II

4. a) Explain conceptual database design with ER model. 8M
   b) Discuss the options for mapping ER model constructs to relations. 4M

(OR)

5. a) Discuss about integrity constraints over relations. 8M
   b) Write the differences between TRC and DRC. 4M

UNIT-III

6. a) What is SQL? Describe the form of a basic SQL query. 8M
   b) Describe about any two different Constraints supported in SQL? 4M

(OR)

7. a) What is a Trigger? Why is it needed to create a Trigger? What are its advantages? Explain using an example. 8M
   b) Explain drop command with an example. 4M

UNIT-IV

8. a) Explain dependency preservation property of decomposition. 8M
   b) Write and explain two phase locking protocol. 4M

(OR)

9. a) Define BCNF? How does BCNF differ from 3NF? Explain with an example. 8M
   b) Write about Multi valued dependencies. 4M

UNIT-V

10. a) What is meant by hashing? What are the different hashing techniques available? 8M
    b) Compare and contrast between heap files and sorted files. 4M

(OR)

11. a) Explain about Tree based indexing. 8M
    b) Discuss about clustered and unclustered indexes. 4M