

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Mid Semester Examination – March 2019

Course: B. Tech in Civil Engineering

Subject Name: Hydraulics II

Max Marks:20

Date:-11/03/2019

Sem: IV

Subject Code: CV 404

Duration:- 1 Hr.

Instructions to the Students:

1. All questions are compulsory.
2. Assume suitable data if necessary.

	(Level/ CO)	Marks
Q. 1 Attempt following Questions		6
a Flo in the open channel may be classified as 'Laminar' flow if ;..... (a) $Re < 500$ (b) $Re > 2000$ (c) $500 < Re < 2000$ (d) none of the above	CO 1/ C-1	
b The phenomenon occurring in an open channel when a rapidly flowing stream abruptly Changes to slowly flowing stream causing a distinct rise of liquid surface, is (A) Water hammer (B). Hydraulic jump (C). Critical discharge (D). None of the above	CO 2/ C-1	
c The channel whose boundary is not deformable is known as (A). Rigid channel (B). Prismatic channel (C). Mobile channel (D). Boundary channel	CO 1/ C-1	
d For a given discharge in a channel at critical depth (A). The total energy is minimum (B). The total energy is maximum (C). The specific energy is minimum (D). The specific energy is minimum	CO 2/ C-2	
e The most economical section of a trapezoidal channel is one which has hydraulic mean depth equal to; (A). $0.5[\text{depth}]$ (B). $0.5 [\text{sloping side}]$ (C). $0.5[\text{width}]$ (D). $0.5[\text{width} + \text{depth}]$	CO 1/ C-2	
f The Maximum velocity in open channel occurs at; (A) Near the channel bed (B) a little below channel free surface (C) at the free surface (D) at the centre of flow	CO 1/ C-1	
Q.2 Solve Any Two of the following.		3 X 2
(A) A 3 m wide rectangular channel conveys $12 \text{ m}^3/\text{s}$ of water at a depth of 2m. Calculate; i) Specific energy, critical depth, minimal specific energy, critical velocity ii) Froude number and whether flow is subcritical or supercritical.	CO 2/ C-3	
(B) What are the different types of channels? Give example in each case.	CO 1/ C-2	
(C) A triangular gutter whose side includes angle of 60° conveys water at a uniform depth 4m. If the slope of the bed is 1 in 1000 find the rate of flow of water. Take Chezy's constant $C = 55$.	CO 1/ C-3	
Q. 3 Solve Any One of the following.		8
(A) Derive expression for the most economical trapezoidal channel section.	CO 1/ C-3	
(B) Derive an expression for sequent depths in hydraulic jump. If sequent depths in a rectangular channel before and after hydraulic jump are 0.5m and 2 m respectively, calculate critical depth and discharge per unit width of channel.	CO 3/ C-3	

==* End *****

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**DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY,
LONERE**

Mid Semester Examination – Oct 2018

Course: S.Y. B. Tech in Civil Engg (I)

Sem: III

Subject Name: Surveying-II

Subject Code: CV402

Max Marks: 20

Date:- 12-3-19

Duration:- 1 Hr.

Instructions to the Students:

1. Figures to the right indicate Full marks
2. Assume suitable data wherever necessary

	(Level/CO)	Level	Marks
Q.1			6
1. The point on the celestial sphere vertically below the observer's position is called.	CO3	C1	
a) Nadir. b) Pole c) Zenith d) Celestial point.			
2. While making astronomical observations, the observer is mainly concerned with	CO3	C2	
a) All b) The directions of the poles of the celestial sphere			
c) The direction of the star from the instrument d) The direction of vertical axis of instrument.			
3. Which of the following is an independent quantity	CO1	C2	
a) Side of a triangle b) Sum of included angles c) R.L of B.M d) R.L of a point			
4. The equation which is obtained by multiplying each equation by the coefficient of its un-knowns and by adding the equations thus formed, is known as	CO1	C2	
a) None of these b) Normal equation c) Conditional equation d) Observation equation.			
5. For mapping any country	CO1	C1	
a) Geodetic triangulation of greatest possible sides and accuracy is			

carried out

b) Primary triangles are broken down into secondary triangles of less accuracy

c) All

d) Secondary triangles are further broken into third and fourth order triangles, the points of which are used for detail survey.

6. A total station is a combination of:

CO5

C2

a) EDM and Theodolite b) Compass and EDM c) Electronic theodolite and EDM d) EDM and electronic compass.

Q.2 Solve Any Two of the following.

3 X 2

(A) What are the different corrections that may have to be applied to base line measurement?

CO1

C1

(B) Give the classification of a triangulation system

CO1

C1

(C) What are the applications of field astronomy

CO3

C2

8

Q.3 Solve Any One of the following.

(A) The following observations were taken using a tacheometer fitted with anallatic lens, the staff being held vertically.

CO2

C3

Inst. Station	Height of Axis	Staff station	Vertical Angle	Hair readings		
P	1.45	BM	-6°12'	0.98	1.54	2.10
P	1.45	Q	7°5'	0.83	1.36	1.89
Q	1.57	R	12°21'	1.89	2.48	3.07

Determine the distances PQ and QR, and the RLs of P, Q and R.

(B) Find the most probable values of the angles A and B from the following observations at station 'O'

CO1

C3

A = 49°48'36.6"

Weight=2

B = 54°37'48.3"

Weight=3

A+B = 104°26'28.5"

Weight=4

*** End ***

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE**Mid Semester Examination – March 2019****Course : B. Tech in CIVIL ENGINEERING****Semester : III****Subject Name: Structural Mechanics- I****Subject Code: CV403****Max Marks: 20****Date: 13th March 2019****Time: 3 pm to 4 pm****Duration: 1 Hour****Instructions to the Students:**

1. Assume suitable data wherever necessary and State it clearly.
2. Figures to Right Indicate full Marks.
3. L indicates Low Level, M indicates Medium Level & H indicates High Level.

	QUESTIONS	(Level/CO)	Marks
Q.1	Attempt following Questions (Any 6)		6
	1. Define Indeterminate Structures.	CO 1, L	
	2. Explain Free Body Diagram.	CO 1, M	
	3. Define Strain energy.	CO 2, M	
	4. Write equation for strain energy stored due to Bending Moment.	CO 2, M	
	5. Write Deflection equation for simply supported beam carrying UDL over entire span.	CO 3, H	
	6. What is determinate structure?	CO 2, M	
	7 What are the Assumptions in Truss analysis?		
Q.2	Solve Any TWO of the following.		6
(A)	State and explain Castiglione's theorem I.	CO 1, M	
(B)	Deferentiate Determinate & Indeterminate Structures.	CO 2, M	
(C)	State and Explain Williot Mohr's Diagram.	CO1, Low	
Q.3	Solve ANY ONE of the following.		8
(A)	a) Derive the slope, deflection and curvature equation. b) Derive Maxwell's Reciprocal theorem.	CO 2, High	
(B)	A Beam AB of span 6 Mtr. Carries a point load of 45 KN at a distance of 4.0 Mtr. From the left end A. Find 1.Slope at A. 2 Deflection under the load. 3 Section Where Maximum Deflection occurs & it's Value. Take $E = 200 \text{ KN/MM}^2$ And $I = 8.325 \times 10^7 \text{ MM}^4$	CO 3, Medium	
	*** End ***		

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**DR.BABASAHEB AMBEDKAR TECHNOLOGICAL
UNIVERSITY,LONERE**

Mid Semester Examination- March 2019

Course: B.Tech-SY

Sem: IV

**Subject Name: Planning for Sustainable
Development**

Subject Code: CVE1402OS

Max.Marks:20

Date: 14/03/19

Duration:1 Hr.

Instructions to the Students:

1. Illustrate your answers with neat sketches, diagrams etc. wherever necessary.
2. Necessary data is given in the respective questions. If such data is not given, it means that the knowledge of that data is a part of the examination.

		CO	Level	Marks
Q.1	Attempt the following Questions.			6
1.	What is sustainable development? A. The development that meets the needs of the present without compromising the ability of future generations to meet their own needs. B. To conserve natural resources and to develop alternate sources of power while reducing pollution and harm to the environment. C. It is the practice of developing land and construction projects in a manner that reduces their impact on the environment by allowing them to create energy efficient models of self-sufficiency. D. All of the above	CO1	C1	
2.	Which of the following is correct, if we only achieve two out of three pillars of Sustainable Development? A. Social + Economic Sustainability = Equitable B. Social + Environmental Sustainability = Bearable C. Economic + Environmental Sustainability = Viable D. All of the above	CO1	C2	
3.	Which of the following is/are not an objective (s) of sustainable development? A. Continue to implement the family planning program. B. Maintain a dynamic balance of arable land (not less than 123 million hectares) and implement an agricultural development strategy C. Maintain a dynamic balance of water resources by reducing water consumption for every unit of gross development product growth and agricultural value added D. To bring about a gradual and sometime catastrophic transformation of environment	CO1	C2	

4. What are the Primary Goals of Sustainability? CO3 C3
 I. The end of poverty and hunger
 II. Better standards of education and healthcare - particularly as it pertains to water quality and better sanitation
 III. To achieve gender equality
 IV. Sustainable economic growth while promoting jobs and stronger economies
 Code:
 A. I, II & III
 B. I, III & IV
 C. I & III
 D. I, II, III & IV
5. When was the term 'Sustainable Development' came into existence? CO2 C1
 A. 1987
 B. 1980
 C. 1978
 D. 1992
6. UNCED stands for..... CO2 C2
 A. United Nations Confederation on Environment and Development
 B. United Nations Conference on Environment and Development
 C. United Nations Conference on Economical Development
 D. United Nations Confederation on Economy and Development
- Q.2 Solve any Two of the following 3*2**
 (A) Define Sustainable Development. CO1 C1
 (B) Elaborate relationship between Poverty and Environmental Degradation. CO3 C3
 (C) List down the Objectives of Sustainable Development. CO2 C2
- Q.3 Solve any One of the following 8**
 (A) Discuss three pillars of Sustainable Development and explain it with suitable examples. CO1 C2
 (B) Discuss strategies for achieving Goal No.1 CO3 C3

END

Civil

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Mid Semester Examination – March 2019

Course: B. Tech in : S.Y. B.Tech. (Civil)

Sem: IV

Subject Name: Numerical Methods in Engineering

Subject Code: CVE 2401

Max Marks: 20

Date:- 14.3.19

Duration:- 1 Hr.

Instructions to the Students:

1. Solve all questions
2. Use non programmable calculator

(Level/CO) Marks

Q. 1 Multiple choice questions

Remember

6

1. Using Gauss elimination method, the solution of equations

$3x - 5y = 43, x + 2y = -4$ is

- A. $x = 6, y = -5$
- B. $x = -6, y = -5$
- C. $x = 6, y = 5$
- D. $x = -6, y = 5$

2. The root of the equation $x^4 - 3x^2 + x - 10 = 0$ lies between

- A. $(-3, -2)$
- B. $(-1, 0)$
- C. $(1, 2)$
- D. $(2, 3)$

3. $\delta = \dots$

- A. $E^{1/2} - E^{-1/2}$
- B. $E^{1/2} + E^{-1/2}$
- C. $E^{-1/2} - E^{1/2}$
- D. None of these

4. $\Delta^2 y_0 = \dots$

- A. $y_2 - 2y_1 + y_0$
- B. $y_2 + 2y_1 + y_0$
- C. $y_2 + 2y_1 - y_0$
- D. $y_2 - 2y_1 - y_0$

5. By Euler's method to solve differential equation $y_2 = \dots$

- A. $y_1 + hf(x_1, y_1)$
- B. $y_1 - hf(x_1, y_1)$
- C. $y_1 + \frac{h}{2}f(x_1, y_1)$
- D. $y_1 - \frac{h}{2}f(x_1, y_1)$

6. Lagrange's formula is _____.

Q.2 Solve Any Two of the following.

Evaluate

3 X 2

(A) Solve the equations using Gauss – Seidel method

$$x + 2y + 3z = 14$$

$$2x + 5y + 2z = 18$$

$$3x + y + 2z = 11$$

(B) Fit a straight line passing through the points

x	0	1	2	3	4
y	1	1.8	3.3	4.5	6.3

(C) Find the missing terms, if the fifth order differences are zero

Year	1961	1962	1963	1964	1965	1966	1967
Production	200	220	260	---	350	---	430

Q.3 Solve Any One of the following.

Evaluate

8

(A) Use Runge – Kutta fourth order method to find $y(0.2)$

Given $\frac{dy}{dx} = xy + y^2, y(0) = 1, h = 0.1$.

(B) Find $f(x)$ using Newton's divided difference method

x	4	5	7	10	11	13
f(x)	48	100	294	900	1210	2028

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DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE –
RAIGAD -402 103
Mid Semester Examination – March - 2019

Branch: B.Tech (Electronics & Telecommunication)

Sem.: - IV

Subject :Electrical machines and instruments

Subject Code:- BTESC401

Date:- 11/03/2019

Time:- 1 Hr.

Marks: 20

Instructions:- Assume data if required

(Marks)

Q.No.1 State True or false

(06)

1. Induction motor needs supply to rotate
2. Dc shunt motor is constant speed motor
3. Synchronous motors are not self starting motors
4. Step angle calculations based on N_s & N_r
5. Squirrel cage motors are rugged motors
6. Four point starter supports speed control methods

Q.No. 2 Solve any two of the following:

(3x2)

- A.) What are the types of DC motors
- B.) What do understand the slip of induction motors
- C.) What are applications of stepper motors

Q.No.3 Solve any one of the following

(8)

- (A) Derive an expression for EMF generated by DC generator.
- (B) How does the induction motor works by means of its components.

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**DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY,
LONERE – RAIGAD -402 103
Mid Semester Examination – March - 2019**

Class: B. Tech (E&TC)

Sem.:- IV

Subject:- Analog Communication Engineering (ACE)

Marks: 20

Subject code : BT E X C 402

Date:- 12/03/2019

Time:- 1 Hr.

Instructions: Assume suitable data if required.

(Marks)

Q.No.1 Attempt any six of the following:

(06)

- a.) Explain Simplex and Duplex systems.
- b.) List various modes of communication.
- c.) State sampling theorem.
- d.) What is modulation? Give their types.
- e.) Define modulation Index for amplitude modulated signal.
- f.) Define low and high power level modulation.
- g.) What is Digital modulation? State its advantages.
- h.) Identify the amount of power saved if carrier alone is suppressed.

Q. No.2 Attempt any two of the following:

(06)

- a.) Discuss TDM technique.
- b.) Derive an expression for instantaneous voltage for FM signal.
- c.) Draw and explain Phase shift method for SSB generation.

Q.No.3 Attempt any one of the following:

(08)

- a.) A 10 KW carrier wave is amplitude modulated at 80% depth of modulation by a sinusoidal modulating signal. Calculate the side band power, total power and the transmission efficiency of the AM wave.
- b.) Draw and explain the block diagram of ISB generation technique.

**DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE –
RAIGAD -402 103**

Mid Semester Examination – March - 2019

Branch: B.Tech (Electronics& Telecommunication)

Sem.:- IV

Subject : Microprocessor

Subject Code:- BTEXC403

Date:- 13 /03/2019

Time:- 1 Hr.

Marks: 20

Instructions:- Assume data if required

(Marks) (co)

Q.No.1 Fill in the blanks (06)

1. 8085 has ----- address lines
a. 8 b.16 c.18 d.32
- 2.How much memory can be accessed by 8085
a. 2 k byte b. 1 k byte c. 3 k byte d. none of these
3. MOV A,B instruction is used to transfer data from
a. B to A b. A to B c. A to A d. none of these
4. ANI instruction is used to
a. Masking b. Unmasking c. both a and b d. none of these
5. how many bit data bus 8085 is
a. 8 bit b. 16 bit c. 32 bit d. 64 bit
6. ALE pin of 8085 is
a. Address latch enable b. arithmetic logic enable c. address logic enable
d. none of these.

Q.No. 2 Solve any two of the following: (3x2)

- A.) Explain addressing modes with example in detail co (1)
- B.) Subtract two 8 bit numbers available in reg B and reg C,result will be stored in 2201H memory location co (2)
- C.) Write an instructions to i. load 00H in accumulator ii. Decrement accumulator iii. Move content of accumulator to Reg B co(2)

Q.No.3 Solve any one of the following 8

- (A) Write an assembly language program to find largest number from series of numbers available in memory location from 2301H on words, store result in 2400H. co(2)
- (B) What is interrupt ? what are different types of interrupts? Explain RIM and SIM instructions. co(4)

ECT

Mid Semester Examination – Mar 2019

Sem: IV

Subject Code: BTEXC404

Date:- 14/03/2019

Duration:- 1 Hr.

Instructions to the Students:

1. Check question paper correct or not.
2. Draw net and labeled signals.

		Co level	Marks
			6
Q. 1	Attempt following questions		
1	In the sequence $x(n) = \{0, 3, 5, 8, 6, 8, 6, 4\}$, $x(2) = \text{---}$ <div style="text-align: center;"> \uparrow (A) 0 (B) 3 (C) 8 (D) 6 </div>	1	
2	If message is an analog signal than transmitter perform --- operations to convert it to digital form (A) Sampling (B) Quantization (C) Encoding (D) All of these	1	
3	For continuous time signal $x(t) = x(t+T_0)$ is condition of --- (A) Periodicity (B) Linearity (C) continuity (D) Non-periodicity	1	
4	Impulse response is the response of the system, when applied input is --- (A) $u(n)$ (B) $\delta(n)$ (C) $r(n)$ (D) D.C. signal	1	
5	In Line Spectra phase angle is always measure with respect to --- waves (A) Cosine (B) sine (C) Square (D) any	3	
6	The discrete time describe by $y(n) = \sin x(n)$ is--- (A) Shift variant (B) Time variant (C) Time invariant (D) None of the above	1	
Q.2 Solve Any Two of the following.			3 X 2
(A)	Find whether the following signal are periodic ,if yes find periodicity $X(t) = 2 \cos 11t + 7 \cos t$	1	
(B)	Determine whether the system is 1) Linear 2) causal 3) time invariant $y(t) = \cos x(t)$	1	
(C)	Compute the convolution sum where $x(n) = \{1 \ 1 \ 0 \ 1 \ 0\}$, $h(n) = \{1 \ -2 \ -3 \ 4\}$ <div style="text-align: center;"> $\uparrow \qquad \qquad \qquad \uparrow$ </div>	2	
Q. 3 Solve Any One of the following.			
(A)	Perform the convolution operation between two function in time domain $x_1(t) = u(t)$ and $x_2(t) = e^{-t}$	2	
(B)	Find whether the following signal is energy or power signal and find the value $x(t) = e^{-at} u(t)$	1	
*** End ***			

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Mid Semester Examination – March 2019

Course: B. Tech in chemical engineering

Sem: IV

Subject Name: chemical engineering thermodynamics-I

Subject Code: BTCHC402

Max Marks: 20

Date:-12/03/2019

Duration:- 1 Hr.

Instructions to the Students:

1. Question 1 is compulsory and carries 6 marks
2. Solve any two from question 2 and solve any one question from question 3.
3. Figures to right indicate marks
4. If any data is missing, you may assume it and mention it in your answer sheet. Usual symbols apply

		(Level/CO)	Marks
Q. 1	Pick the correct alternative for the following question		6
	1. All spontaneous processes are a. Reversible b. Irreversible c. Reversible adiabatic d. adiabatic	understanding	
	2. ideal gas law is applicable at a. Low T and low P b. high T and high P. c. Low T and high P. d. high T and low P	understanding	
	3. assuming that CO ₂ obeys the perfect gas law, the density of CO ₂ in kg/m ³ at 536 K and 202.2 kPa is. a. 1 b. 2 c. 3 d. 4	applying	
	4. the kinetic energy of gas molecule is zero at a. 0°C b. 273 °C c. 100 °C d. -273 °C	applying	
	5. Maximum work that could be secured by expanding the gas over a given pressure range is the _____ work. a. isothermal b. adiabatic c. isentropic d. none of these	understanding	
	6. Isobaric process means a constant process a. temperature b. pressure c. volume d. entropy	understanding	
Q.2	Solve Any Two of the following.		3 X 2
(A)	State and explain first law of thermodynamics for open system.	understanding	
(B)	Calculate change in internal energy and change in enthalpy in KJ for 1 kmol water, as it is vaporized at constant temperature of 373K and constant pressure of 101.3kPa. the specific volume of liquid and vapour at these conditions are 1.04×10^{-3} and $1.675 \text{ m}^3/\text{kmol}$ respectively: 1030 kJ of heat added to water for this change.	Analyzing	
(C)	An electric current of 0.5 A from a 12 V supply is passed for 5 minutes through a resistance in thermal contact with saturated water at 1 atm. As a result, 1.798 g of water is vaporized. Assume that water vapour behaves ideally, calculate the molar internal energy change and enthalpy change during	Analyzing	

	process.		
			8
Q. 3	Solve Any One of the following.	applying	
(A)	Steam at 1800 kPa and 673.15 K steadily enters a nozzle at a rate of 5 kg/s and leaves the nozzle at 1400 kPa with a velocity of 300 m/s. the inlet area of the nozzle is 0.02 m ² . heat losses from the nozzle per unit mass are estimated to be 3.3 kJ/kg. Determine the exit temperature.		
(B)	An ideal gas is undergoing a series of three operations: the gas is heated at constant volume from 300 K and 1 bar to pressure of 2 bar. It is expanded in reversible adiabatic process of 1 bar. It is cooled at constant pressure of 1 bar to 300 K. determine heat and work effect for each step. Assume $C_p = 29.3$ kJ/kmol K	Analyzing	
	*** End ***		

Answer 8

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Mid Semester Examination – Oct 2018

Course: B. Tech in Chemical engineering

Sem: IV

Subject Name: NMCE

Subject Code: BTCHC401

Max Marks:20

Date:-11-03-19

Duration:- 1 Hr.

Instructions to the Students:

1. All questions are compulsory
2. Use of Non-programmable calculator is allowed.
3. Figures to the right indicate full marks.

(Level/CO) Marks

Q.1 Multiple choice questions

M 6

1. Relaxation method were developed for solving

- A. linear system
- B. House- holder's method
- C. faddeev method
- D. collinear systems

2. In Gauss elimination the coefficient matrix is transform to.....

- A. Augmented matrix
- B. lower triangular
- C. Upper triangular

4. Normal

3. the characteristic polynomial is.....

- A. $|A - \lambda I| = 0$
- B. $[A - \lambda I] = 0$
- C. $|\lambda I - A|$
- D. None

4.....Method is used to find largest eigen value

- A. Newton raph sons method
- B. Given's method
- C. Court's method
- D. Power method

5. Single variable successive substitution is also known as.....

- A. Multivariable successive method
- B. Given's method
- C. Court's method
- D. Fixed point method

6. the first approximate real root of $x^3 - 6x + 4$ by Newton Raphson's method is.....

- A. 1
- B. 2
- C. 0.7316
- D. 0.5

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE**Mid Semester Examination – March 2019****Course: B. Tech in - Chemical****Sem: III****Subject Name: Heat transfer Operation****Subject Code: BTCOC403****Max Marks: 20****Date:-****Duration:- 1 Hr.****Instructions to the Students:**

1. All questions are compulsory.
2. Question one are compulsory.
3. Solve any two from Question 2 and solve any one from question 3.
4. Assume suitable data wherever required.

Q. 1	Attempt following Questions.	(Level/CO)	Marks
	1 When vaporization takes place directly at the heating surface, it is called _____ a) film boiling b) nucleate boiling c) vapor binding d) None of these		6
	2. Fourier's law applies to the heat transfer by a) convection b) radiation c) conduction d) all (a), (b) & (c)		
	3. For an ideal black body _____ a) absorptivity = 1 b) reflectivity = 1 c) emissivity = 0 d) transmissivity = 1		
	4. The unit of heat transfer co-efficient in SI unit is----- a) J/M^2K b) W/m^2K c) $W/m^{\circ}K$ d) $J/m^{\circ}K$		
	5. Which area is used in case of heat flow by conduction through a cylinder .a) Logarithmic mean area b) Arithmetic mean area c) Geometric mean area d) None of these.		
	6. Which one gives the monochromatic emissive power for black body radiation a) Planck's law b) Kirchhoffs law c) Wien's law d) Stefan-Boltzman law		
Q.2	Solve Any Two of the following.		3 X 2
(A)	Describe Film Boiling.		
(B)	Define Emissivity, and Total emissive power.		
(C)	Explain Boundary layer thickness and Displacement thickness.		
Q. 3	Solve Any One of the following.		8
(A)	Derive expression for temperature distribution through hollow Sphere.		
(B)	Lubricating Oil at a temperature of 60 °C enters 1 cm diameter tube with a velocity of 3 m/s. Tube surface is maintained at 40 °C. Assuming that the oil has the following average properties calculate the tube length required to cool the oil to 45 °C. Density = 865 Kg/m ³ , K = 0.14 W/m k C _p = 1.78 KJ/Kg °C. assume flow to be laminar (and fully developed) Nu = 3.657		
	*** End ***		

chem

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Mid Semester Examination — ~~Oct 2018~~ *March 2019*

Course : B. Tech in ~~CIVIL ENGINEERING~~

Semester : IV

Subject Name: Strength of Materials

Subject Code: BTESC405

Max Marks: 20 Date: *16th* March 2019 Time: 3 pm to 4 pm Duration: 1 Hour

Instructions to the Students:

1. Assume suitable data wherever necessary and State it clearly.
2. Figures to Right Indicate full Marks.

QUESTIONS

Marks

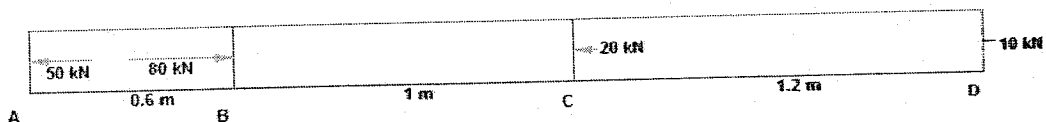
Q.1 Attempt following Questions

06

1. Define Stress 2. Define Volumetric Strain 3. Define Shear Force
4. Define Bending Moment 5. Explain determinant structure with an example.
6. Explain Shear Deformation

Q.2 Solve ANY TWO of the following.

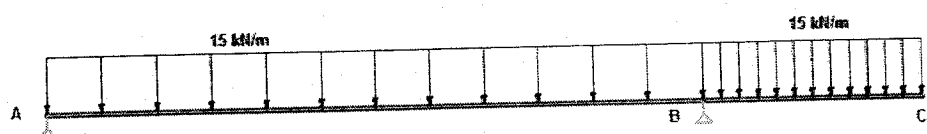
- (A) Enlist different types of trusses on the basis of their span. 03
- (B) Prove that Volumetric Strain for Rectangular Bar = Strain of length + Strain of Depth + Strain of width. 03
- (C) A Brass bar having a cross sectional area of 1000 mm^2 is subjected to axial forces forces as shown in figure. Find the Total Change in Length of the Bar. Take $E = 1.05 \times 10^5 \text{ N/mm}^2$. At Point D, 10 kN load is acting towards Left) 03



Q.3 Solve ANY ONE of the following.

- (A) Explain different Methods of Analysis of Truss. 08

- (B) Draw the Shear Force Diagram and Bending Moment for the Beam ABC. Support A and Support B are Roller Supports. 08



*** End ***

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Mid Semester Examination – MARCH-2019

Course: B. Tech in Electrical EngineeringSem: IV

Subject Name: Electrical Machine-I

Subject Code: BTEEC 401

Max Marks: 20

Date:-11th MARCH 2019

Duration:- 1 Hr.

Instructions to the Students:

1. All questions are compulsory
- 2.
- 3.
- 4.

(Level/CO) Mark

Q. 1 Solve the following

1. Buchholz relay is used in :

- (a) oil immersed transformer
- (b) dry type transformer
- (c) in both (a) & (b)
- (d) None of the above.

2. Transformer change the level of..... while transferring the energy from one circuit to another

- (a) power
- (b) voltage
- (c) frequency
- (d) Both (a) & (b).

3. The purpose of lamination in transformer core is to minimize –

- (a) copper loss (b) friction loss
- (c) windage loss (d) eddy current loss

4. The rating of transformer are in.....

- (a) KW
- (b) Watt
- (c) KVA
- (d) None of the above

5. TRUE OR FALSE: Secondary of CT is always be open circuited

(a) True

(b) False

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE Mid Semester Examination – March. 2019 Course: B. Techin Electrical, Electronics and Power EngineeringSem.: II Subject Name: Power system:ISubject Code:BTEEC402 Max Marks:20 Date:- 12/03/2019 Duration:- 1 Hr.		
Instructions to the Students: 1. Please check whether you have got the right question paper 2. Clearly mention the main question number along with the sub questions. 3. Question No. 1 is compulsory. 4. Figures carries marks.		
		Marks
Q. 1	Select the right choice from the given answers	6
A	The conductor carries more current on the surface in comparison to its core. This phenomenon is called the a) Skin effect b) Ferranti effect c) Corona d) Lenz's effect	
B	The major heat loss in a steam power station occurs in a.Heat chamber b.Penstock c.Spillways d.Condenser	
C	The thermal efficiency of a steam power station is..... a.38% b.28% c.40% d.45%	
D	The power output from a hydro-electric power plant depends on three parameters..... a.Head,type and dam of discharge b.Head,discharge and efficiency of the system c.Efficiency of the system,type of draft tube and type of turbine used d.Type of dam,discharge and type of catchment area	
E	What is the maximum transmission voltage . substation in India: a)400kV b)500kV c)750kV d) 1000 kV	
F	Transposition of transmission line is done to a) Reduce corona b) Balance line voltage drop c) Reduced skin effect d) Reduce line loss	
Q.2	Solve Any Two of the following.	3X2
(A)	A single phase transmission line has two parallel conductors 3 meters apart , radius of each conductor being 1cm. Calculate the capacitance of the line per km.	
(B)	Define the terms: a.Load curve b. Demand factor, c. Diversity factor	
(C)	How to increase the efficiency of plant? Explain plant economics.	

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Mid Semester Examination – MAR 2019

Course: B. Tech in _EEP Sem: IV

Subject Name: Electrical Installation and Estimation Subject Code: BTEEC403

Max Marks: 20

Date: -13/3/2019

Duration: - 1 Hr.

Instructions to the Students:

1. All questions are compulsory

Marl

Q. 1 State True or False. If false correct the statement.

1. In a lighting circuit if the declared voltage is 230V, permissible voltage drop is 10V
2. The function of choke in tube is to produce a high voltage at starting for starting the tube.
3. Contract is agreement between two persons with different intention.
4. The total load of 1 lamp and 1 fan is 50W
5. Tender is an invitation from owner to the contractor to execute specified work.
6. Single way switch is used in staircase wiring.

Q.2 Solve Any Two of the following.

3 X

- (A) Define contract and different types of contracts.
- (B) A room is to be wired for single phase A.C. supply directly taken from the mains which has declared voltage of 200V, the length of wire from the main switch to light and plug points is 30 meters. If the wire is to carry 5 amps, determine the size of conductor.
- (C) Draw a circuit satisfying criteria as, in bedroom one light is near dressing table having single way switch, other light near bed controlled by two 2-way switches

Q. 3 Solve Any One of the following.

- (A) A newly constructed verandah room and an attached bath room are required to be provided with electrical wiring suitably. The bath room must be provided with one 15 amp socket apart from lamp. The lamp outside the verandah must be controlled from inside the room also, decide remaining electrical points. Draw the wiring diagram starting from energy meter and calculate the length of wire required.

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Mid Semester Examination – Oct 2018

Course: B. Tech in EEP

Sem: III

Subject Name: Numerical Methods and Programming

Subject Code: BTEEC404

Max Marks: 20

Date:-14/03/2019

Duration:- 1 Hr.

Instructions to the Students:

1. Assume Suitable Data if required.
2. Use of Programmable calculators is prohibited.

Q.1

Marks

6

1. When Limited significant values figures are used to represent exact number it is called as _____
a. True Error b. Truncation Error c. Round Off Error d. Relative error
2. What is the operation of 'det(a)' function in MATLAB
a. Transpose b. determinant c. inverse d. none of these
3. $\Delta f(\tilde{x}) =$ _____
a. $\{|f'(x) - f(\tilde{x})|\}$ b. $\{|f(x) - f(\tilde{x})|\}$
c. $\{|f(x) - f'(x)|\}$ d. $\{|f(\tilde{x}) - f'(x)|\}$
4. $\% \epsilon_a = ?$
a. $\frac{\text{Approximate error}}{\text{True Value}} \times 100$ b. $\frac{\text{True error}}{\text{True Value}} \times 100$
c. $\frac{\text{Relative error}}{\text{Approximate Value}} \times 100$ d. $\frac{\text{Approximate error}}{\text{Approximate Value}} \times 100$
5. A Maclaurin's series is a Taylor series expansion of a function about 0
a. True b. false
6. Chopping is a type of round off error in which last significant digit is rounded up by '1' if the first discarded digit is greater than or equal to five.
a. True b. False

Q.2 Solve Any Two of the following.

3 X 2

=6

- (A) Suppose that you have task of measuring voltage current & power of a system. First you use analog meter which measures voltage as 239V, current is 2.9A. and power is obtained by formula ($V \times I$). But then accurate measurement was carried out by Digital Multimeter where voltage was 228V & current was 2.2A. Find a) True Error b) True Relative Error & c) True percentage relative error in Voltage current & Power.
- (B) Use Maclaurins series expansion to find the true value of e^x where the value of $x=0.5$ and also find the true percentage error.(Calculate upto 4th order approximation)
- (C) Given values of $\tilde{x} = 2.5$ with an error of $\Delta(\tilde{x}) = 0.01$ estimate the resulting error in function $f(x) = x^3$

Instructions to the Students:

1. Assume suitable data wherever required.
2. Draw figure wherever necessary.
3. Figure to right indicates full marks.

(Level/CO)

Mark

Q. 1 Solve all the Multiple Choice Questions

1 X 6=

1. In casting, which of the following furnace is NOT used

Knowledge/CO1

a) Puddling Furnace b) Crucible Furnace c) Cupola Furnace d) Induction Furnace

2. Which of the following casting process is known as counter gravity casting?

Knowledge/ CO1

a) Slush casting b) Vacuum casting c) Investment casting d) Sand casting

3. Defect in casting includes

Knowledge/ CO1

a) Hot tearing b) Cold tearing c) Chatter d) All of the above

4. Which of the following is NOT the rolling process

Knowledge/ CO2

a) Shape rolling b) Thread rolling c) Ring rolling d) Shell rolling

5. On small scale, mills which utilizes scrap material and that is melted in electric-arc furnaces, cast, and continuously rolled into specific lines of products is known as

Knowledge/ CO2

a) Two high mill b) Three high mill c) Four high mill d) Minimills

6. Extrusion ratio is

Knowledge/ CO2

a) ratio of the cross-sectional area of the billet to that of the extruded product

b) ratio of the cross-sectional area of the extruded product to that of the billet

Q. 2 Solve Any Two of the following.

3 X 2=

(A) What is the difference between expandable mold & permanent mold? Enlist various types of casting process.

Comprehension/
CO1

() Explain any one process out of ring rolling or shape rolling.

Comprehension/
CO2

(C) Which are the three principal extrusion defects?

Comprehension/
CO2**Q. 3 Solve Any One of the following.**

1X 8=

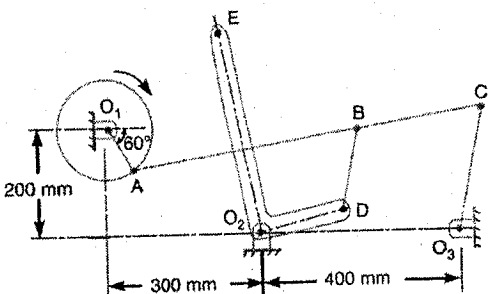
(A) What is difference between hot chamber & cold chamber die casting? Explain any one process briefly.

Application/
CO1

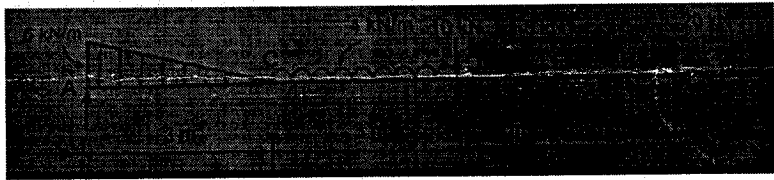
(B) How many types of mills can be used for rolling? Explain all of them with illustration.

Application/CO2

*** End ***

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE			
Mid Semester Examination – March 2019			
Course: B. Tech in Mechanical Engineering	Sem : III		
Subject Name: Theory of Machine - I	Subject Code: BT-MEC 402		
Max Marks: 20	Date:-	Duration:- 1 Hr.	
Instructions to the Students:			
1. Figures to the right indicates full marks			
2. Assume suitable data, if and wherever necessary			
			Marks
Q.1	Solve		6
i	A kinematic chain is known as a mechanism when (a) None of the link fixed (b) One of the link is fixed (c) Two of the links are fixed (d) None of these		
ii	Which of the following is an inversion of single slider crank chain? (a) Watts indicator diagram (c) Beam engine (c) Elliptical Trammel (d) All of these		
iii	Lead screw of a lathe with nut forms a (a) Sliding pair (b) Rolling pair (c) Screw pair (d) Turning Pair		
iv	The locus of the instantaneous centre in space during a definite motion of the body is called as (a) Body centroid (b) Space centroid (c) Axode (d) None of these		
v	If the links moves in opposite direction, rubbing velocity at pin is (a) $(\omega_1 - \omega_2)$ (b) $(\omega_1 + \omega_2)$ (d) $\omega.r$ (d) $r.\omega^2$		
vi	Direction of linear velocity of any point on a link with respect to another point on same link is (a) Parallel to link joining 2 points (b) perpendicular to link joining 2 points (c) At 45° to the link joining 2 points (d) None of these		
Q.2	(a) Define Kinematic pair. Classify in detail (b) State and Explain Kennedy's Theorem		3*2
Q.3	Solve Any One of the following.		8
(a)	The crank and connecting rod of a steam engine are 0.5 m and 2 m long respectively. The crank makes 180 rpm in clockwise direction. When it has turned 45° from inner dead Centre position, determine by relative velocity method, 1) velocity of piston, 2) angular velocity of connecting rod, 3) velocity of point E on connecting rod 1.5m from gudgeon pin, 4) velocities of rubbing at the pins of crankshaft, crank and crosshead when the diameters of their pins are 50 mm, 60 mm and 30 mm respectively.		
(b)	The mechanism of a wrapping machine, as shown in figure, has the dimensions are $O_1A = 100$ mm, $AC = 700$ mm, $BC = 200$ mm, $O_2C = 200$ mm, $O_2E = 400$ mm, $O_2D = 200$ mm and $BD = 150$ mm. The crank O_1A rotates at a uniform speed of 100 rad/s. Find the velocity of point E of the bell crank lever by instantaneous Centre method		
			
Figure 1			

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE**Mid Semester Examination – Oct 2019****Course : B. Tech in MECHANICAL ENGINEERING****Semster : IV****Subject Name: Strength of Material (SOM)****Subject Code: BT-MEC 403****Max Marks: 20 Date: 13th March 2019 Time: 3 pm to 4 pm Duration: 1 Hour**

	Instructions to the Students: 1. Assume suitable data wherever necessary and State it clearly. 2. Figures to Right Indicate full Marks.			
	QUESTIONS	(CO)	(Level)	Mark
Q. 1	Attempt following Questions (6 Marks)			
	1. Define Stress	CO1	C1	01
	2. Define Poisson's ratio	CO1	C1	01
	3. Define Longitudinal Stain	CO1	C1	01
	4. Define Core of section	CO1	C1	01
	5. Define Proof resilience	CO1	C1	01
	6. Define Principal strain	CO1	C1	01
Q.2	Solve Any TWO of the following.			
(A)	Explain the Stress Strain Curve for brittle material	CO1	C2	03
(B)	A steel rod 40mm in diameter is 2.5 m long . Find the maximum stress induced when pull of 80 kN is applied I) gradually ii)suddenly also find instantaneous elongation. Take $E=200 \text{ Gpa}$ Comment on result.	CO2	C4	03
(C)	Compute normal and shere stress on failure plane if vertical and horizontal normal stress acting on block are 60MPa (tension) and 30 MPa (comp) and shere stress 20 MPa .	CO2	C4	03
Q. 3	Solve ANY ONE of the following.			
(A)	State and derive relation between shear force and bending moment	CO3	C4	08
(B)	 Draw SFD and BMD for the beam as shown in fig. and indicate all the significant values at respective points on the beam .	CO3	C5	08
	Best Luck			

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Mid Semester Examination – March 2019

Course: B. Tech in Information Technology

Sem: I

Subject Name: Internetworking Protocol

Subject Code: BTITC404

Max Marks: 20

Date:-14/03/2019

Duration:- 1 Hr.

Instructions to the Students:

1. All questions are compulsory.
2. Assume suitable data whenever necessary
3. Use of non- programmable scientific calculator is allowed.

CO . Marks

Q.1 Attempt any two of the following

6

1.Which class of IP address provides a maximum of only 254 host addresses per network ID? CO3

- A. Class A B. Class B C.Class C D.Class D

2. What is the address range of a Class B network address in binary? CO3

- A. 01xxxxxx B.0xxxxxxx C.10xxxxxx D.110xxxxx

3. Which one of the following is a transport layer protocol used in networking? CO1

- A) TCP B) UDP C) Both TCP and UDP D) None of the mentioned

4.The class-based addressing is also known as _____ Model CO3

- A. Modern B. Classful C. Classless D. Heterogeneous Model

5. _____ deals with the issues of creating and maintaining routing tables. CO3

- A) Forwarding B) Routing C) Directing D) none of the above

6. If Host A and Host B are connected with two intermediate routers how many no. of network layer and data link layer it requires CO4

- A. 2 Network Layer 4 data link Layer
B. 3 Network Layer 3 data link Layer
C. 4 Network Layer 6 data Link layer
D. 6 Network Layer 4 Data link Layer

Q.2 Solve Any Two of the following.

3 X 2

(A) With the help of neat diagram explain Packet Switching and Circuit Switching. CO2

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Mid Semester Examination – March 2019

Course: B. Tech in Information Technology

Sem: I

Subject Name: Internetworking Protocol

Subject Code: BTITC404

Max Marks: 20

Date:-14/03/2019

Duration:- 1 Hr.

Instructions to the Students:

1. All questions are compulsory.
2. Assume suitable data whenever necessary
3. Use of non-programmable scientific calculator is allowed.

CO . Marks

6

Q.1 Attempt any two of the following

1. Which class of IP address provides a maximum of only 254 host addresses per network ID?

CO3

A. Class A B. Class B C. Class C D. Class D

2. What is the address range of a Class B network address in binary?

CO3

A. 01xxxxxx B. 0xxxxxxx C. 10xxxxxx D. 110xxxxx

3. Which one of the following is a transport layer protocol used in networking?

CO1

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CO3

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CO3

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6. If Host A and Host B are connected with two intermediate routers how many no. of network layer and data link layer it requires

CO4

A. 2 Network Layer 4 data link Layer

B. 3 Network Layer 3 data link Layer

C. 4 Network Layer 6 data Link layer

D. 6 Network Layer 4 Data link Layer

Q.2 Solve Any Two of the following.

3 X 2

(A) With the help of neat diagram explain Packet Switching and Circuit Switching.

CO2

Instructions to the Students:

1. Assume suitable data wherever required.
2. Draw figure wherever necessary.
3. Figure to right indicates full marks.

(Level/CO)

Marks

1 X 6=6

Q. 1

Solve all the Multiple Choice Questions

1. In casting, which of the following furnace is NOT used
 a) Puddling Furnace b) Crucible Furnace c) Cupola Furnace d) Induction Furnace

Knowledge/CO1

2. Which of the following casting process is known as counter gravity casting?
 a) Slush casting b) Vacuum casting c) Investment casting d) Sand casting

Knowledge/ CO1

3. Defect in casting includes
 a) Hot tearing b) Cold tearing c) Chatter d) All of the above

Knowledge/ CO1

4. Which of the following is NOT the rolling process
 a) Shape rolling b) Thread rolling c) Ring rolling d) Shell rolling

Knowledge/ CO2

5. On small scale, mills which utilizes scrap material and that is melted in electric-arc furnaces, cast, and continuously rolled into specific lines of products is known as
 a) Two high mill b) Three high mill c) Four high mill d) Minimills

Knowledge/ CO2

6. Extrusion ratio is
 a) ratio of the cross-sectional area of the billet to that of the extruded product
 b) ratio of the cross-sectional area of the extruded product to that of the billet

Knowledge/ CO2

Q.2 Solve Any Two of the following.

3 X 2=6

(A) What is the difference between expandable mold & permanent mold? Enlist various types of casting process.

Comprehension/
CO1

(I) Explain any one process out of ring rolling or shape rolling.

Comprehension/
CO2

(C) Which are the three principal extrusion defects?

Comprehension/
CO2**Q. 3 Solve Any One of the following.**

1X 8=8

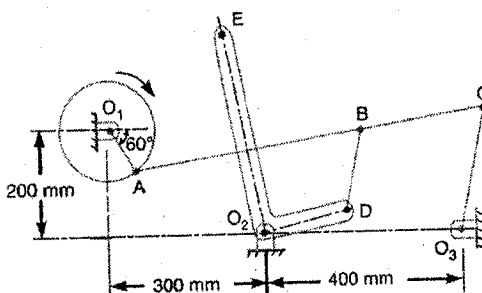
(A) What is difference between hot chamber & cold chamber die casting? Explain any one process briefly.

Application/
CO1

(B) How many types of mills can be used for rolling? Explain all of them with illustration.

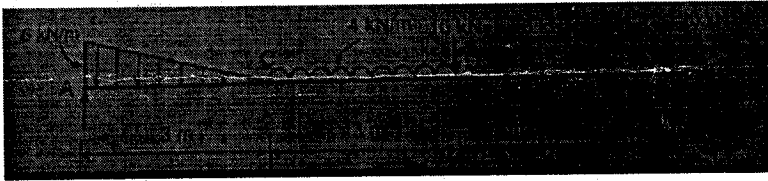
Application/CO2

*** End ***

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE Mid Semester Examination – March 2019 Course: B. Tech in Mechanical Engineering Subject Name: Theory of Machine - I Max Marks: 20 Sem : III Subject Code: BT-MEC 402 Date:- Duration:- 1 Hr.			
Instructions to the Students: 1. Figures to the right indicates full marks 2. Assume suitable data, if and wherever necessary			
			Marks
Q.1	Solve		6
	i A kinematic chain is known as a mechanism when (a) None of the link fixed (b) One of the link is fixed (c) Two of the links are fixed (d) None of these ii Which of the following is an inversion of single slider crank chain? (a) Watts indicator diagram (c) Beam engine (c) Elliptical Trammel (d) All of these iii Lead screw of a lathe with nut forms a (a) Sliding pair (b) Rolling pair (c) Screw pair (d) Turning Pair iv The locus of the instantaneous centre in space during a definite motion of the body is called as (a) Body centroid (b) Space centroid (c) Axode (d) None of these v If the links moves in opposite direction, rubbing velocity at pin is (a) $(\omega_1 - \omega_2)$ (b) $(\omega_1 + \omega_2)$ (d) $\omega \cdot r$ (d) $r \cdot \omega^2$ vi Direction of linear velocity of any point on a link with respect to another point on same link is (a) Parallel to link joining 2 points (b) perpendicular to link joining 2 points (c) At 45° to the link joining 2 points (d) None of these		
Q.2	(a) Define Kinematic pair. Classify in detail (b) State and Explain Kennedy's Theorem		3*2
Q.3	Solve Any One of the following. (a) The crank and connecting rod of a steam engine are 0.5 m and 2 m long respectively. The crank makes 180 rpm in clockwise direction. When it has turned 45° from inner dead Centre position, determine by relative velocity method, 1) velocity of piston, 2) angular velocity of connecting rod, 3) velocity of point E on connecting rod 1.5m from gudgeon pin, 4) velocities of rubbing at the pins of crankshaft, crank and crosshead when the diameters of their pins are 50 mm, 60 mm and 30 mm respectively. (b) The mechanism of a wrapping machine, as shown in figure, has the dimensions are $O_1A = 100$ mm, $AC = 700$ mm, $BC = 200$ mm, $O_2C = 200$ mm, $O_2E = 400$ mm, $O_2D = 200$ mm and $BD = 150$ mm. The crank O_1A rotates at a uniform speed of 100 rad/s. Find the velocity of point E of the bell crank lever by instantaneous Centre method		8
 <p style="text-align: center;">Figure 1</p>			

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE**Mid Semester Examination – Oct 2019****Course : B. Tech in MECHANICAL ENGINEERING****Semster : IV****Subject Name: Strength of Material (SOM)****Subject Code: BT-MEC 403****Max Marks: 20 Date: 13th March 2019 Time: 3 pm to 4 pm****Duration: 1 Hour****Instructions to the Students:**

1. Assume suitable data wherever necessary and State it clearly.
2. Figures to Right Indicate full Marks.

	QUESTIONS	(CO)	(Level)	Mark
Q. 1	Attempt following Questions (6 Marks)			
	1. Define Stress	CO1	C1	01
	2. Define Poisson's ratio	CO1	C1	01
	3. Define Longitudinal Stain	CO1	C1	01
	4. Define Core of section	CO1	C1	01
	5. Define Proof resilience	CO1	C1	01
	6. Define Principal strain	CO1	C1	01
Q.2	Solve Any TWO of the following.			
(A)	Explain the Stress Strain Curve for brittle material	CO1	C2	03
(B)	A steel rod 40mm in diameter is 2.5 m long . Find the maximum stress induced when pull of 80 kN is applied I) gradually ii)suddenly also find instantaneous elongation. Take $E=200$ Gpa Comment on result.	CO2	C4	03
(C)	Compute normal and shere stress on failure plane if vertical and horizontal normal stress acting on block are 60MPa (tension) and 30 MPa (comp) and shere stress 20 MPa .	CO2	C4	03
Q. 3	Solve ANY ONE of the following.			
(A)	State and derive relation between shear force and bending moment	CO3	C4	08
(B)	 Draw SFD and BMD for the beam as shown in fig. and indicate all the significant values at respective points on the beam .	CO3	C5	08
	Best Luck			

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE**Mid Semester Examination – March 2019****Course: B. Tech in Information Technology Sem: IV Duration:- 1 Hr.****Subject Name: MPMC Microprocessor & Microcontroller****Subject Code: BTITC401****Max Marks: 20****Date:-11/03/2019****Instructions to the Students:**

1. All questions are compulsory
2. Assume suitable data whenever necessary

		(/CO)	Marks
Q. 1	Attempt all questions .		6
	1. BIOS stands for _____ and DOS stands for _____	CO1	
	2. for character input with echo , INT 21 require _____ parameter.	CO1	
	3. _____, _____, _____, _____ are segment registers.	CO1	
	4. 8086 works in _____ mode and _____ mode operation .	CO1	
	5. the default segment registers assigned to the following registers ; (i) SP _____ ii)DI _____ (iii) IP _____ (iv)BP _____	CO2	
	6. ASSUME and DB,DW are _____ directives.	CO2	
Q.2	Solve Any Two of the following.		3 X 2
(A)	Draw block diagram of 8086.list major components.	CO1	
(B)	How 8086 generates 20-bit physical address?	CO3	
(C)	Explain arithmetic instructions of 8086	CO2	
Q. 3	Solve Any One of the following.		8
(A)	Elaborate interrupt structure of 8086	CO2	
(B)	Determine the content of register AX, BX & CX after the each instruction is executed in the following program MOV CL, 04 MOV AX, 007EH MOV BX, 0404H ROL AX, CL AND AH, BH OR BL, AL	CO3	
	*** End ***		

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DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Mid Semester Examination – March 2019

Course: B. Tech in Information Technology

Sem: IV

Subject Name: Discrete Structures and Applications

Subject Code: BTITC403

Max Marks: 20

Date: 13/03/2019

Duration:- 1 Hr.

Instructions to the Students:

1. Assume suitable data wherever necessary.

	(Level/CO)	Marks
Q.1 Select any one option from the following questions.		6
1. The cardinality of $A = \{5, 6, 3, 2, 3, 2\}$ is	CO1	
a) 6 b) 5 c) 4 d) 3		
2. In a conditional statement, the first part is the antecedent and the second part is the...	CO1	
a) Predicate b) Consequent c) Subject d) Disjunct		
3. A function is said to be _____ if and only if $f(a) = f(b)$ implies that $a = b$ for all a and b in the domain of f .	CO2	
a) One-to-many b) One-to-one c) Many-to-many d) Many-to-one		
4. Let f and g be the function from the set of integers to itself, defined by $f(x) = 2x + 1$ and $g(x) = 3x + 4$. Then the composition of f and g is _____	CO2	
a) $6x + 9$ b) $6x + 7$ c) $6x + 6$ d) $6x + 8$		
5. A coin is tossed 3 times. Find out the number of possible outcomes.	CO2	
a) None of these b) 8 c) 2 d) 1		
6. Letters of SAP taken all at a time can be written in	CO2	
a) 2 ways b) 6 ways c) 24 ways d) 120 ways		

Q.2 Solve Any Two of the following. **3 X 2**

-) Give reasons for each step needed to show that the following argument is valid. **CO1**

$$[p \wedge (p \rightarrow q) \wedge (s \vee r) \wedge (r \rightarrow !q)] \rightarrow (s \vee t)$$

Steps

reasons

1) p

2) $p \rightarrow q$

3) q

4) $r \rightarrow !q$

5) $q \rightarrow !r$

6) $!r$

7) $s \vee r$

8) s

9) $\therefore s \vee t$

(B) Prove following for all $n \geq 1$ by the principle of mathematical induction. CO2

$$1^2 + 3^2 + 5^2 + \dots + (2n-1)^2 = n(2n-1)(2n+1)/3$$

(C) List all the combinations of size 3 that result for the letters m, r, a, f and t. CO2

Q. 3 Solve Any One of the following.

8

(A) In how many ways can 12 different books be distributed among 4 children so CO2

that a) each child gets three books? b) the two oldest children get four books each and the two youngest get two books each?

(B) Let $p(x)$, $q(x)$ and $r(x)$ be the following open statements. CO1

$$p(x): x^2 - 7x + 10 = 0$$

$$q(x): x^2 - 2x - 3 = 0$$

$$r(x): x < 0$$

a) determine the truth or falsity of the following statements, where the universe is all integers. If a statement is false, provide a counterexample or explanation.

1) $\forall x [p(x) \rightarrow \neg r(x)]$ 2) $\exists x [q(x) \rightarrow r(x)]$

b) find the answers to part a) when the universe consists of all positive integers.

*** End ***

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE Mid Semester Examination – March 2019 Course: Second Year B. Tech in IT Sem: II Subject Name: Data Structures and Applications Subject Code: BTITC402 Max Marks: 20 Date:-12/3/2019 Duration:- 1 Hr.			
Instructions to the Students: 1. Read question carefully and write complete answers.			
		(Level/CO)	Marks
Q. 1	Solve all of the following.		6
i.	Stack works on the principle of _____	CO2	
ii.	In priority queue elements are inserted and deleted from _____ & _____ end respectively.	CO2	
iii.	An array has _____ type of memory allocation.	CO3	
iv.	Memory can be allocated dynamically using _____ function.	CO3	
v.	An algorithm can take zero or more inputs. (True/False) _____	CO1	
vi.	Which of the following is not a linear data structure. a) array b) queue c) stack d) tree	CO2	
Q.2	Solve Any Two of the following.		3 X 2
(A)	Write an algorithm to Push and Pop elements in a stack.	CO 2	
(B)	Convert the following expression to postfix form. A+B+C*D-E	CO 2	
(C)	Define an algorithm and explain characteristics of an algorithm.	CO 1	
Q. 3	Solve Any One of the following.		8
(A)	Write algorithm to insert and delete a node into/from a singly linked list.	CO 3	
(B)	Define a doubly linked list and write algorithm to insert a node in at start and in middle of a DLL.	CO 3	
*** End ***			

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE**Mid Semester Examination – March 2019****Course: S.Y.B.Tech(CSE)****Sem: II****Subject Name: Design & Analysis of Algorithms****Subject Code: BTCOC401****Max Marks: 20****Date:- 11/Mar/2019****Duration:- 1 Hr.****Instructions to the Students:**

1. Check that you have received a correct Question paper.
2. Assume suitable data if necessary and mention it clearly

Q.1. Attempt any six Questions**(1*6 = 6 Marks)**

1. Which of the following asymptotic notation is the worst of all?
a) $O(n+9999)$ b) $O(n^3)$ c) $O(\log(n))$ d) $O(2n)$
2. Two main measures for efficiency of algorithm are :
a) Processor & Memory b) Complexity & capacity
c) Time & space d) Data & space
3. Which of the following does not exist in complexity theory?
a) Best case b) Worst case c) Average case d) Base case
4. Merging 4 sorted files containing 50, 10, 25 and 15 records will take optimal _____ time.
a) $O(200)$ b) $O(100)$ c) $O(175)$ d) $O(150)$
5. Define Feasible & optimal solution of Greedy algorithm.
6. Dijkstra's algorithm is also called _____ shortest path problem.
a) Multiple source b) Single source
c) Single destination d) Multiple destination
7. State necessary criterion for a recursive function.

Q. 2. Attempt any two of the following**(2*3 =6 Marks)****A. Explain Divide & Conquer strategy of algorithm development.****B. Consider the following instances of the Knap-Sack problem:** $n=3, m=20, (p_1, p_2, p_3)=(24, 25, 15)$ and $(w_1, w_2, w_3)=(18, 15, 20)$.

Find feasible solutions.

C. Obtain optimal solutions for the following jobs:

Jobs	J1	J2	J3	J4
Deadline	2	1	2	1
Profit	27	100	15	10

[P.T.O]

Q.3. Attempt any **one** of the following

(1* 8 = 8 Marks)

A. Construct heap tree for following list of numbers.

20,10,30,50,60,20,35,40,50,25,80 & perform heap sort.

B. Write a program for Merge Sort.

END

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1-2

**DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY,
LONERE**

Mid Semester Examination – March 2019

Course: B. Tech Computer science

Sem : IV

Subject Name: Probability & statistics

Subject Code:BTCOC402

Max Marks:20

Date:-12-03-19

Duration:- 1 Hr.

Instructions to the Students:

1. All questions are compulsory
2. Use of Non-programmable calculator is allowed.
3. Figures to the right indicate full marks.

(Level/CO)	Marks
M	6

Q. 1 Multiple choice questions

1) Given that $P(A) = 0.8$, $P(B) = 0.7$, $P(A \cup B) = 0.9$, what is $P(A \cap B)$

- A. Can be any number between 0 and 0.7
- B. 0.56
- C. 0.06
- D. 0.6

2) X takes values 1,2,3 with $P(X=1)=0.2$ and $E(X) = 2.2$, then $P(X=2)$ is

- A. 0.5
- B. 0.1
- C. 0.3
- D. 0.4

3) If random variable X has binomial distribution with parameter n and p, then

- A. Mean < Variance
- B. Mean > Variance
- C. Mean = Variance
- D. Mean \leq Variance

4) Suppose X follows normal distribution with mean 60 and variance 10, then maximum height of its probability density curve is of.....

- A. 60
- B. 50
- C. 65
- D. 70

5) The probability of drawing one white ball randomly from a bag containing 6 red, 8 black, 10 yellow and 1 green ball is

- A. 1/25
- B. 0
- C. 1
- D. 14/25

6) The sample space is.....

- A. A set of the data space in which a sample experiment can be performed
- B. The set of an possible outcome of a random experiment
- C. A space from which a sample for study may be drawn
- D. None

3 X 2

Q.2 Solve Any Two of the following.

- (A) In a bolt factory, machine A, B, C manufacture respectively 25%, 35% and 40% of the total, of their output 5, 4, 2 percent are known to be defective bolts. A bolt is drawn at random from the product and is found to be defective. What are the probability that it was manufacture by i) machine A ii) machine B or C
- (B) Two beads are selected at random without replacement from a bowl containing 4 blue, 1 red and 2 black beads. Let X denote the number of red beads, Y denote the number of black beads drawn.
- i) Find the joint p.m.f
 - ii) Obtain the marginal p.m.f of X and Y
 - iii) Calculate $P(X < Y)$
- (C) An unbiased coin is tossed is toss six times find the probability of getting
- i) Two heads
 - ii) at least four heads

8

Q.3 Solve Any Two of the following.

- (A) Suppose continuous random variable X has p.d.f

$$f(x) = \begin{cases} x^2/3; & -1 \leq X \leq 2 \\ 0; & \text{Otherwise} \end{cases}$$

$$\text{If } A = \{x | x \geq 0\}$$

$$B = \{x | -1/2 \leq x \leq 1/2\}$$

Find $P(A), P(B), P(A'), P(A \cap B), P(A \cup B), P(A' \cap B), P(A' \cup B), P(A \cap B')$

- (B) A die is tossed twice. Getting a number greater than 4 is considered a success. Find the mean and variance of the probability distribution of the number of successes.

- (C) Fit a binomial distribution to the following data;

X:	0	1	2	3	4
f:	28	62	46	10	4

*** End ***

Instructions to the Students:

1. Check that you have received a correct Question paper.
2. Assume suitable data if necessary and mention it clearly
3. Draw NEAT labeled diagrams wherever necessary

Q.1. Attempt any Six Questions

(1*6 = 6 Marks)

1. Mention purpose of system call.
2. Differentiate between batch system and time sharing system.
3. What do you mean by PCB?
4. Define turnaround time.
5. What are cooperative processes?
6. Define starvation.
7. Draw labeled process state transition diagram.

Q. 2. Attempt any Two of the following

(2*3 =6 Marks)

1. What are differences between monolithic kernel and microkernel?
2. What do you mean by process synchronization? Explain how semaphore can be used as synchronization tool.
3. What is scheduler? Describe different types of scheduler?

Q.3. Attempt any One of the following

(1* 8 = 8 Marks)

1. Consider the following set of processes with the length of CPU burst time

Process	Burst Time	Priority
P1	10	3
P2	1	1
P3	2	5
P4	1	4
P5	5	2

The processes are assumed to have arrived in the order P1, P2, P3, P4, P5 all at time 0

- Draw Gantt chart that illustrates the execution of these processes using preemptive Priority scheduling (smaller priority number implies higher priority) and RR scheduling (time quantum = 2)
 - What is turnaround time of each process for each of the scheduling algorithms?
2. Evaluate performance of preemptive vs. non-preemptive SJF scheduling algorithm using following set of processes.

Process	Arrival Time	Burst Time
P1	1	7
P2	2	5
P3	3	1
P4	4	2
P5	5	8

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE
Mid Semester Examination – March 2019

Course: S.Y.B.Tech(CSE)

Sem: II

Subject Name: E-1 Object Oriented Programming in Java

Subject Code: BTCOE404

Max Marks: 20

Date:- 14/03/2019

Duration:- 1 Hr.

Instructions to the Students:

1. Check that you have received a correct Question paper.
2. Assume suitable data if necessary and mention it clearly
3. Draw NEAT labeled diagrams wherever necessary

(1*6 = 6 Marks)

Q.1. Attempt Questions

- 1) What is "out" in statement `System.out.println()` ?
a) class name b) function c) object d) interface
- 2) Range of data type "byte" in Java ?
a) -8 to +7 b) 0 to 256 c) -128 to +127 d) -16 to +15
- 3) System class is defined in
a) java.util package b) java.lang package c) java.io.package d) none of these
- 4) `int x=0,y=0,z=0;`
`x = (++x + y--) * z++; x = (++x + y--) * z++;`
What will be value of x after execution?
a) -2 b) -1 c) 0 d) 1
- 5) What will be the output
`if(1+1+1+1==4){ System.out.println("TRUE"); }`
`else { System.out.println("FALSE"); }`
a) FALSE b) TRUE c) compiler error d) none of these
- 6) size of int in java
a) 32bit b) 16bit c) 64bit d) 8bit

(2*3 = 6 Marks)

Q. 2. Attempt any two of the following

- 1) List all features of object technology. Elaborate any three features with real world object.
- 2) Write an application in Java to calculate the table of any number read by the user .Display the result in table format as shown. for eg

5*1=5
5*2=10
⋮
5*10=50

- 3) Differentiate between Primitive Types and Reference Types.

(1* 8 = 8 Marks)

Q.3. Attempt any one of the following

- 1) Design a class to represent a bank account. Include the following members :
Data members : Name of depositor, Account number , Type of account , Balance amount.
Methods : assign() to assign initial values, deposit() to deposit an amount, withdraw() to withdraw an amount after checking balance, display() to display name and balance. Create an object to access these methods.
- 2) Define Pseudocode. Take an example of class of 12 students had appeared an exam. The grade (marks) earned in this exam are input. Determine the average grade of this class. Do not use array. Formulate algorithm and write a program in java for same using counter control repetition.

END