Course Code: SOE-B-MA303

O P JINDAL UNIVERSITY

B. Tech. III Semester Regular Examinations

Engineering Mathematics-III

Branch: Electrical Engineering **Program Code : 01UG060**

Time: 3 Hrs. **Max. Marks: 100**

Section A : All Questions are compulsory

Section B : Answer any one question from each unit. All questions carry equal marks

			M	CO	KL
Section-A					
1	a.	Find $L(e^{-t}\sin 2t)$	2	1	1
	b.	Find $L^{-1}\left(\log\frac{s+1}{s-1}\right)$	2	1	1
	c.	Round off the number 3.2453 up to three significant figure also find the relative error.	2	2	1
	d.	Find the interval to find the root of the equation $x^3-30=0$.	2	2	1
	e.	Show that $\mu=\frac{E^{\frac{1}{2}}+E^{-\frac{1}{2}}}{2}$	2	3	1
	f.	Write Simpson's three eight formula.	2	3	1
	g.	Define Picard's method.	2	4	1
	h.	What is Predictor-corrector formula.	2	4	1
	i.	A book has 4 misprint per page on an average, what is the probability that a page will open at random will have no misprint on it.	2	5	2
	j.	If $P(A)=\frac{1}{6}$, $P(B)=\frac{1}{8}$, $P(AUB)=\frac{1}{4}$. Find $P(A/B)$ *and* $P(B/A)$.	2	5	2
Section-B: Unit-I					
2	a.	Solve by the method of Laplace transform $(D^3-3D^2+3D-1)y=t^2e^t, y(0)=1, y'(0)=0, y''(0)=-2$.	8	1	3
	b.	Find the Laplace transform of $f(t)=\begin{cases}\sin t, 0\le t<\pi\\ \sin 2t, \pi\le t<2\pi\\ \sin 3t, t\ge 2\pi\end{cases}$	8	1	3
OR					
3	a.	Show that $L^{-1}\left(\frac{s}{s^4+4a^4}\right)=\frac{1}{2a^2}\sinh at.\sin at$	8	1	3
	b.	Solve by the method of Laplace transform $y''+y=t, y(0)=y'(0)=0$.	8	1	3

Unit-II

4	a.	Find the root of the equation $x^3 - x - 1 = 0$ using Newton's Raphson method and Regula-falsi method correct up to 3 decimal places. Compare the result.	8	2	3
	b.	Solve using Jacobi iteration method up to 5th iteration taking initial approximation $x = 0, y = 0, z = 0$: $5x + 2y + z = 12,\ x + 4y + 2z = 15,\ x + 2y + 5z = 20.$	8	2	3
		OR			
5	a.	Solve the following equations by Gauss elimination and Gauss Jordan method. $x + 2y + z = 8,\ 2x + 3y + 4z = 20,\ 4x + 3y + 2z = 16.$	8	2	3
	b.	Solve using Gauss-Seidal iteration method up to 5th iteration taking initial approximation $x = 0, y = 0, z = 0$: $20x + y - 2z = 17,\ 3x + 20y - z = -18,\ 2x - 3y + 20z = 25.$	8	2	3

Unit-III

6	a.	Using Newton's divided difference formula find f(8) and f(11) for the following data: x: 4 5 7 10 11 13 y: 48 100 294 900 1210 2028	8	3	3
	b.	Find the first and second derivatives of the function tabulated below, at the point x=1 and x=2: x | 1.0 | 1.2 | 1.4 | 1.6 | 1.8 | 2.0 f(x) | 0 | 0.128 | 0.544 | 1.296 | 2.432 | 4.00	8	3	3
		OR			
7	a.	From the following table ,find f(x) when x=1.85 and 2.4 by Newton's interpolation formula: x | 1.7 | 1.8 | 1.9 | 2.0 | 2.1 | 2.2 | 2.3 f(x) | 5.474 | 6.050 | 6.686 | 7.389 | 8.166 | 9.025 | 9.974	8	3	3
	b.	Evaluate $\int_0^1 \frac{dx}{1+x^2}$, n=10 using Trapezoidal rule and Simpson's one-third rule.	8	3	3

Unit-IV

8	a.	Using Runge Kutta method of fourth order find y at $x = 0.2$ *and* 0.4 for $\frac{dy}{dx} = \frac{y^2 - x^2}{y^2 + x^2}$, with $y(0) = 1, h = 0.02$.	10	4	3
	b.	Given $\frac{dy}{dx} = \frac{y - x}{y + x}$ with $y(0) = 1, h = 0.01$. Find an approximate value of y at x=0.03 by modified Euler's method.	6	4	3
		OR			

9	a.	Using Adam-Bashforth method, obtain the solution of $\frac{dy}{dx} = x - y^2$ at $x = 0.8$ given $y(0) = 0$, determine $y(0.2), y(0.4), y(0.6)$ by Euler's formula.	10	4	3
	b.	Using Taylor's series method compute $y(0.1)$ *and* $y(0.2)$ to three decimal places from $\frac{dy}{dx} = 1 - 2xy$ given that $y(0) = 0$.	6	4	3
UNIT-V					
10	a.	If the diameter X(cm) of certain bolt has the density function $f(x) = \begin{cases} k(x-0.9)(1.1-x), 0.9 < x < 1.1 \\ 0, otherwise \end{cases}$. Find k, μ and σ^2.	8	5	3
	b.	If the probability of producing a defective screw P=0.01. What is the probability that a lot of 100 screws will contain more than 4 defectives?	8	5	3
OR					
11	a.	Find the mean and variance of the random variable X, where $f(x)$ is the probability function for the uniform distribution [0,10].	8	5	3
	b.	Five fair coins are tossed simultaneously. Find the probability function of the random variable X=Number of heads and compute the probabilities of obtaining no heads, precisely 1 head, at least 1 head, not more than 4 heads.	8	5	3

10:00 AM to 01:00 PM

05/01/23

(15)

Course Code: SOE-D-EE301

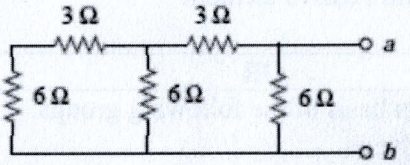
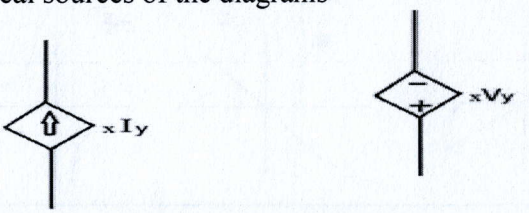
O P JINDAL UNIVERSITY

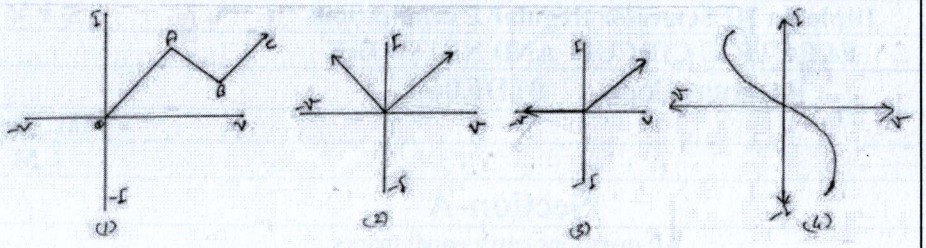
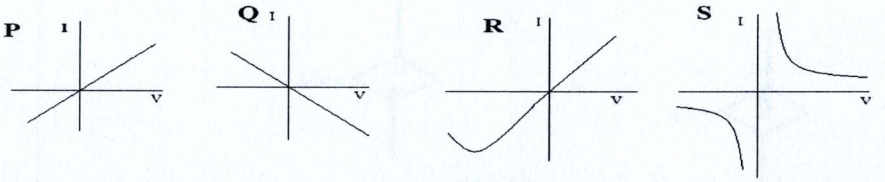
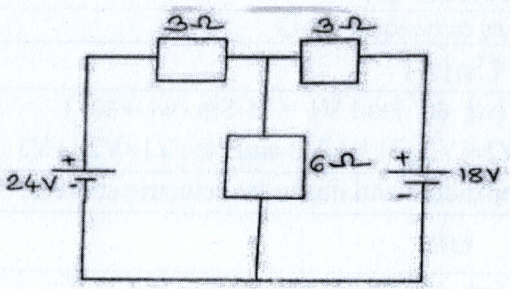
Diploma III Semester Regular Examinations

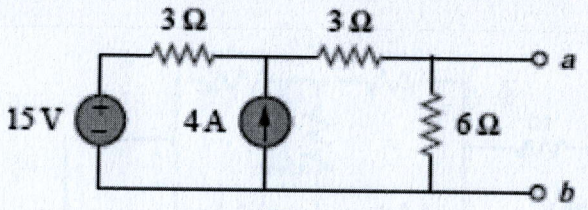
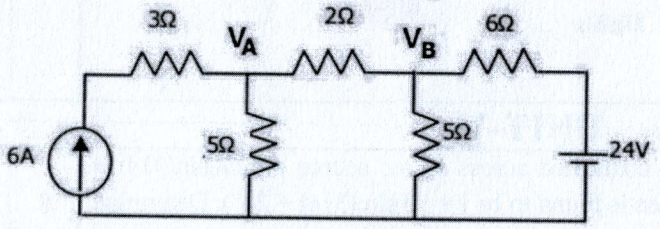
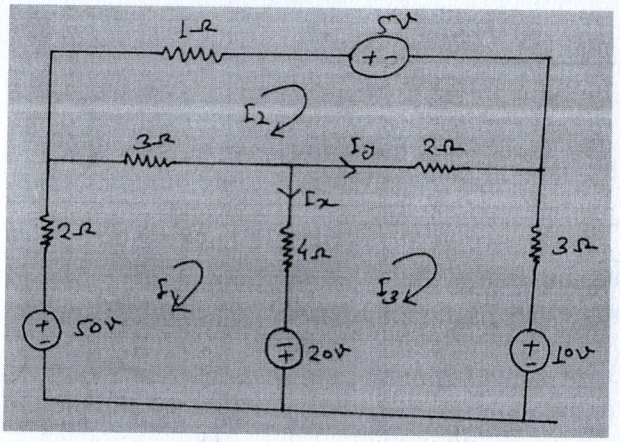
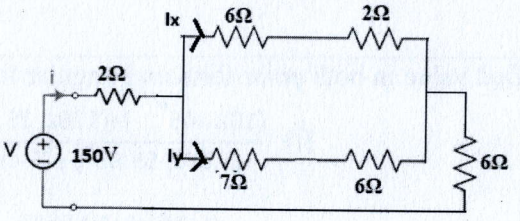
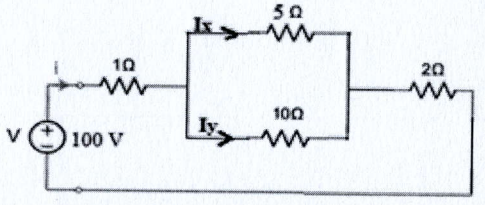
ELECTRIC CIRCUIT AND NETWORK

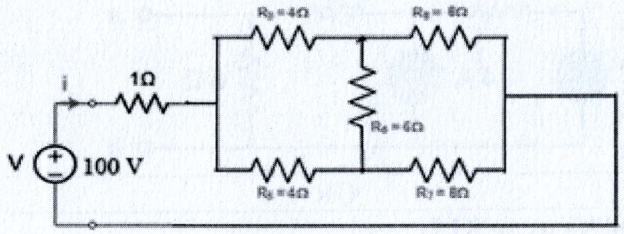
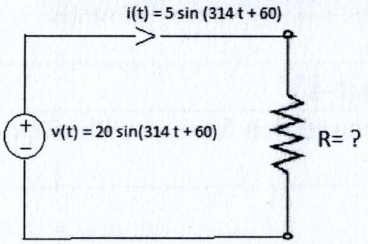
Program Code : **01DE060**

Time: 3 Hrs. **Max. Marks: 100**

			M	CO	KL
Section-A					
All questions carry equal marks					
1	a.	Transformer is which type of element active or passive also write the reasons?	2	03	
	b.	Write the Star to Delta and Delta to Star conversion formula with circuit diagram.	2	03	
	c.	Find R_{AB} in the circuit 	2	02	
	d.	A LED bulb draws a current of 1 A at 230 V. Find its resistance.	2	04	
	e.	Write the Kirchhoff's current law with diagram.	2	03	
	f.	In the Thevenin's Theorem, full form of Rth and Vth are?	2	04	
	g.	Write the angular and polar form of voltage equation V= Vm Sin(wt + 30)	2	01	
	h.	Name the electrical sources of the diagrams 	2	01	
	i.	Write the Kirchhoff's Voltage law with diagram.	2	03	
	j.	What is electric Voltage (V) and its SI unit?	2	02	
Section-B:					
All questions carry equal marks					
Unit-I					
2	a.	If V1 = 10 Sin (wt -45°) , V2 = 20 Sin (wt -60°)and V1 = 15 Sin (wt +30°) Then find (1) V1 + V2+ V3, (2) V1 - V2+ V3,(3) V1/V2 and (4) (V1×V2) ÷V3	8	05	
	b.	Write short notes with diagram on Independent and dependent electric sources.	8	02	
OR					
3	a.	If I1 = 100 Sin (wt +45°) , I2 = 10 Sin (wt -450°)and I1 = 150 Sin (wt +30°) Then find (1) I1 + I2+ I3, (2) I1 -I2- I3, (3) I1/I2 and (4) (I1×I2) ÷I3	8	05	
	b.	Define independent and dependent Current source and Voltage source also draw its symbol.	8	02	
Unit-II					

4	a.	Define Active-Network and Passive-Network and identify the Network by observing V-I characteristics of the Network. 	8	03	
	b.	Write down the definition or define the following (i) Current (ii) Power (iii)Thevenin's Theorem (iv)Active and Passive element	8	02	
		OR			
5	a.	Classified the circuit element on basis of the following groups. (i) Active and Passive (ii) Linear and non-linear (iii) Bilateral and Unilateral (iv) Lumped and distributed	8	02	
	b.	Define Bilateral and Unilateral network and find out which I-V characteristic represent the Unilateral element from the diagrams P,Q, R and S 	8	03	
		Unit-III			
6	a.	Find the current in 6 Ω resistor in the circuit shown in Fig. No. (3a) using Mesh analysis (KVL). 	8	05	

	b.	Find the Thevenin's equivalent circuit for the given circuit diagram 	8	05	
		OR			
7	a.	Find value of V_A and V_B using KCL 	8	05	
	b.	**By** using the KVL find the value of Ix and Iy 	8	05	
		Unit-IV			
8	a.	Write the Star to Delta and Delta to Star conversion formula with circuit diagram.	8	04	
	b.	Find current Ix and Iy in figure 	8	05	
		OR			
9	a.	Find current Ix and Iy in figure (9a) 	8	05	

	b.	Find current I in figure (8b)  **Fig8b**	8	05	
		UNIT-V			
10	a.	A resistor element series circuit is connected across an a.c source e =200sin(314t + 20°) V. The current in the circuit then is found to be i = 10 sin (314t + 20°). Determine the resistor elements value in the circuit.	8	04	
	b.	Find the simplified value in both polar form and angular form $(i)\ \frac{(10\angle -45^{o"})+(120\angle 28^{o})}{(4-5i)+(5-4i)} + (3+4i)$ $(ii)\ \frac{(2-3i)+(3-4i)+(4+5i)}{(6+7i)(7-8i)+(8-9i)}$	8	04	
		OR			
11	a.	In a series circuit containing voltage source are expressed as: i(t) = 5 sin (314 t + 60) and v(t) = 20 sin(314 t + 60) Find: (i) Resistance of circuit (ii) Power drawn by resistor ($P = i^2R$).  	8	04	
	b.	Find the simplified value in both polar form and angular form $(i)\ \frac{(10\angle -45^{o"})+(120\angle 28^{o})}{(5.83\angle -59.03^{o})+(5-4i)}$ $(ii)\ \frac{(6-3i)+(3-4i)(5+8i)}{(12+8i)(8-5i)+(4-3i)}$	8	05	

Course Code: SOE-B-EE302

O P JINDAL UNIVERSITY

B. Tech. III Semester Regular Examinations

ELECTRONICS DEVICES AND CIRCUITS

(Offered to EE Program Code: 01UG060)

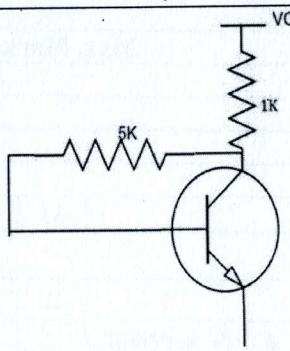
Time: 3 Hrs. **Max. Marks: 100**

Note: i) Part A is compulsory.

ii)Answer any one question from each unit of Section B

iii) All questions carry equal marks

			M	CO	KL
Section-A					
1	a.	What is the relationship between α and β?	2	5	1
	b.	Name the two types of reverse breakdowns which occur in a PN junction diode?	2	1	1
	c.	Draw the hybrid model of a BJT.	2	4	1
	d.	What is the need for biasing a transistor?	2	7	2
	e.	What is ripple factor?	2	1	1
	f.	What is I_{DSS} in FET?	2	5	2
	g.	What is the difference between enhancement and depletion type MOSFET?	2	3	2
	h.	Compare the BJT with FET.	2	3	2
	i.	Define pinch-off voltage for a JFET.	2	1	1
	j.	What do you mean by operating point?	2	7	1
Section-B: Unit-I					
2	a.	Why clipper and clamper circuits are used. Draw and discuss different types of clipper and clamper circuits in detail.	8	7	4
	b.	Discuss zener diode. How zener diode is used as voltage regulator?	8	2	3
OR					
3	a.	An A.C. voltage of peak value 20 V is connected in series with a silicon diode and load resistance of 500 Ω. Find: (i) peak current through diode, (ii) peak output voltage at load. i) If the forward resistance of diode is 10 Ω, and Cut-in voltage is 0.7 V. ii) What will be these values if the diode is assumed to be ideal ?	8	5	3
	b.	Draw and discuss in detail the bridge type full wave rectifier.	8	2	2
Unit-II					
4	a.	i) What is meant by base width modulation? How does it affect the working of transistor? ii) A transistor has an I_C of 100mA and I_B of 0.5mA. What is the value of α?	8	5	4
	b.	Draw the current components of transistor and also explain any one biasing	8	1	2

		technique of transistor.			
		OR			
5	a.	What are different biasing stability factors. For the fixed bias circuit, calculate the all stability factors.	8	4	3
	b.	 In the circuit, transistor has β =60, V_{BE}=0.7V. Find the collector to emitter voltage drop V_{CE}.	8	5	3
		Unit-III			
6	a.	What is JFET? Discuss in detail with construction, symbol, working and its characteristics.	8	3	2
	b.	i) An n-channel JFET has IDSS = 2mA, Vp = - 4 V. Find its transconductance gm for an applied Vgs of -2 V. ii) What is meant by transfer characteristics of JFET?	8	5	3
		OR			
7	a.	How does the JFET behave for i) small values of |Vds| and ii) large values of |Vds|? Explain with suitable V-I characteristics.	8	7	4
	b.	What are the different types of FET configuration? How does FET configurations are correlated to BJT configuration?	8	6	4
		Unit-IV			
8	a.	Discuss depletion type MOSFET in detail with construction, symbol, working. corresponding output and transfer characteristics.	8	1	2
	b.	Compare between PMOS and NMOS.	8	3	2
		OR			
9	a.	Discuss enhancement type MOSFET in detail with construction, symbol, working. corresponding output and transfer characteristics.	8	1	2
	b.	Compare the transfer characteristics of FET, enhancement type MOSFET and depletion type MOSFET in detail.	8	3	4
		UNIT-V			
10	a.	Determine all the parameters for voltage and current gain and various impedances for an amplifier circuit using h-parameters.	8	6	3
	b.	What is quiescent point and what is the load line analysis.	8	7	2
		OR			

11	a.	Define h-parameters for a BJT in detail.	8	4	2
	b.	Consider a single state CE amplifier with Rs = 1KΩ and R_L = 10 KΩ. The h-parameter values are hie = 1.1K, hre= $2.5x10^{-4}$, hfe=50 and hoe= 25 μA/V. Find the various gain and the input and output impedances.	8	5	3

		Course Code: SOE-B-EE303			
		O P JINDAL UNIVERSITY			**R 20**
		B. Tech. III Semester Regular Examinations			
		Electrical Machine-I			
		Offered to EE (**01UG060**)			
Time: 3 Hrs.				**Max. Marks: 100**	
		Answer any one question from each unit			
		All questions carry equal marks			
			M	**CO**	**KL**
		Section-A			
1	a.	What is the function of compensating winding?	2	1	3
	b.	Explain the law of conservation and give some examples.	2	1	3
	c.	Why transformer rating is expressed in terms of kVA?	2	2	1
	d.	Define all day efficiency of a transformer.	2	2	2
	e.	What are the necessary conditions required for the parallel operation of a single-phase transformer?	2	3	2
	f.	What is the condition of maximum efficiency of the transformer	2	3	4
	g.	What is the use of inter pole in the d.c. machine?	2	4	4
	h.	What is the condition of maximum efficiency of d.c. shunt generator.	2	4	3
	i.	Explain the Back EMF of d.c. motor	2	5	1
	j.	Why a starter is necessary for a DC motor?	2	5	1
		Section-B: **Unit-I**			
2	a.	What are the types of d.c. machines? explain in detail.	8	1	4
	b.	Explain in detailed construction of d.c. generator.	8	1	4
		OR			
3	a.	What is the difference between Lap winding and wave winding?	8	1	4
	b.	Explain in detail the construction and operation of d.c. generator.	8	1	4
		Unit-II			
4	a.	What is the principle of a single-phase transformer? Derive their e.m.f equation.	8	2	4
	b.	A 25 kVA transformer has 500 turns on of the primary and 50 turns on the secondary winding the primary is connected to a 3000-V,50-Hz supply. Find the full load current of primary and secondary current, the secondary e.m.f. and the maximum flux in the core Neglect leakage drop and no-load primary current.	8	2	5
		OR			
5	a.	Draw the phasor diagram of the transformer with winding resistance but no leakage reactance.	8	2	4
	b.	A 30 KVA, 2400/120V, 50-Hz transformer has a high voltage winding resistance of 0.1 Ω and a leakage reactance of 0.22 Ω. The low voltage winding resistance is 0.035 Ω and the leakage reactance is 0.012 Ω. Find the equivalent resistance reactance and impedance referred to the (i) High voltage side (ii) low voltage side.	8	2	5
		Unit-III			

6	a.	Explain the different connection diagrams of 3 phase transformer.	8	3	3
	b.	Explain the working of single-phase auto-transformers with neat diagrams.	8	3	3
		OR			
7	a.	What are the condition of the parallel operation of 3 phase transformer?	8	3	3
	b.	Explain the Scott connection of the transformer.	8	3	3
		Unit-IV			
8	a.	Derived the EMF equation of d.c. generator? explain in detail.	8	4	3
	b.	A long shunt compound generator delivers a load current of 50 Amp at 500 V and has armature, series field and shunt field resistance of 0.05 Ω, 0.03 Ω and 250 Ω respectively. Calculate the generated voltage and armature current. Allow 1 volt per brush for contact drop.	8	4	3
		OR			
9	a.	What do you understand about the armature reaction explain in detail? Describe the role of compensating windings in a dc generator.	8	4	3
	b.	A 4-pole, long-shunt lap-wound generator supplies 25 kW at a terminal voltage of 500V.The armature resistance is 0.03 Ω, the series field resistance is 0.04 Ω and the shunt field resistance is 200 Ω. The brush drop may be taken as 1.0 volt Determine the e.m.f. generated. Calculated also no of conductors if the speed is 1200 r.p.m. and flux per pole is 0.02 weber. Neglect armature reaction.	8	4	3
		UNIT-V			
10	a.	Explain the method of speed control of d.c. series and shunt motor.	8	5	5
	b.	A 4 pole 240 V, wave connected shunt motor 11190 kW, when running at 1000 r.p.m. and armature and field resistance of 50 Amp and 1.0 Amp respectively. It has 540 conductors. Its resistance has 0.1 Ω. Assuming 1 volt per brush. Find the (i) Armature Torque, (ii) Shaft torque, (iii) Useful flux /pole, and (iv) efficiency.	8	5	5
		OR			
11	a.	Draw the characteristics of series and shunt motor and explain it in detail.	8	5	5
	b.	A 230 V d.c. shunt motor has an armature resistance of 0.5 ohm and field resistance of 115 Ω .At no load , the speed is 1200 r.p.m. and the armature current 2.5 A . On the application of rated load the speed drop to 1,120 r.p.m. Determine the line current and power input when the motor delivers the rated load.	8	5	5

		Course Code: SOE-B-EE303			
		O P JINDAL UNIVERSITY			**R 20**
		B. Tech. III Semester Regular Examinations			
		Electrical Machine-I			
		Offered to EE (**01UG060**)			
Time: 3 Hrs.				**Max. Marks: 100**	
		Answer any one question from each unit			
		All questions carry equal marks			
			M	**CO**	**KL**
		Section-A			
1	a.	What is the function of compensating winding?	2	1	3
	b.	Explain the law of conservation and give some examples.	2	1	3
	c.	Why transformer rating is expressed in terms of kVA?	2	2	1
	d.	Define all day efficiency of a transformer.	2	2	2
	e.	What are the necessary conditions required for the parallel operation of a single-phase transformer?	2	3	2
	f.	What is the condition of maximum efficiency of the transformer	2	3	4
	g.	What is the use of inter pole in the d.c. machine?	2	4	4
	h.	What is the condition of maximum efficiency of d.c. shunt generator.	2	4	3
	i.	Explain the Back EMF of d.c. motor	2	5	1
	j.	Why a starter is necessary for a DC motor?	2	5	1
		Section-B: **Unit-I**			
2	a.	What are the types of d.c. machines? explain in detail.	8	1	4
	b.	Explain in detailed construction of d.c. generator.	8	1	4
		OR			
3	a.	What is the difference between Lap winding and wave winding?	8	1	4
	b.	Explain in detail the construction and operation of d.c. generator.	8	1	4
		Unit-II			
4	a.	What is the principle of a single-phase transformer? Derive their e.m.f equation.	8	2	4
	b.	A 25 kVA transformer has 500 turns on of the primary and 50 turns on the secondary winding the primary is connected to a 3000-V,50-Hz supply. Find the full load current of primary and secondary current, the secondary e.m.f. and the maximum flux in the core Neglect leakage drop and no-load primary current.	8	2	5
		OR			
5	a.	Draw the phasor diagram of the transformer with winding resistance but no leakage reactance.	8	2	4
	b.	A 30 KVA, 2400/120V, 50-Hz transformer has a high voltage winding resistance of 0.1 Ω and a leakage reactance of 0.22 Ω. The low voltage winding resistance is 0.035 Ω and the leakage reactance is 0.012 Ω. Find the equivalent resistance reactance and impedance referred to the (i) High voltage side (ii) low voltage side.	8	2	5
		Unit-III			

6	a.	Explain the different connection diagrams of 3 phase transformer.	8	3	3
	b.	Explain the working of single-phase auto-transformers with neat diagrams.	8	3	3
		OR			
7	a.	What are the condition of the parallel operation of 3 phase transformer?	8	3	3
	b.	Explain the Scott connection of the transformer.	8	3	3
		Unit-IV			
8	a.	Derived the EMF equation of d.c. generator? explain in detail.	8	4	3
	b.	A long shunt compound generator delivers a load current of 50 Amp at 500 V and has armature, series field and shunt field resistance of 0.05 Ω, 0.03 Ω and 250 Ω respectively. Calculate the generated voltage and armature current. Allow 1 volt per brush for contact drop.	8	4	3
		OR			
9	a.	What do you understand about the armature reaction explain in detail? Describe the role of compensating windings in a dc generator.	8	4	3
	b.	A 4-pole, long-shunt lap-wound generator supplies 25 kW at a terminal voltage of 500V.The armature resistance is 0.03 Ω, the series field resistance is 0.04 Ω and the shunt field resistance is 200 Ω. The brush drop may be taken as 1.0 volt Determine the e.m.f. generated. Calculated also no of conductors if the speed is 1200 r.p.m. and flux per pole is 0.02 weber. Neglect armature reaction.	8	4	3
		UNIT-V			
10	a.	Explain the method of speed control of d.c. series and shunt motor.	8	5	5
	b.	A 4 pole 240 V, wave connected shunt motor 11190 kW, when running at 1000 r.p.m. and armature and field resistance of 50 Amp and 1.0 Amp respectively. It has 540 conductors. Its resistance has 0.1 Ω. Assuming 1 volt per brush. Find the (i) Armature Torque, (ii) Shaft torque, (iii) Useful flux /pole, and (iv) efficiency.	8	5	5
		OR			
11	a.	Draw the characteristics of series and shunt motor and explain it in detail.	8	5	5
	b.	A 230 V d.c. shunt motor has an armature resistance of 0.5 ohm and field resistance of 115 Ω .At no load , the speed is 1200 r.p.m. and the armature current 2.5 A . On the application of rated load the speed drop to 1,120 r.p.m. Determine the line current and power input when the motor delivers the rated load.	8	5	5

Course Code: SOE-B-EE-304

O P JINDAL UNIVERSITY

B. Tech. III Semester Regular Examinations

Data Structure & Algorithms

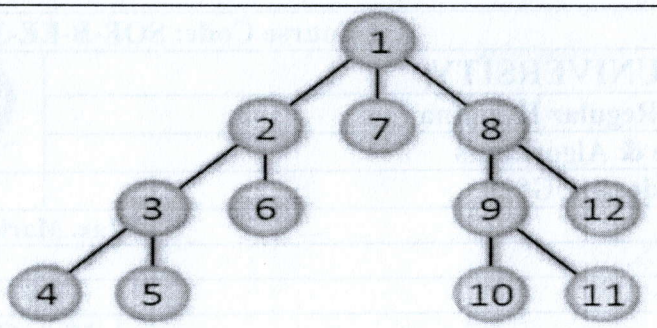
Program Code: 01UG020

Time: 3 Hrs. **Max. Marks: 100**

Answer any one question from each unit

All questions carry equal marks.

			M	CO	KL
Section-A					
1	a.	**Write the definition of Data Structure.**	2	CO1	K1
	b.	**What is an algorithm.**	2	CO1	K1
	c.	**Write down the types of data structure.**	2	CO1	K1
	d.	**Define stack data structure.**	2	CO2	K1
	e.	**What are the applications of queue data structure?**	2	CO3	K1
	f.	**Write the advantages of linked list data structure.**	2	CO3	K1
	g.	**What are the basic operations associated with data structure?**	2	CO1	K1
	h.	**Define tree data structure with advantages.**	2	CO4	K1
	i.	**What are the applications of graph data structure?**	2	CO4	K1
	j.	**Define binary search tree.**	2	CO5	K1
Section-B: Unit-I					
2	a.	**Explain the criterion of algorithm analysis.**	8	CO1	K3
	b.	**Explain how an infix expression can be converted to a post fix expression with an example.**	8	CO1	K3
OR					
3	a.	**How to represent Queue using array. Write algorithm for enque and deque operation.**	8	CO1	K3
	b.	**What is a graph? Explain how graphs are represented.**	8	CO1	K3
Unit-II					
4	a.	**Explain double ended queue with help of example.**	8	CO2	K3
	b.	**What is stack? Write algorithm for performing basic operations on stack, if its implemented using array.**	8	CO2	K3
OR					
5	a.	**(b) Write a brief note on Traversing a binary tree. Find the preorder and postorder traversal of following tree.**	8	CO2	K3

					
	b.	**What is linked list? How is it represented in memory? Briefly explain header linked list.**	8	CO2	K3
		Unit-III			
6	a.	**Write down the algorithm for insertion of an element inside the linked list.**	8	CO3	K3
	b.	**Explain sequential and linked representation of binary tree with help of example.**	8	CO3	K3
		OR			
7	a.	**Explain and implement a single linked list with an example.**	8	CO3	K3
	b.	**What is a priority queue? Implement using a linked list.**	8	CO3	K3
		Unit-IV			
8	a.	**What is a spanning tree? Explain how minimal spanning trees are constructed with an example.**	8	CO4	K3
	b.	**Explain a Binary Search Tree (BST) with an example.**	8	CO4	K3
		OR			
9	a.	**Explain quick sort algorithm with suitable example.**	8	CO4	K3
	b.	**Write down the bubble sort algorithm and explain.**	8	CO4	K3
		UNIT-V			
10	a.	**Explain in details tree traversal techniques.**	8	CO5	K3
	b.	**Write down the traversal techniques of graph with example.**	8	CO5	K3
		OR			
11	a.	**Explain binary search algorithm by suitable example. Discuss the complexity of Binary search algorithm.**	8	CO5	K3
	b.	**Write an algorithm for DFS graph traversal.**	8	CO5	K3

Course Code: SOE-B-CE305

O P JINDAL UNIVERSITY

B. Tech. III Semester Regular Examinations

Disaster Management (Online)

(Offered to CE, ME, EE)

Time: 02 Hrs. **Max. Marks: 50**

Answer any one question from each unit

All questions carry equal marks

			M	CO	KL
Unit-I (10 marks)					
1	a.	Define the term 'Disaster'?	2	1	I
	b.	Summarize the various types of floods?	8	1	II
OR					
2	a.	Summarize the various types of droughts?	5	1	II
	b.	What are the various causes of forest fires?	5	1	I
Unit-II (10 marks)					
3	a.	Write down the process of EIA?	6	2	II
	b.	What are the shortcomings of EIA?	4	2	II
OR					
4	a.	What are the major elements of land-use planning?	4	2	I
	b.	Write a short note on "Traditional Disaster Resistant Construction Techniques"?	6	4	II
Unit-III (10 marks)					
5	a.	Write down the methods to mitigate the impact of the Tsunami?	5	3	II
	b.	Briefly illustrate various methods to mitigate the impact of cyclones?	5	3	II
OR					
6	a.	Briefly describe various methods to mitigate the damage due to Earthquake?	5	3	II
	b.	What are the various causes of Epidemics?	5	3	I
Unit-IV (10 marks)					
7	a.	Draw Disaster management cycle and briefly describe each term?	10	4	II
OR					
8	a.	Summarize the phases, focus, objectives and distinctive features of Community Based Disaster Management (CBDM)?	10	4	II
UNIT-V (10 marks)					
9	a.	What is NDRF and its role in case of disasters?	5	5	I
	b.	What are the other activities beside search and rescue operations undertaken during emergency situation in which NDRF is engaged?	5	5	I
OR					
10	a.	What are the immediate and long-term response of (i) Cyclone & (ii) Drought?	10	5	I

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19/Nov/22

(12)

Course Code: SOE-B-CSE303

O P JINDAL UNIVERSITY

B. Tech. III Semester Regular Examinations

OPERATING SYSTEM

(Offered to CE, ECE EEE & ME)

Time: 3 Hrs. **Max. Marks: 100**

Answer any one question from each unit

All questions carry equal marks

			M	CO	KL
		Unit-I (20 marks)			
1	a.	Define Operating Systems and discuss its role from different perspectives.	10	CO1	KL1
	b.	Write short note on CPU scheduling criteria.	10	CO2	KL3
		OR			
2	a.	List out different services of Operating Systems and explain each service.	10	CO1	KL1
	b.	Explain different types of CPU Schedulers. i) Preemptive and non-preemptive scheduling ii) I/O bound and CPU bound iii) Scheduler and dispatcher	10	CO3	KL2
		Unit-II			
3	a.	Distinguish among following terminologies i) Multiprogramming systems ii) Multitasking Systems iii) Multiprocessor systems.	10	CO2	KL1
	b.	What is the difference between a preemptive and non-preemptive scheduling algorithm? Explain FCFS scheduling algorithm. Find the average turnaround time and average waiting time for the processes given in the table below. Process CPU burst time (in ms) P1: 24, P2: 3, P3: 3.	10	CO3	KL3
		OR			
4	a.	What is distributed operating system? What are the advantages of distributed operating system?	10	CO4	KL3
	b.	Explain the concept of 'process'. also describe the contents of a process control block (PCB).	10	CO3	KL2
		Unit-III			
5	a.	What are system calls? Explain different categories of system calls with example?	10	CO1	KL3
	b.	Describe necessary conditions for a deadlock situation to arise.	10	CO2	KL2
		OR			
6	a.	Explain the distinguishing features of i). Real time system ii) Multiprocessor system.	10	CO4	KL2
	b.	Explain the methods for deadlock prevention.	10	CO2	KL2
		Unit-IV			
7	a.	What is operating system? What are functions of operating system?	10	CO3	KL1
	b.	What is deadlock? Explain the necessary conditions for its occurrence.	10	CO2	KL1
		OR			
8	a.	What do you mean by PCB? Where is it used? What are its contents?	10	CO1	KL1
	b.	What is fragmentation? Explain its types and disadvantages	10	CO1	KL1
		UNIT-V			
9	a.	What is a process? Draw and explain process state diagram.	10	CO3	KL1
	b.	Differentiate between the following a) Paging and Segmentation b) Page table and segment table.	10	CO3	KL2
		OR			
10	a.	Explain three requirements that a solution to critical–section problem must satisfy.	10	CO4	KL2
	b.	Explain paging scheme of memory management. What hardware support is needed for its implementation?	10	CO1	KL2