BharatiyaVidyaBhavan's

Sardar Patel College of Engineering

(A Government Aided Autonomous Institute)

Munshi Nagar, Andheri (West), Mumbai – 400058.

End Semester – **Final Examination**

May 2018

Max. Marks: 100 Duration: 3 Hours

Class: F.Y B.Tech(Civil and Electrical)

Program:B. Tech in (Civil and Electrical) Engineering

Name of the Course :**Constitution of India** Course Code : **BT025**

Instructions:

- Attempt any five questions out of seven
- Figures to the right indicate full marks.
- Every question carries 20 marks

Question No		Max Mark	Course Outcome Number	Module No.
Q.1	Answer in brief (each question carries two marks)	**20**		
	i. What does Right to Education Mean.?			
	ii. What are the six freedoms under Article 19			
	iii. What is abolution of Untouchability means.?			
	iv. What is Right to freedom of religion.?			
	v. What are the Remedies available under the Fundamental Right.			
	vi. What are the Gandhian Principles in the Directive Principle of State Policy			
	vii. What are the cultural and Educational right			
	viii. What are the major different between Fundamental Rights and Fundamental Duties in the Constitution			
	ix. Which four new Directive Principles were added in the 42nd amendment			
	x. How many time the emergencies proclaimed in India.?			
Q.2	a) Explain the Fundamental Rights in detail.	**10**		
	b) Explain the Directive Principles of state policy under Constitution of India	**10**		

Q.3	a) Explain the Public Interest Litigation	**10**		
	b) What are the silent features of the constitution	**10**		
Q.4	a) What types of Amendment process are available in our Constitution	**10**		
	b) What types of Emergencies are available in the constitution of India	**10**		
Q.5	Attempt any four questions (each question carries 5 marks)	**20**		
	i) What are the silent features of the constitution			
	ii) What is Presidential Rule under the Emergency			
	iii) Explain the Secular state			
	iv) What is Finance Emergency			
	v) What is the Writ of Habeas corpus			
Q.6	Write Short Notes (each question carries 5 marks)	**20**		
	i) Define the word Socialist in the constitution			
	ii) Explain the Democratic object in the preamble			
	iii) What is the Writ of Habeas corpus			
	iv) Explain the Secular state			
Q.7	a) What is Finance Emergency	**10**		
	b) write about the National Emergency	**10**		

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RE- Exam(June 2018)

Max. Marks: 100 Duration: 3 hours
Class: F.Y.B.Tech Semester:II Program: (C/E/M)
Name of the Course : Computer Programming
Course Code : BT207

Instructions:

- **Question ONE is Compulsory**
- Attempt any FOUR out of the remaining SIX Questions.
- Assume suitable data wherever necessary.

Q. No.			Max. Marks	Course Outcome Number	Module No.
1.	A	Discuss the salient features of OOPs.	05	3	6
	B	Draw flow chart to swap two numbers.	05	1	1
	C	Explain Global and local variables.	05	2	4
	D	Discuss the different Datatypes supported by C++.	05	1	2
2.	A	Write a program using the concept of classes to add two complex numbers	10	3	6
	B	Write a program to print the coefficients of binomial expansion where degree is entered by the user.	10	2	4
3.	A	Write a program to enter a number and say whether it is positive number, negative number or zero. Use switch statement.	10	1	3
	B	Explain the following with an example i. Loop which is exit controlled ii. Continue Statement	10	1	3
4.	A	Discuss the different Access Specifiers related to inheritance. Write a program to explain the concept of single inheritance.	10	3	6

	B	Explain constructor overloading with an example.	10	3	6,7
5.	A	Explain the concept of polymorphism	10	3	7
	B	Write a program to enter a string and check whether it's a palindrome or not.	10	2	5
6.	A	Write a program using functions to find GCD and LCM of two numbers.	10	2	4
	B	Write a program to find transpose of a matrix	10	2	5
7.	A	Explain the different types of operators in C++.	10	1	2
	B	What are high level and low level languages? Explain the function of Assembler, Compiler and Interpreter related to program execution.	10	1	1

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End Sem Exam(May 2018)

Max. Marks: 100 Duration: 3 hours
Class: F.Y.B.Tech Semester:II Program: (C/E/M)
Name of the Course : Computer Programming
Course Code : BT207

Instructions:

- **Question ONE is Compulsory**
- Attempt any FOUR out of the remaining SIX Questions.
- Assume suitable data wherever necessary.

Q. No.			Max. Marks	Course Outcome Number	Module No.

1.	A	What will be the output of the following program:
		
		#include<iostream.h>
		void dec( )
		{
		static int i = 10;
		cout<<i<<endl;
		i--;
		}
		void main( )
		{
		dec( );
		dec( );
		dec( );
		}
			02	2	4

	B	i) Explain post & pre increment and decrement operators. ii) Explain break statement with example.	04 04	1	2 3
	C	i) Explain the different Types of Inheritance (Program not required). ii) Explain Runtime Polymorphism.	04 02	3	6 7
	D	Explain any two string related functions which come in the headerfile <string.h>	04	2	5

2.	A	Write an algorithm to enter three sides of a triangle and state if the triangle is possible or not. If possible then say whether it is equilateral, isosceles or scalene triangle. Also draw the flow chart for the same.	10	1	1
	B	Write a program to accept 5 names from the user and arrange them in alphabetical order.	10	2	5
3.	A	Write a program (using Nested For Loop) to print following patterns: i) A B C D E F G H I J ii) * * * * * *	10	2	3
	B	Explain the difference between Call by Value and Call by Reference with example.	10	2	4
4.	A	Write a program to accept a 5 digit number and multiply 1st and 3rd digit.	10	1	2
	B	Explain Compile time Polymorphism with suitable example.	10	3	7
5.	A	Create a class A that has one private integer data member and two public member functions. Create a class B that has two private floating point data members and some public member functions. Create the object of Class B in the main which will perform the division of the integer data by floating point data and display the result. Define all the necessary functions in both classes for the same.	10	3	6
	B	Write a program for addition of two matrices.	10	2	5
6.	A	Create a constructor for class time which by default initializes the time to 0 hours 0 minutes. If user supplies the time while creating the object then that needs to be assigned to the object. Write a main function to supply two timings (when objects are created). Aim of program is to add the two timings and display the result. Define all the necessary functions of the class for the same.	10	3	6,7

	B	Write a program using while loop to enter a number and state whether it is prime or not.	10	2	3
7.	A	In a company an employee is paid as under: If his basic salary is less than Rs. 1500, then HRA = 10% of basic salary and DA = 90% of basic salary. If his salary is either equal to or above Rs. 1500, then HRA = Rs. 500 and DA = 98% of basic salary. If the employee's salary is input through the keyboard write a program to find his gross salary. (gross pay = basic salary + HRA + DA)	10	1	3
	B	Write a program to display n terms of Fibonacci series using functions which accepts arguments but does not return any value.	10	2	4

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End Semester II Re Exam

June 2018

Max. Marks: **75 marks** Semester: **II** Duration: 3.0 H
Class: F.Y B.TECH Program:
Name of the Course: **Applied Chemistry -II** Course Code : BT-256

Instructions:

1 questions no 1 is compulsory
2 Attempt any three out of remaining four
3 Draw neat labeled diagrams

Question No	Question	Max. Marks	Course Outcome Number	Mod. No.
Q1				
a	A Coal sample contain following composition by weight C=90%, H=2.5%,O=2.5%, S=2%,N=3% and Ash=5% calculate gross and net calorific value	**5**	3	3
b	Calculate the Atom Economy for following reaction C_6H_6 + CH_3Cl --------→ C_6H_5-CH_3 + HCl	**5**	3	5
c	Calculate the Atom Economy for following reaction CH_3-CH=CH_2 + H_2 ---------→ CH_3-CH_2-CH_2	**5**	4	5
Q2				
a	Explain 12 Principal of green chemistry. write short note on green solvents	**10**	4	5
b	Explain advantages of aluminum alloy over ferrous alloy	**5**	2	4
c	Explain alloy of aluminum with its composition properties and application	**5**	2	4
Q3				

a	Explain determination of carbon and hydrogen Ultimate analysis with its significance	**10**	3	3
b	Write short note on cetane value of petrol fuel	**5**	3	3
c	Write short note on biodiesel synthesis	**5**	3	3
Q4				
a	Explain protection of metal by cathodic and anodic current	**10**	1	2
b	Why anodic coating is better than cathodic coating? Explain protection of metal by anodic coating	**5**	1	2
c	Explain differential aeration corrosion with suitable diagram	**5**	1	1
Q5				
a	Explain wet corrosion with suitable reaction, diagram and mechanism	**10**	1	1
b	Explain ideal character tics of good quality fuel	**5**	3	3
c	What are antiknocking agents? Explain its role petrol	**5**	3	3

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End Semester Exam

Re Exam June 2018

Max. Marks: 100 | Duration: Three Hours

Class: F.Y. B. Tech. Electrical | Semester: II

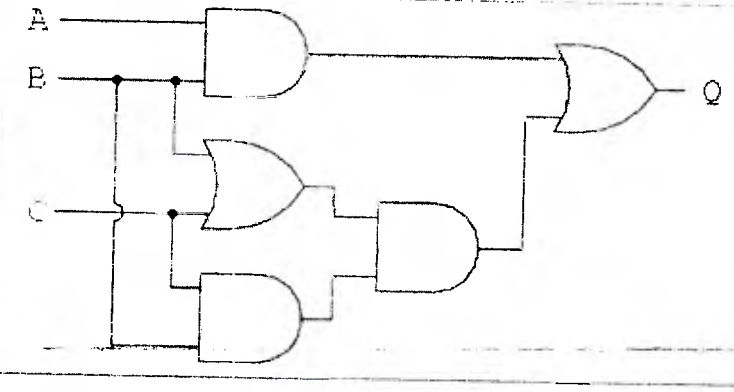
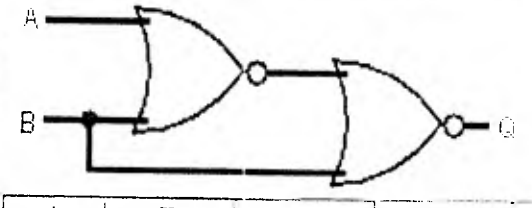
Program: Electrical Engineering

Name of the Course: BEE II | Course Code : BT202

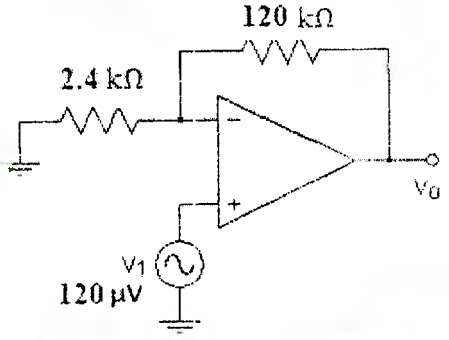
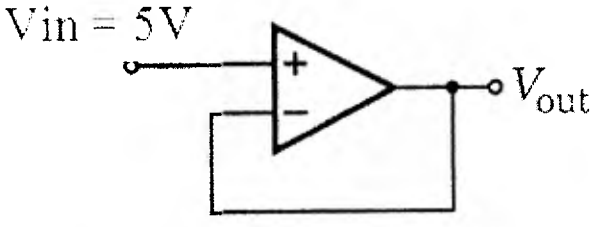
Instructions:

- Question No. 1 is compulsory
- Attempt **any Four questions** out of remaining SIX questions.
- Answer to all sub questions should be grouped together.
- Use graph paper to plot the graph.
- Figures to the right indicate **full marks.**

Q. No			Max. Marks	Course Outcome Number	Module Number
1.	A	What is the difference between avalanche and zener breakdown.	**5**	1	1
	B	Explain the CC configuration of BJT. State one application	**5**	1	3
	C	With suitable diagram explain the working of photo diode	**5**	1	1
	D	Explain the two transistor analogy of SCR	**5**	1	5
2	A	A full wave rectifier uses two diodes each having a forward resistance of 25 Ω . The rms value of the secondary voltage fed between center tap to each secondary terminal is 48V. The load resistance is 1K Ω. Draw neat circuit diagram. Determine (i) DC output voltage (ii) DC output current (iii) Rectification efficiency. (iv) PIV of the diode	**10**	2	2
	B	In simple zener regulator circuit, V_{supply} = 16 V, R_s = 1 KΩ, R_L = 3 KΩ. Zener ratings are V_Z = 10 V and P_{Zmax} = 30mW. Draw neat circuit diagram and calculate (i) Load Voltage (ii) Voltage drop across Rs (iii) Current through zener (iv) Power dissipated across the zener.	**10**	2	2

3	A	With neat diagram, explain the construction of BJT.	**10**	1	3
	B	Explain working of BJT as a switch.	**10**	1	3
4	A	Explain the following terms with respect to FET. (i) **Vp** (ii) V_{GS} (iii) I_{DSS} (iv) r_d (v) **gm**	**10**	2	4
	B	Explain working of FET as an amplifier	**10**	2	4
5	A	Draw and explain SCR characteristics.	**10**	1	5
	B	Explain how SCR works as full wave controlled rectifier.	**10**	1	5
6	A	Determine Q. Simplify the expression and hence redraw the circuit with minimum number of gates. 	**5**	2	6
	B	Using Boolean algebra techniques, simplify the expression. Draw the circuit after simplification. X. Y + X (Y + Z) + Y (Y + Z)	**5**	2	6
	C	Simplify AB + A (B + C) + B (B + C). Draw the circuit after simplification.	**5**	2	6
	D	Complete the truth table. 	**5**	2	6

A	B	Q
0	0	
0	1	
1	0	
1	1	

7	A	Identify the circuit and hence calculate the output voltage.	**5**	2	7
	(i)				
	(ii)		**5**	2	7
	B	Draw and explain equivalent circuit of opamp. Explain the concept of virtual ground.	**10**	2	7

Bharatiya Vidya Bhavan's
SARDAR PATEL COLLEGE OF ENGINEERING

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Re Examination for F.Y.BTech (Civil/Mechanical/Electrical)
2017-18

27/06/2018

Duration: **3 Hrs**

Total marks: **75**

Class/Sem: **F.Y.BTech (C/M/E) Sem-II**

Subject : **APPLIED PHYSICS-II**
Course code: **BT205**

- Attempt any FIVE questions out of SEVEN questions.
- **Answers to all sub questions should be grouped together.**
- Draw diagrams wherever necessary.
- ***Assume suitable data (if necessary) and state the assumption/s clearly!***
- Figures to the right indicate full marks, course outcome number and module number respectively.

Good luck!

Q. No		Max Mark	CO	Module no.
1 (a)	What is Hall Effect? Derive relation for Hall voltage and Hall coefficient. An N-type germanium sample has n_D as $10^{21}/m^3$ and thickness 5 mm which is arranged in a Hall effect experimental setup. If B=0.6T, J=50A/m^2, Find V_H.	8	CO4	V
(b)	Explain Gauss' law and hence derive its integral form. Find the field outside a uniformly charges sphere if radius R and total charge q. Comment on the result.	7	CO3	III
2 (a)	Describe important plane orientations in an FCC structure and hence derive interplanar spacing ratios and planar atomic densities of the planes. Lead has an FCC structure with an atomic radius 1.746A°. Find the spacing of (i) (200) plane and (ii) (220) planes.	8	CO1	I
(b)	Write a note on Langevin's theory of paramagnetism and hence derive an expression for magnetisation in paramagnetic materials.	7	CO2	II
3 (a)	Write a short note on HCP structure explaining its unit cell properties. Zinc has an HCP structure. Height of the unit cell is 0.494nm. Atomic weight of zinc is 65.37. Calculate density of zinc.	8	CO1	I
(b)	Derive an expression for potential in terms of electrostatic field. Find the potential inside and outside a spherical shell of radius R which carries a	7	CO3	III

uniform surface charge. Set the reference point at infinity.

4				
(a)	Give expressions for divergence and curl of magnetic field and hence state Biot-Savart's law.	8	CO3	IV
(b)	Write a note on Bragg's spectrometer and hence explain how it is used to find the type of crystal structure. Calculate the smallest glancing angle at which X-ray of 1.549A° will be reflected from crystal having a spacing of 4.255A°. What is the highest order of reflection that can be observed?	7	CO1	I
5				
(a)	Check which of the following functions an impossible electrostatic field is and which one is an impossible magneto static field! a. $\overline{A} = k(xy\hat{x} + 2yz\hat{y} + 3xz\hat{z})$ b. $\overline{A} = k[y^2\hat{x} + (2xy + z^2)\hat{y} + 2yz\hat{z}]$ Where $\hat{x}, \hat{y}, \hat{z}$ are unit vectors along the direction of x,y,z axes respectively.	8	CO3	IV
(b)	Explain how Fermi level changes with temperature in a P-type semiconductor.	7	CO4	V
6				
(a)	State divergence theorem and check the divergence theorem for the following function $\overline{v_1} = r^2\hat{r}$.	8	CO3	III
(b)	Discuss temperature variation of paramagnetic susceptibilities of materials. A paramagnetic salt contains 10^{28}ions/m^3 with magnetic moment of one Bohr magneton. Calculate the paramagnetic susceptibility and the magnetisation produced in a uniform magnetic field of 10^6A/m when the temperature is 27°C.	7	CO2	II
7				
(a)	Define, write the notation, relation and units for the following: (i) Drift velocity (ii) Current Density (iii) Mobility In a semiconductor, the effective mass of an electron is 0.07 m and that of a hole is 0.4 , where m is the free electron mass. Assuming that the average time for collision for holes is half that for the electrons, calculate the mobility of holes when the mobility of electrons is 0.8m^2/V-s.	8	CO4	V
(b)	Explain hysteresis curve in ferromagnetic materials using a suitable diagram and hence define the important terms in the curve.	7	CO2	II

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SARDAR PATEL COLLEGE OF ENGINEERING

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End Semester Examination for F.Y.BTech (Civil/Mechanical/Electrical)

2017-18

16/05/2018

Total marks: **75** Duration: **3 Hrs**

Class/Sem: **F.Y.BTech (C/M/E) Sem-II** Subject : **APPLIED PHYSICS-II**

Course code: **BT205**

- Attempt any FIVE questions out of SEVEN questions.
- **Answers to all sub questions should be grouped together.**
- Draw diagrams wherever necessary.
- Assume suitable data (if necessary) and state the assumption/s clearly!
- Figures to the right indicate full marks, course outcome number and module number respectively.

Good luck!

Q. No		Max Mark	Course Outcome	Module
1				
(a)	Define Fermi level in a solid. Show that Fermi level lies at the centre of the forbidden gap for an intrinsic semiconductor. Find the probability of an electron being thermally excited to conduction band in intrinsic Silicon at 27°C. Given that the band gap is 1.12eV.	8	CO 4	V
(b)	Explain Gauss' law. State its integral form and hence derive the differential form. Suppose the electric field in some region is found to be $\overline{E} = kr^3\hat{r}$, in spherical coordinates (k is some constant). Find the charge density ρ.	7	CO 3	III
2				
(a)	Lattice constant of aluminimum is 4.05A°. a. How many unit cells are there in an Al-foil 0.1nm thick and side 20 cm square? b. If foil weighs 10gm, how many atoms are present?	4	CO 1	I
	Draw the following: $(\bar{3}0\bar{2})$ and its direction.	4		
(b)	Define the following: (i) Susceptibility and (ii) Magnetisation and hence give the relation for both.	2	CO 2	II
	If an iron ring of relative permeability 900 and diameter 40cm is wound by a wire of 600 turns and there is an air gap of 5mm wide in the ring, calculate the current required to send flux of 1.5×10^{-4}Wb through air gap if area of cross section of the ring is 5.8cm^2.	5		

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End Semester Re-Examination

June 2018 (SET A)

Max. Marks:100 Duration: 3HR

Class: F.Y.B.Tech(C/M) Semester:II

Program: FIRST YEAR ENGINEERING

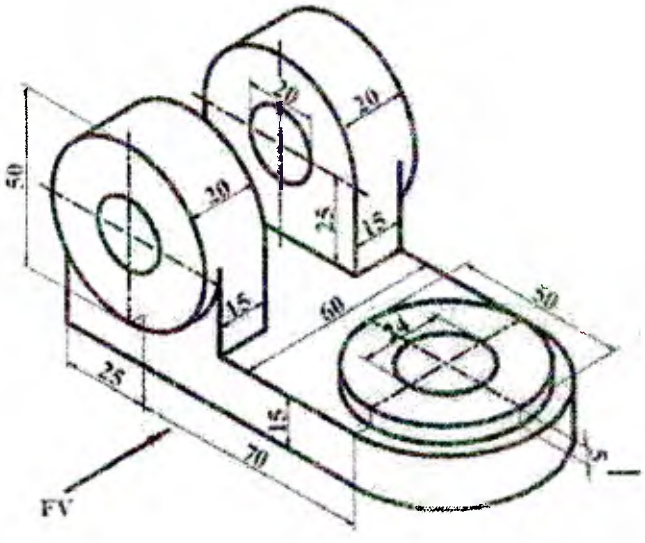
Name of the Course: Engineering Graphics-II

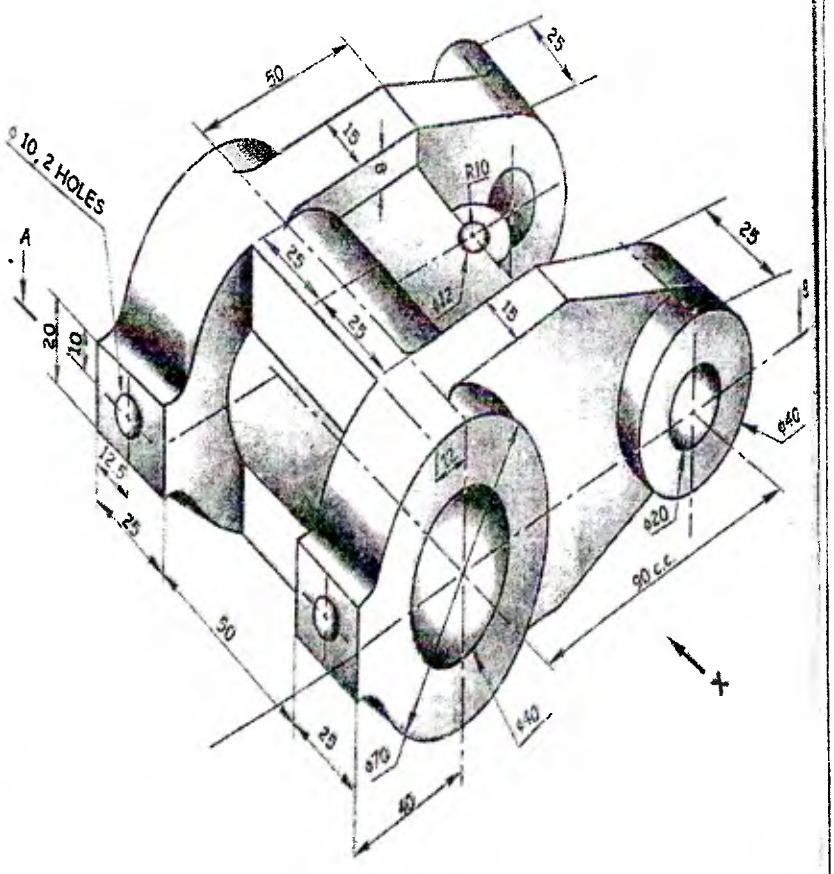
Course Code : BT203

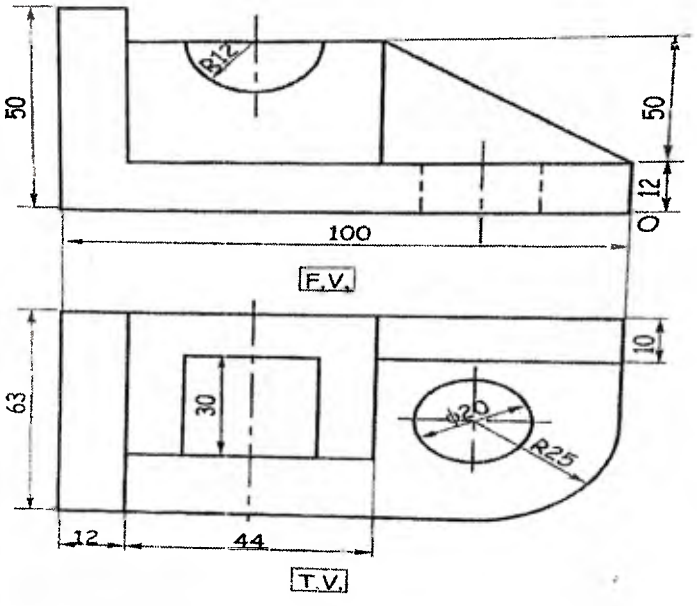
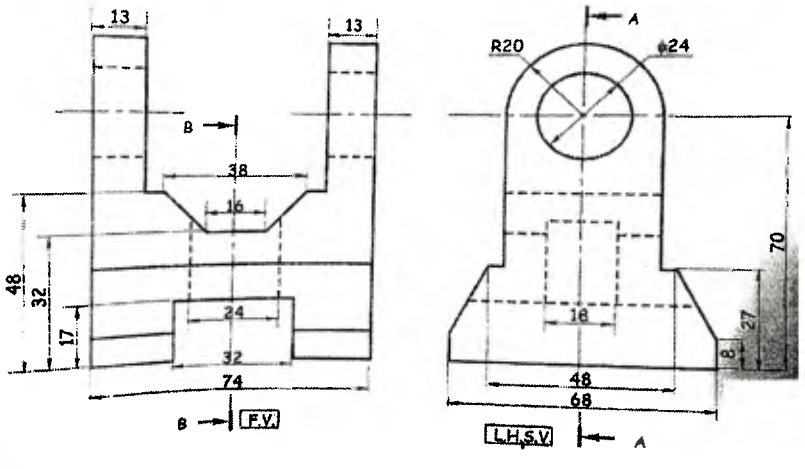
Exam Seat No	
Reg.NO.	
Machine NO.	
Sign of Invigilator	

Instructions:

1. All Questions are compulsory.
2. Draw neat diagrams.
3. Assume suitable data if necessary and clearly indicate the same.
4. Use only **First angle projection** method.

Question No		Maximum Marks	CO NO	Module No.
Q1	Draw the following orthographic projection view of figure 1}FRONT VIEW 2} TOP VIEW 3} RHSV  	20	1,4	2

Q2.	Draw the following views by the first angle method of projection 1] A front view along the direction of an arrow X. 2] A sectional top view on section plane A-B 3]LHSV  	20	1,4	3

Q3	Given two views of an object. Draw its isometric view with O as origin. 	20	2,4	5
Q4	Show the front view and L.H.S.V of an object. Draw the Following views.1]sectional front view across section plane A-A. 2] sectional L.H.S.V across section plane B-B 3] missing TV showing all details. 	20	3,4	6
Q5	Draw the following with suitable dimension a] Hexagonal Headed Bolt b]Slotted Cylindrical Headed Screw . c] Plain Stud d] Square Nut	20	4	7

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End Semester Re-Examination

June 2018 (SET B)

Max. Marks:100 Duration: 3HR

Class: F.Y.B.Tech(C/M) Semester. II

Program: FIRST YEAR ENGINEERING

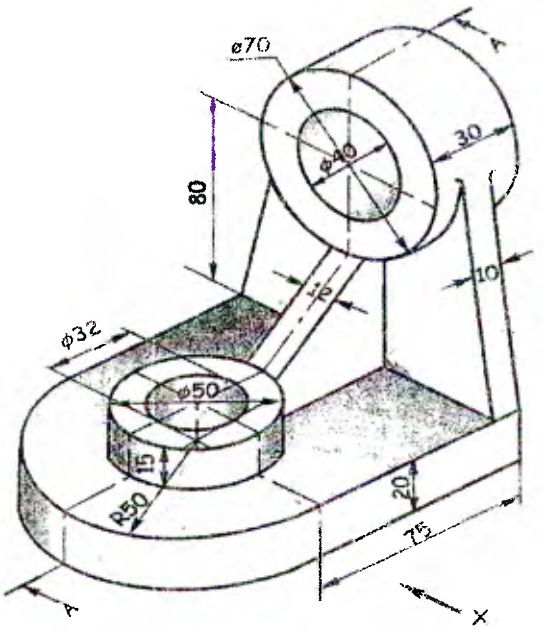
Name of the Course: Engineering Graphics-II

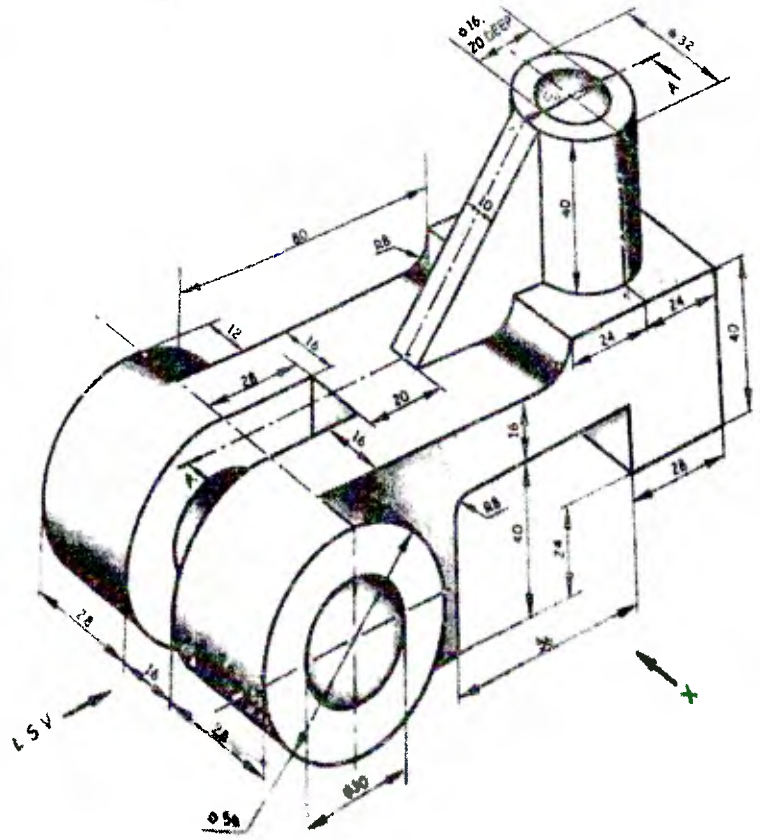
Course Code : BT203

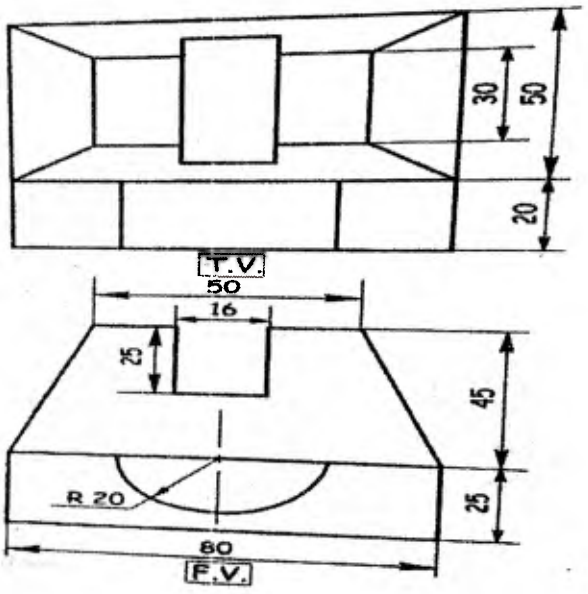
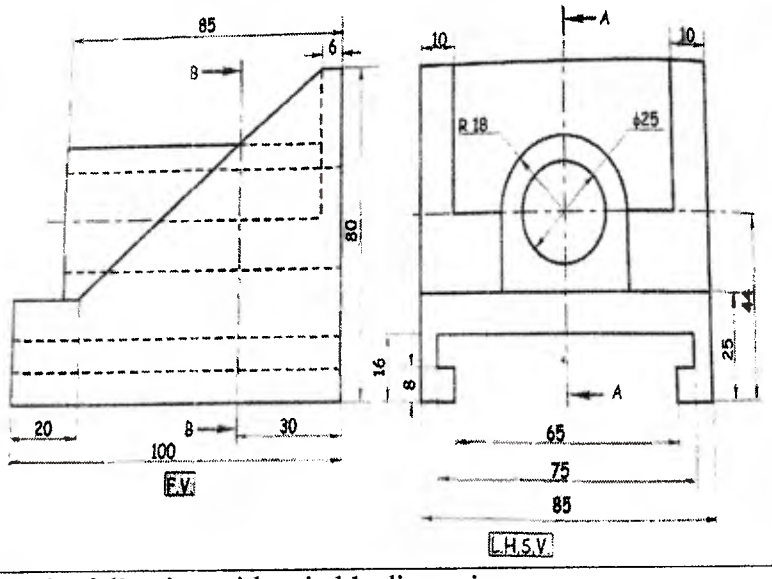
Exam Seat No	
Reg.NO.	
Machine NO.	
Sign of Invigilator	

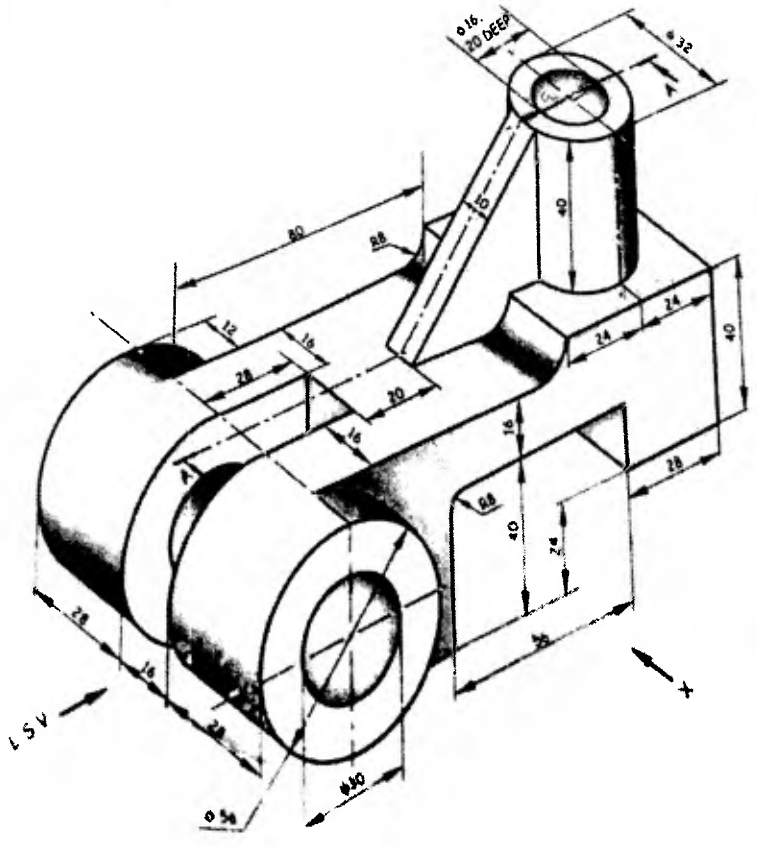
Instructions:

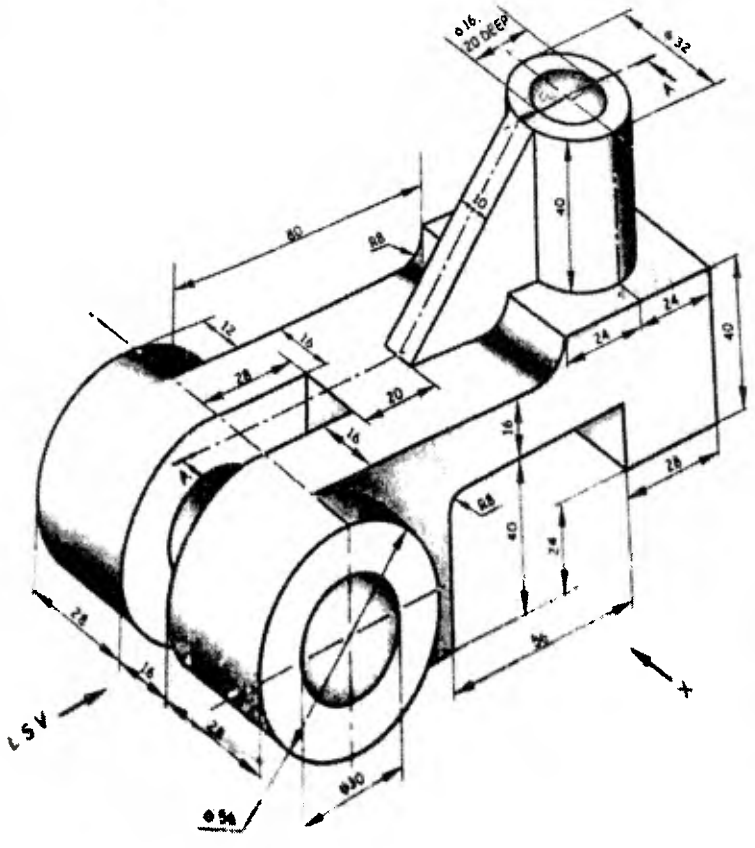
1. All Questions are compulsory
2. Draw neat diagrams.
3. Assume suitable data if necessary and clearly indicate the same.
4. Use only **First angle projection** method.

Question No		Maximum Marks	CO NO	Module No.
Q1	Draw the following orthographic projection view of figure 1}FRONT VIEW 2} TOP VIEW 3} LHSV  	20	1,4	2

Q2.	Draw the following views by the first angle method of projection 1]sectional front view along the direction of an arrow X and the section along A-A 2] Top view 3]LHSV  	20	1,4	3

Q3	Given two views of an object. Draw its isometric view.  	20	2,4	4,5
Q4	Show the front view and L.H.S.V of an object. Draw the Following views.1]sectional front view across section plane A-A. 2] sectional L.H.S.V across section plane B-B 3] missing TV showing all details.  	20	3,4	6
Q5	Draw the following with suitable dimension a] Square Headed Bolt B] Slotted Cup Headed Screw . c] Collar Stud d] Hexagonal Nut	20	4	7

Q2.	Draw the following views by the first angle method of projection 1]sectional front view along the direction of an arrow X and the section along A-A 2] Top view 3]LHSV  	20	1,4	3

Q2.	Draw the following views by the first angle method of projection 1]sectional front view along the direction of an arrow X and the section along A-A 2] Top view 3]LHSV  	20	1,4	3

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Munshi Nagar, Andheri (West), Mumbai – 400058.

End Semester Re-Examination

June 2018 (SET B)

Max. Marks:100 Duration: 3HR

Class: F.Y.B.Tech(**C/M**) Semester: II

Program: FIRST YEAR ENGINEERING

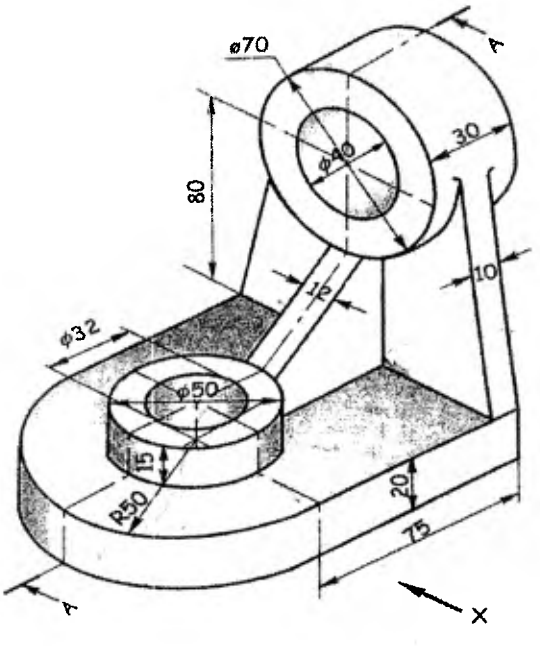
Name of the Course: Engineering Graphics-II

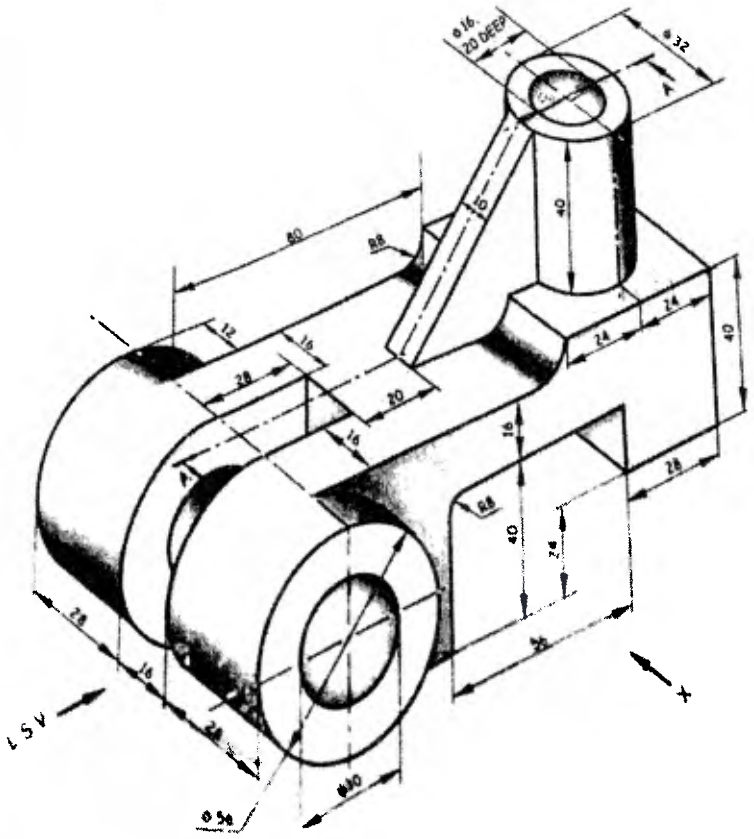
Course Code : BT203

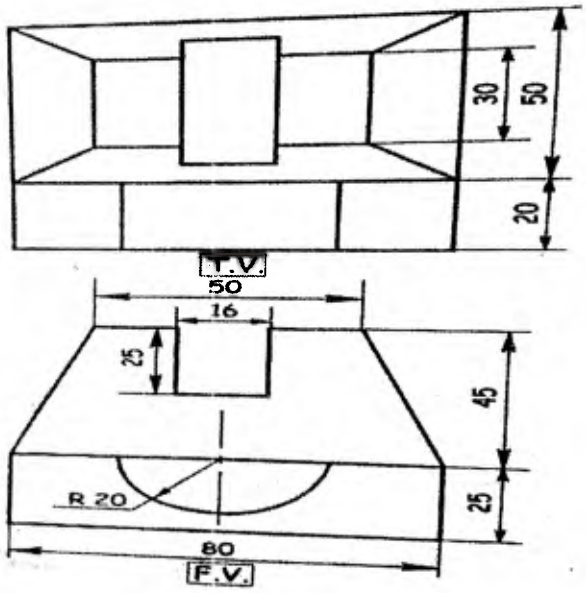
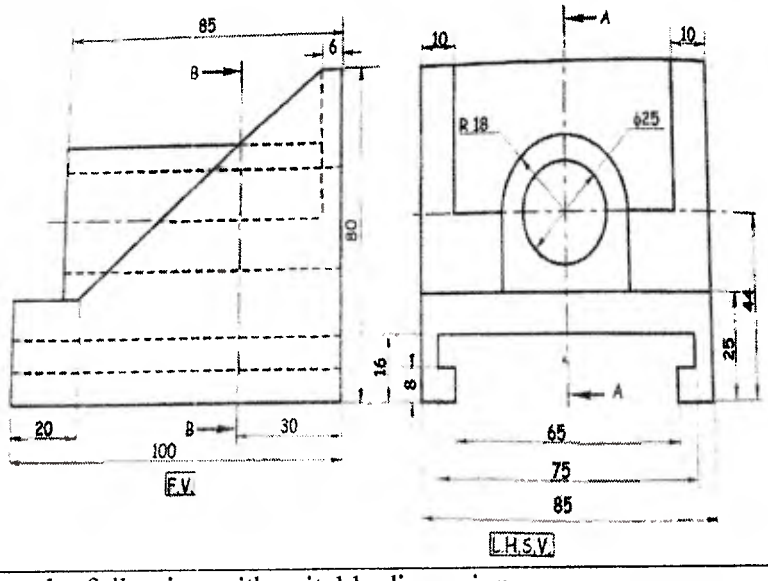
Exam Seat No	
Reg.NO.	
Machine NO.	
Sign of Invigilator	

Instructions:

1. All Questions are compulsory.
2. Draw neat diagrams.
3. Assume suitable data if necessary and clearly indicate the same.
4. Use only **First angle projection** method.

Question No		Maximum Marks	CO NO	Module No.
Q1	Draw the following orthographic projection view of figure 1}FRONT VIEW 2} TOP VIEW 3} LHSV 	20	1,4	2

Q2.	Draw the following views by the first angle method of projection 1]sectional front view along the direction of an arrow X and the section along A-A 2] Top view 3]LHSV  	20	1,4	3

Q3	Given two views of an object. Draw its isometric view.  	20	2,4	4,5
Q4	Show the front view and L.H.S.V of an object. Draw the Following views.1]sectional front view across section plane A-A. 2] sectional L.H.S.V across section plane B-B 3] missing TV showing all details.  	20	3,4	6
Q5	Draw the following with suitable dimension a] Square Headed Bolt B] Slotted Cup Headed Screw . c] Collar Stud d] Hexagonal Nut	20	4	7

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End Semester Exam

May 2018 (SET A)

Max. Marks:100 Duration: 3HR

Class: F.Y.B.Tech(Mechanical) Semester:II

Program: MECHANICAL ENGINEERING

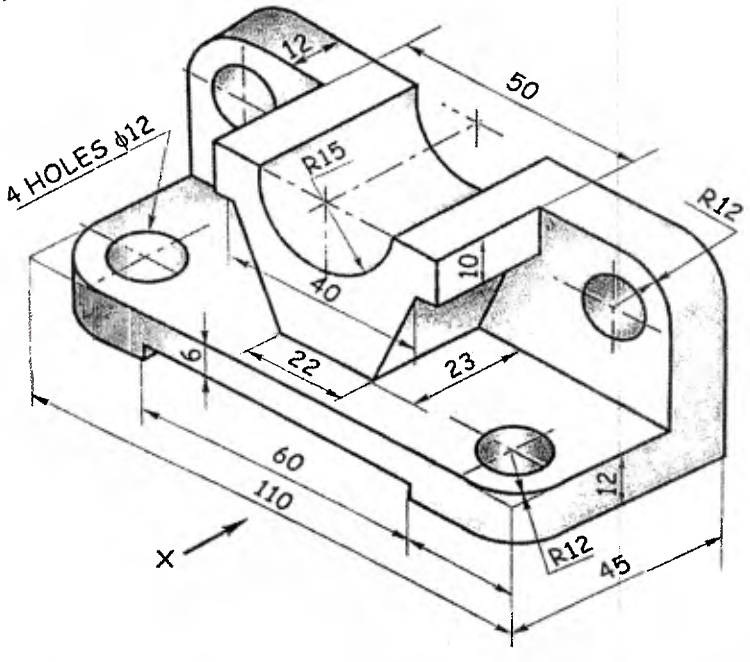
Name of the Course: Engineering Graphics-II

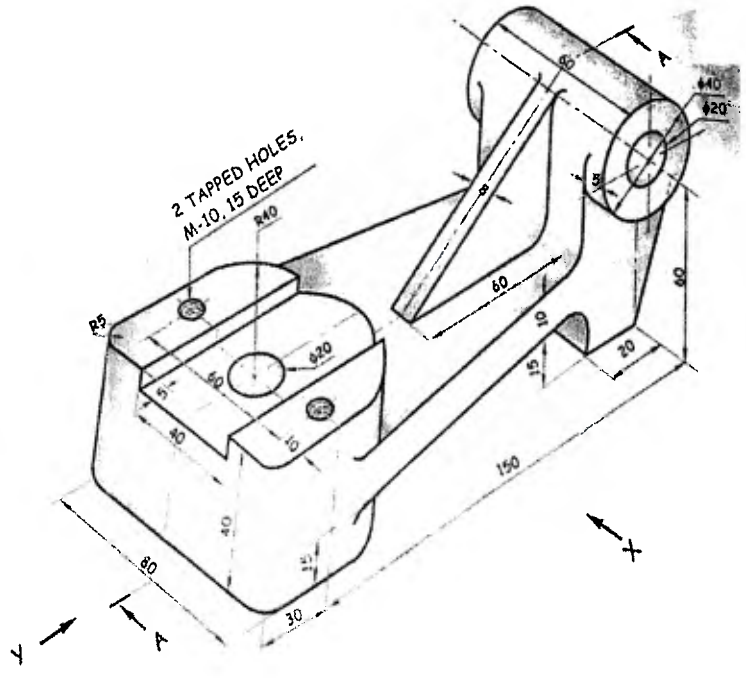
Course Code : BT203

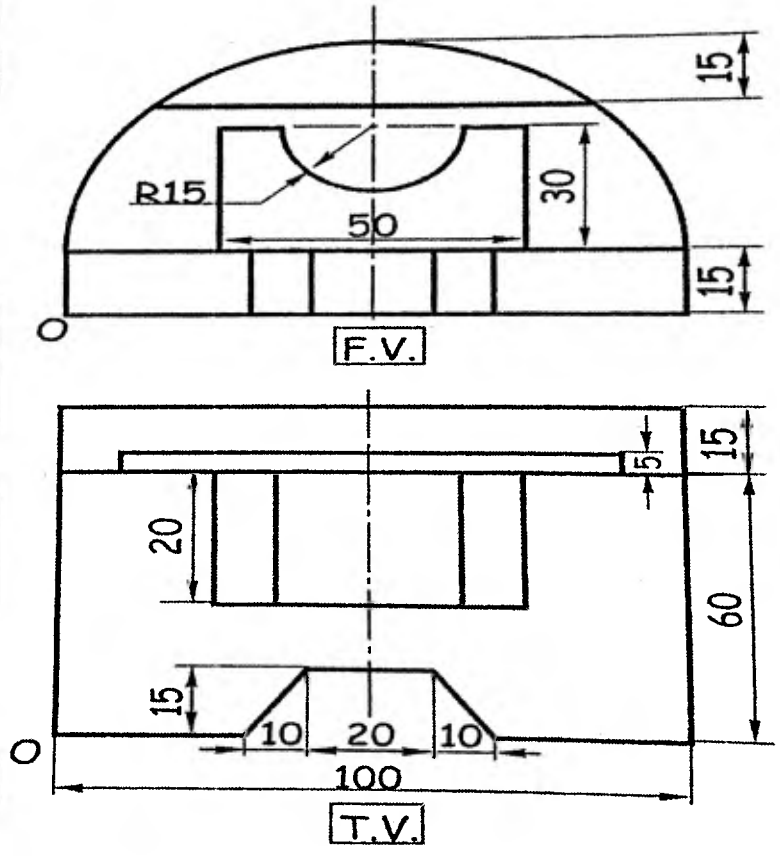
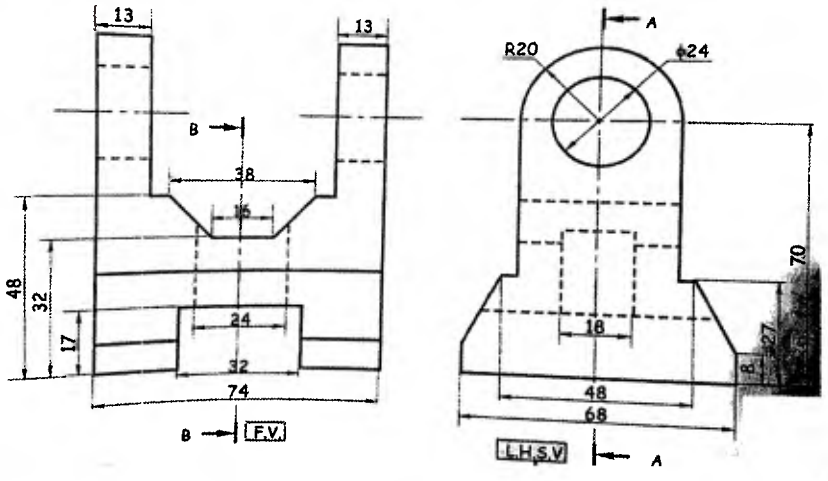
Exam Seat No	
Reg.NO.	
Machine NO.	
Sign of Invigilator	

Instructions:

1. All Questions are compulsory.
2. Draw neat diagrams.
3. Assume suitable data if necessary and clearly indicate the same.
4. Use only **First angle projection** method.

Question No		Maximum Marks	CO NO	Module No.
Q1	Draw the following orthographic projection view of figure 1}FRONT VIEW 2} TOP VIEW 3} RHSV  	20	1,4	2

Q2.	Draw the following views by the first angle method of projection 1]sectional elevation along the direction of an arrow X and the section along A-A 2] Top view 3]LHSV  	20	1,4	3

Q3	Shows two view of an object. Draw its isometric view with O as origin.  	20	2,4	5
Q4	Show the front view and L.H.S.V of an object. Draw the Following views.1]sectional front view across section plane A-A. 2] sectional L.H.S.V across section plane B-B 3] missing TV showing all details.  	20	3,4	6
Q5	Draw the following with suitable dimension a] Hexagonal Headed Bolt b]Slotted Cylindrical Headed Screw . c] Plain Stud d] Square Nut	20	4	7

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End Semester Exam

May 2018 (SET A)

Max. Marks:100 Duration: 3HR

Class: F.Y.B.Tech(Mechanical) Semester:II

Program: MECHANICAL ENGINEERING

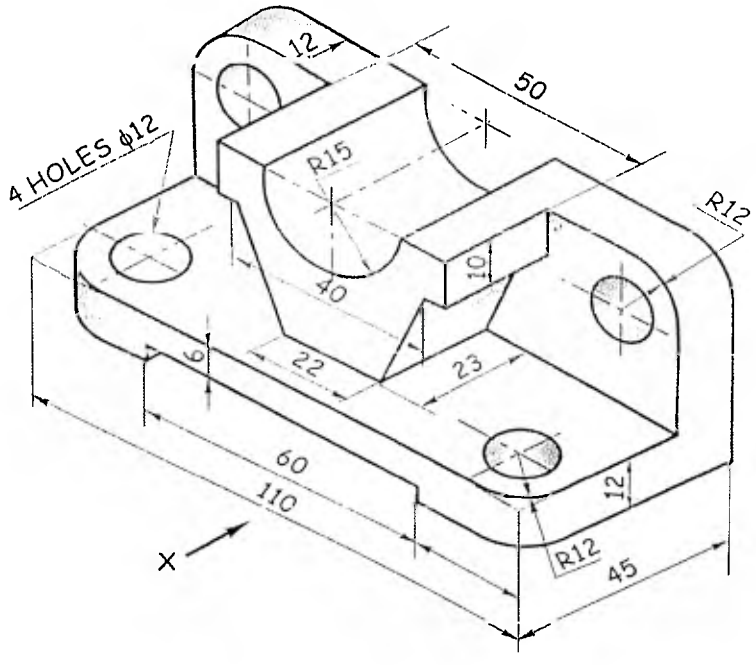
Name of the Course: Engineering Graphics-II

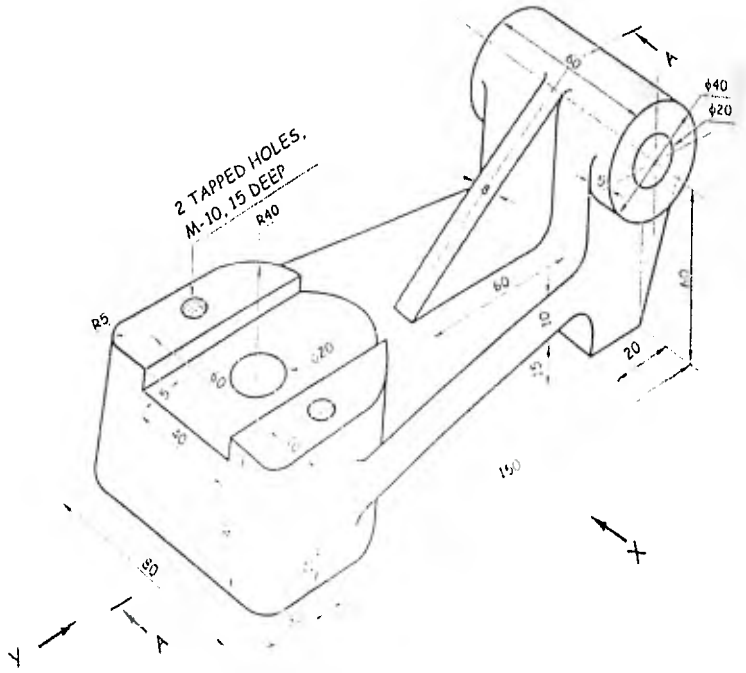
Course Code : BT203

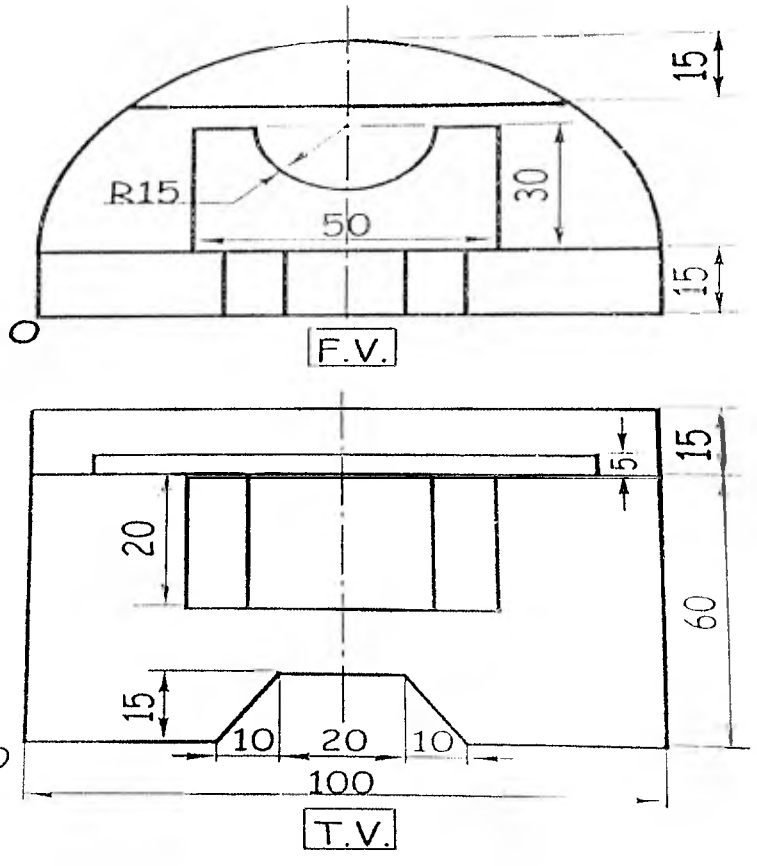
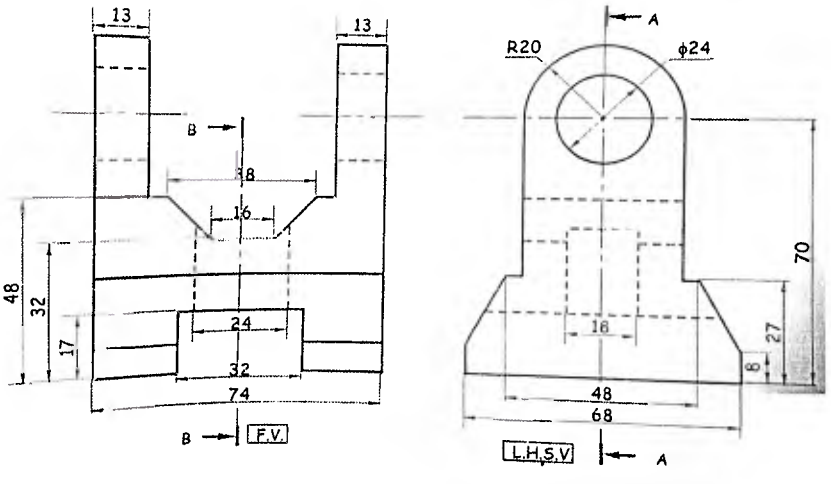
Exam Seat No	
Reg.NO.	
Machine NO.	
Sign of Invigilator	

Instructions:

1. All Questions are compulsory.
2. Draw neat diagrams.
3. Assume suitable data if necessary and clearly indicate the same.
4. Use only **First angle projection** method.

Question No		Maximum Marks	CO NO	Module No.
Q1	Draw the following orthographic projection view of figure 1}FRONT VIEW 2} TOP VIEW 3} RHSV 	20	1,4	2

Q2.	Draw the following views by the first angle method of projection 1]sectional elevation along the direction of an arrow X and the section along A-A 2] Top view 3]LHSV  	20	1,4	3

Q3	Shows two view of an object. Draw its isometric view with O as origin.  	20	2,4	5
Q4	Show the front view and L.H.S.V of an object. Draw the Following views.1]sectional front view across section plane A-A. 2] sectional L.H.S.V across section plane B-B 3] missing TV showing all details.  	20	3,4	6
Q5	Draw the following with suitable dimension a] Hexagonal Headed Bolt b]Slotted Cylindrical Headed Screw . c] Plain Stud d] Square Nut	20	4	7

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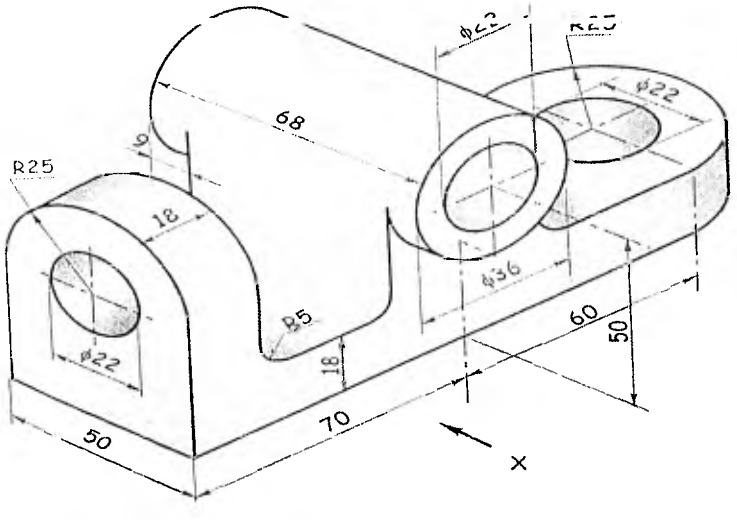
Munshi Nagar, Andheri (West), Mumbai – 400058.
End Semester Exam
May 2018 (SET B)

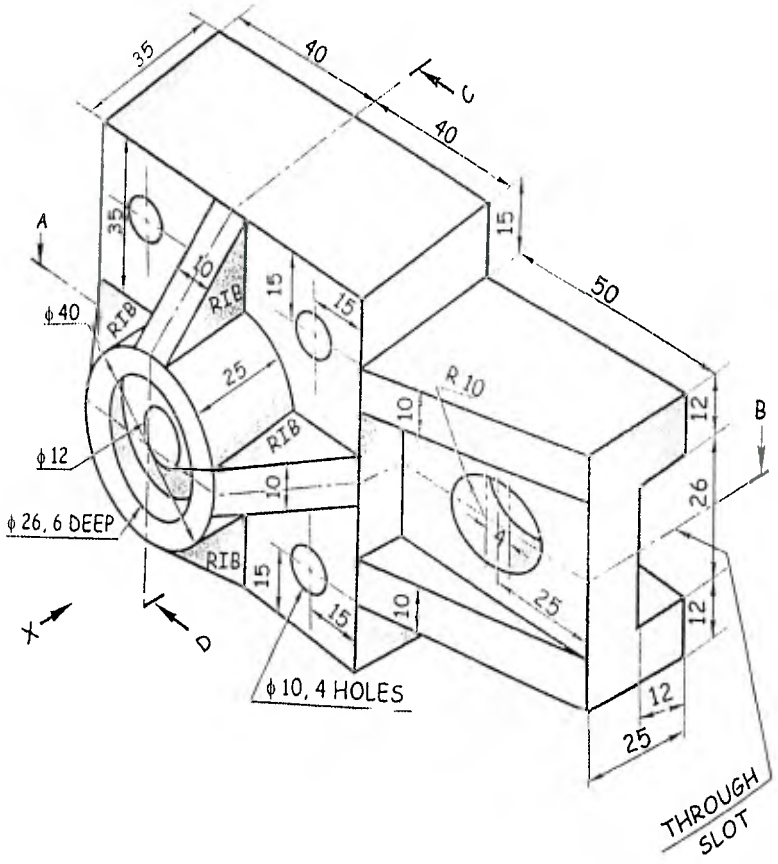
Max. Marks:100 Duration: 3HR
Class: F.Y.B.Tech(Mechanical) Semester: II
Program: MECHANICAL ENGINEERING
Name of the Course: Engineering Graphics-II
Course Code : BT203

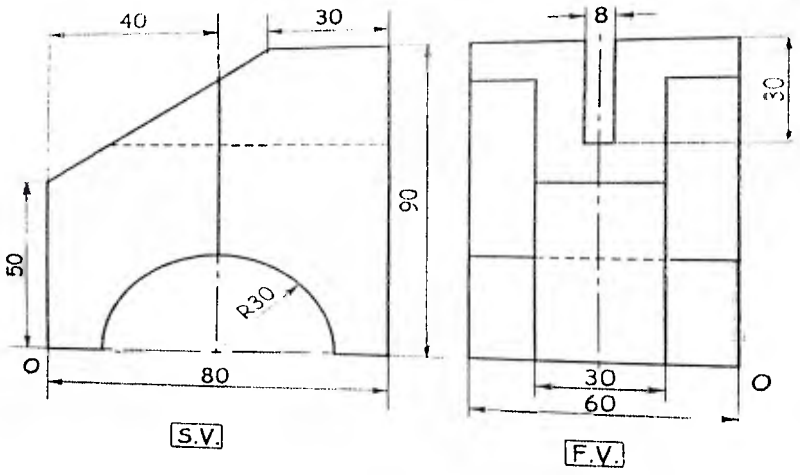
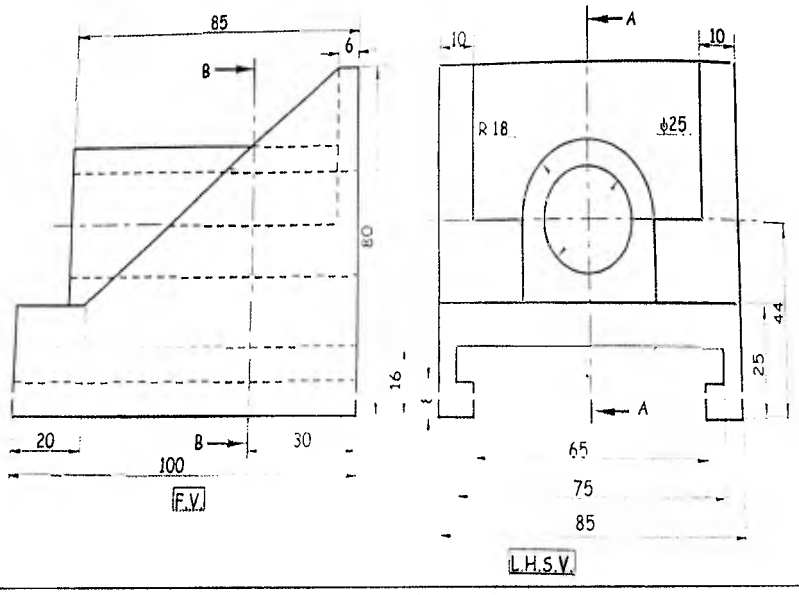
Exam Seat No	
Reg.NO.	
Machine NO.	
Sign of Invigilator	

Instructions:

1. All Questions are compulsory.
2. Draw neat diagrams.
3. Assume suitable data if necessary and clearly indicate the same.
4. Use only **First angle projection** method.

Question No		Maximum Marks	CO NO	Modul No.
Q1	Draw the following orthographic projection view of figure 1}FRONT VIEW 2} TOP VIEW 3} LHSV  	20	1,4	2

Q2.	Draw the following views by the first angle method of projection 1] A front view along the direction of an arrow X. 2] A sectional RHSV on section plane C-D 3]sectional Top view on the section plane A-B.  	20	1,4	3

Q3	Shows two view of an object. Draw its isometric view.  	20	2,4	4,5
Q4	Show the front view and L.H.S.V of an object. Draw the Following views.1]sectional front view across section plane A-A. 2] sectional L.H.S.V across section plane B-B 3] missing TV showing all details.  	20	3,4	6
Q5	Draw the following with suitable dimension a] Square Headed Bolt B] Slotted Cup Headed Screw . c] Collar Stud d] Hexagonal Nut	20	4	7

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Re-Exam

June 2018

Set - B

Max. Marks: 100 | Duration: 3 Hrs

Class: F.Y. B.Tech (Electrical) | Semester: II | Program: B.Tech Electrical

Name of the Course: Engg. Graphics - II | Course Code : BTM203

Instructions:

Exam Seat No	
Reg.NO.	
Machine NO.	
Sign of Invigilator	

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

Q. No.		Module No./CO. No.	Max. Marks
Q.1	Draw the following views for object given in figure 1: (a) Front View (b) Top View (c) Right hand Side View	01,02/01	07 07 06
Q.2	Draw the following views for object given in figure 2: (a) Sectional Front View along A-A (b) Top View (c) Side View	01,03/01	10 06 04
Q.3	Draw the isometric view of the views in figure 3:	04,05/02	20
Q.4	Given is Front View and Top view in figure 4. Draw the following: (a) Front View (b) Top View (c) Missing Right Hand Side View	06/03	04 04 12
Q.5	Draw the orthographic views of following: (a) Square Bolt (b) Hexagonal Nut (c) Plain Stud	07/04	08 08 04
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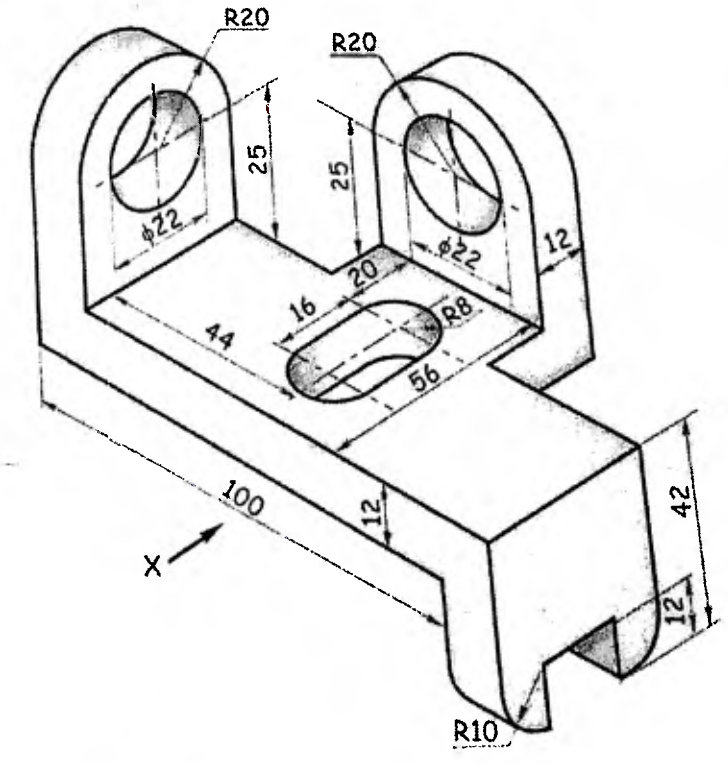
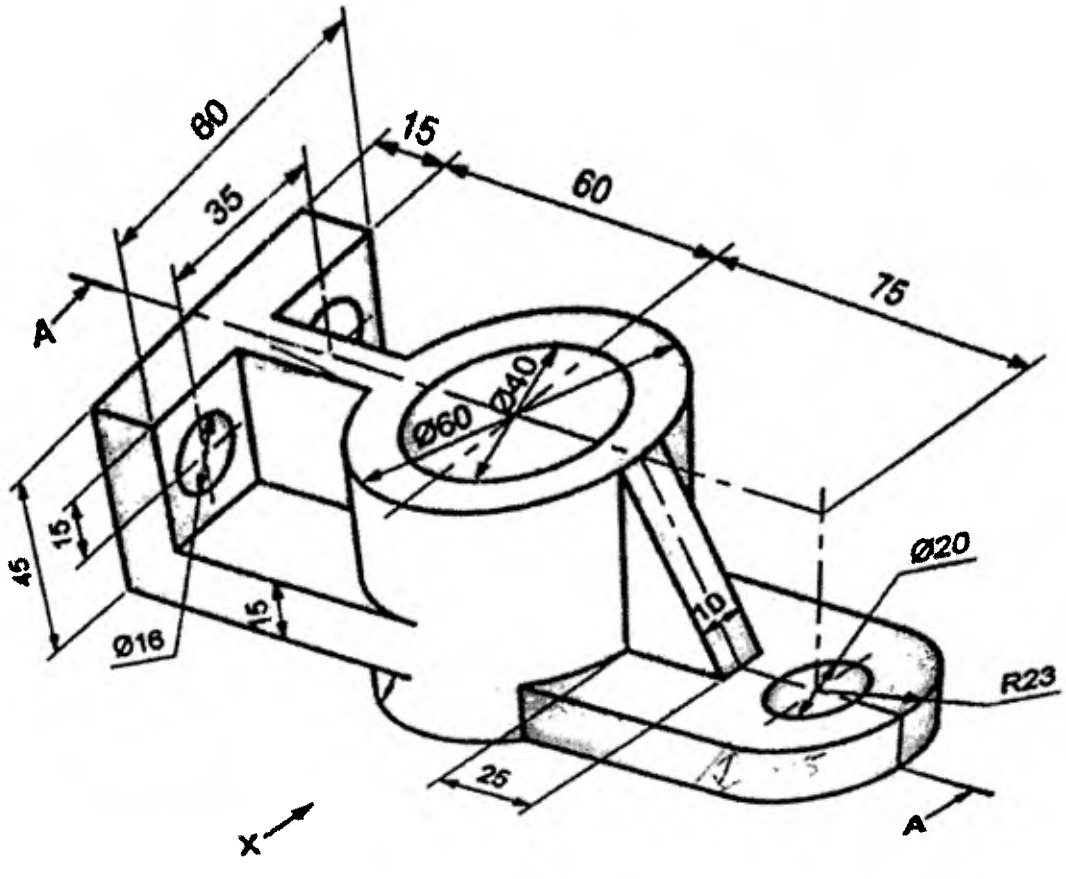




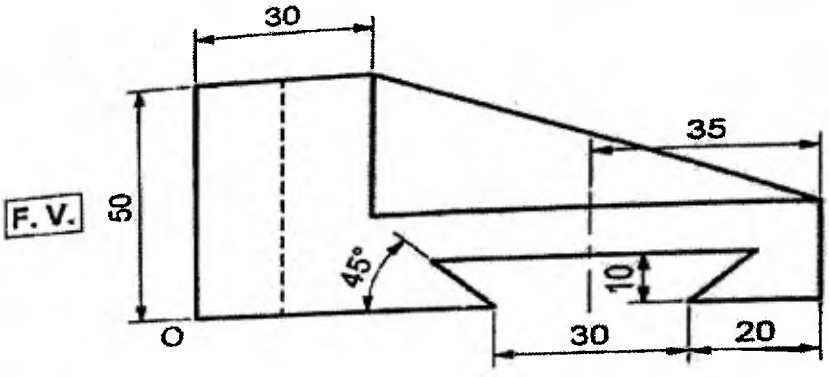
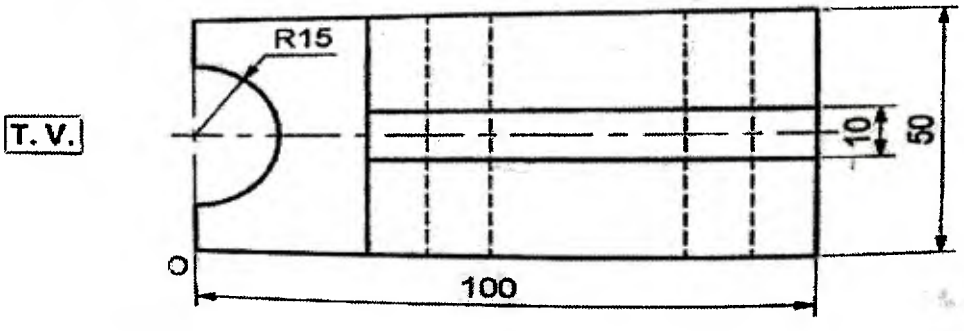


Figure 3



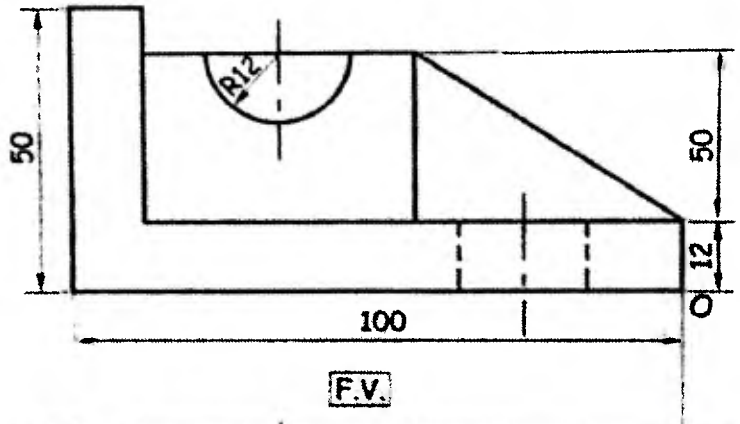
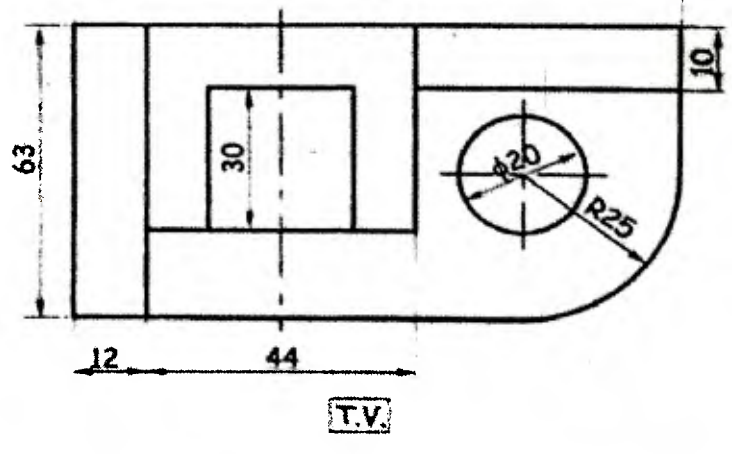


Figure 4



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Endsem

May 2018

Set - A

Max. Marks: 100 | Duration: 3 Hrs

Class: F.Y. B.Tech (Electrical) | Semester: II | Program: B.Tech Electrical

Name of the Course: Engg. Graphics - II | Course Code : BTM203

Exam Seat No	
Reg.NO.	
Machine NO.	
Sign of Invigilator	

Instructions:

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

Q. No.		Module No./CO. No.	Max. Marks
Q.1	Draw the following views for object given in figure 1: (a) Front View (b) Top View (c) Left Hand Side View	01,02/01	07 07 06
Q.2	Draw the following views for object given in figure 2: (a) Sectional Front View Along A-A (b) Top View (c) Side View	01,03/01	12 04 04
Q.3	Draw the isometric view of the views in figure 3:	04,05/02	20
Q.4	Given is Front View and Top view in figure 4. Draw the following: (a) Front View (b) Top View (c) Missing Right Hand Side View	06/03	04 04 12
Q.5	Draw the orthographic views of following: (a) Square Bolt (b) Hexagonal Nut (c) Cup Headed Screw	07/04	08 08 04
	**********		

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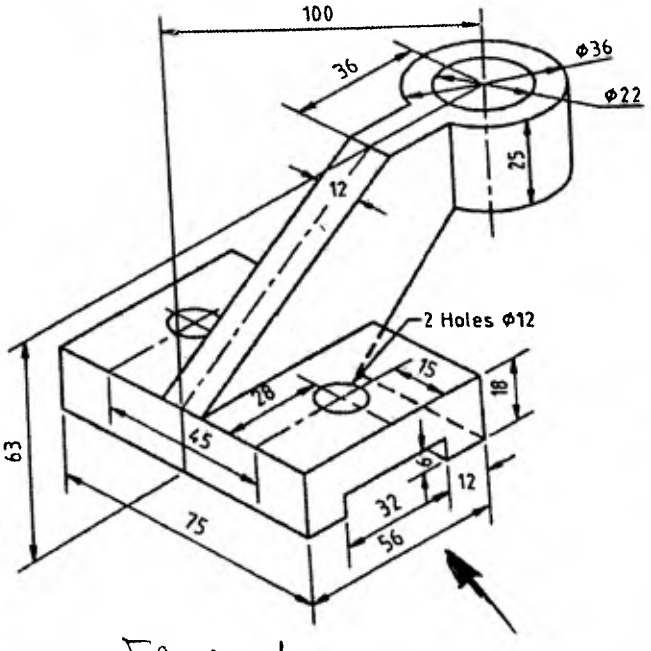

Figure 1

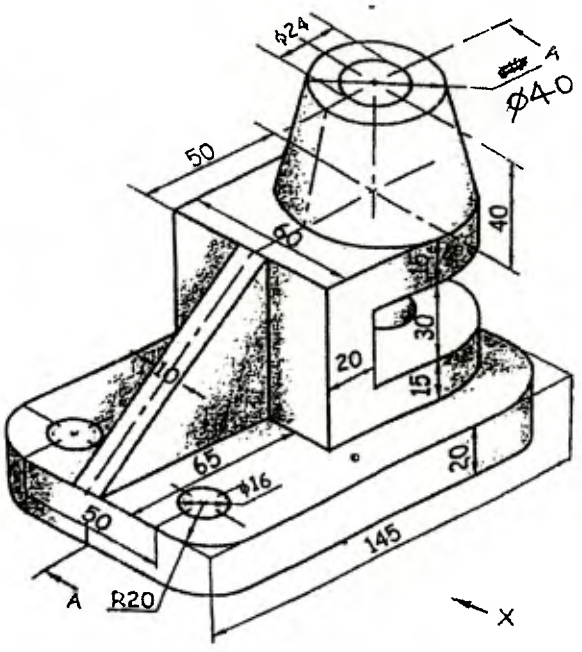

Figure 2

origin.

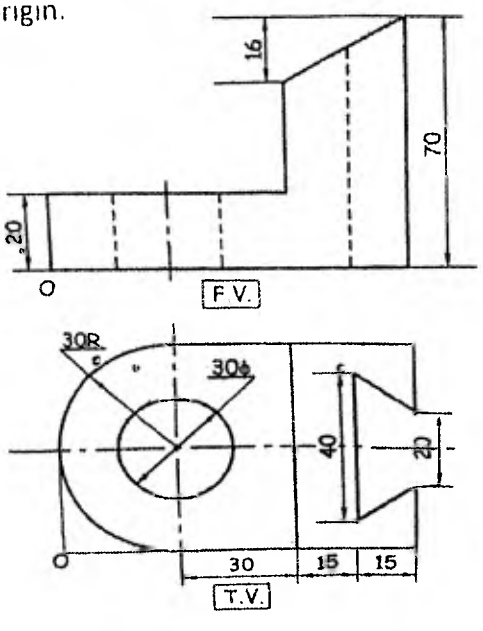

Figure 3

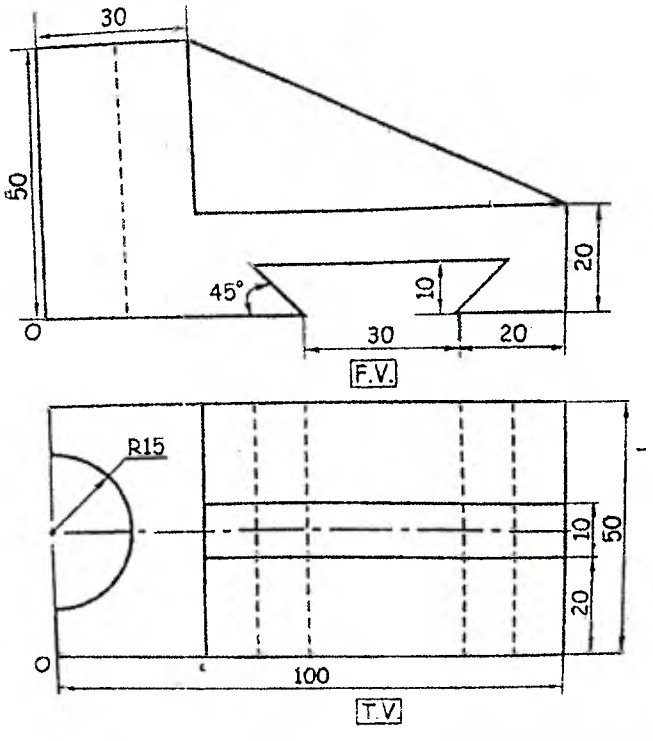

Figure 4

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June 2018

Re-Examination

Maximum Marks: 100Duration: 3 hours

Class: F.Y.B.Tech **Semester: II** **Program:C/M/E**

Name of the Course: **Engineering Mathematics II** Course Code : BT201

Instructions:

- **Question Number.1 is compulsory.**
- **Attempt any FOUR questions out of remaining SIX questions.**
- **Answers to all sub questions should be grouped together.**

Q		Marks	CO	Module
1(a)	Find the length of the arc of the parabola $y^2 = 8x$ cut off by the latus-rectum.	5	3	4
(b)	Evaluate $\iint_S \sqrt{xy - y^2}\, dx\, dy$ where S is the triangle with vertices (0, 0), (10, 1), (1, 1).	5	4	5
(c)	Find general solution of $\frac{dy}{dt} - y \tan t = 1$	5	1	1
(d)	Prove that $\frac{x^{3/2}}{\sqrt{3-x}}\, dx \int_0^1 \frac{1}{\sqrt{1-x^{1/4}}}\, dx = \frac{432\,\pi}{35}$	5	3	3
2 (a)	Change the order and evaluate $\int_0^3 \left\{ \int_1^{\sqrt{4-y}} (x+y)\, dx \right\} dy$	6	4	5
(b)	Evaluate $\int_0^1 \frac{1}{\sqrt{x \log\left(\frac{1}{x}\right)}}\, dx$	6	3	3
(c)	Find the area of the cardiod $r = a(1 + \cos\theta)$	8	4	7
3 (a)	Find by double integration the mass of a thin plate bounded by $y^2 = x$ and $y^2 = x^3$ if the surface density $\rho(x, y)$ at a pint (x, y) is proportional to the square of the distance of the point from the	6	4	7

	origin.			
(b)	Evaluate $\int_0^{\infty} \frac{1}{1+x^4}\,dx$	6	3	3
(c)	Solve $(x^3 D^3 + 2xD - 2)y = x^2 \log x + 3x$	8	2	2
4 (a)	Find the length of the loop of the curve $9y^2 = (x+7)(x+4)^2$	6	3	4
(b)	Solve $\frac{di}{dt} + \frac{Ri}{L} = \frac{E}{L}$ in which the circuit has initial current i_0. at time $t = 0$ and emf $E = E_0 e^{-kt}$	6	1	3
(c)	Solve $\frac{d^2y}{dx^2} + 4y = x \sin^2 x$	8	2	2
5 (a)	Evaluate $\int_0^1 \frac{1}{\sqrt{x \log\left(\frac{1}{x}\right)}}\,dx$	6	3	3
(b)	Solve $\left(\frac{\log(\log y)}{x} + \frac{2}{3}xy^3\right)dx + \left(\frac{\log x}{y \log y} + x^2y^2\right)dy = 0$	6	1	1
(c)	Evaluate $\int_0^2 \int_0^x \int_0^{2x+2y} e^{x+y+z}\,dx\,dy\,dz$	8	4	6
6(a)	By changing into polar coordinates & evaluate $\int_0^a \int_y^a \frac{x}{x^2+y^2}\,dx\,dy$	6	4	5
(b)	Solve $(D^2 + 3D - 2)y = e^{-x}$	6	2	2
(c)	Find the volume bounded by the coordinate planes and the plane $x + y + z = 1/6$	8	4	7
7(a)	Solve $(D^2 - 2D + 4)y = e^x \cos^2 x$	6	2	2
(b)	Change order of integration $\int_{-2}^{3} \left\{ \int_{y^2-6}^{y} \phi(x, y)\,dx \right\} dy$	6		
(c)	Prove that $\int_0^a \frac{1}{(a^n - x^n)^{1/n}}dx = \frac{\pi}{n}\,\text{cosec}\,c\left(\frac{\pi}{n}\right)$	8	3	3

Bharatiya Vidya Bhavan's

Sardar Patel College of Engineering

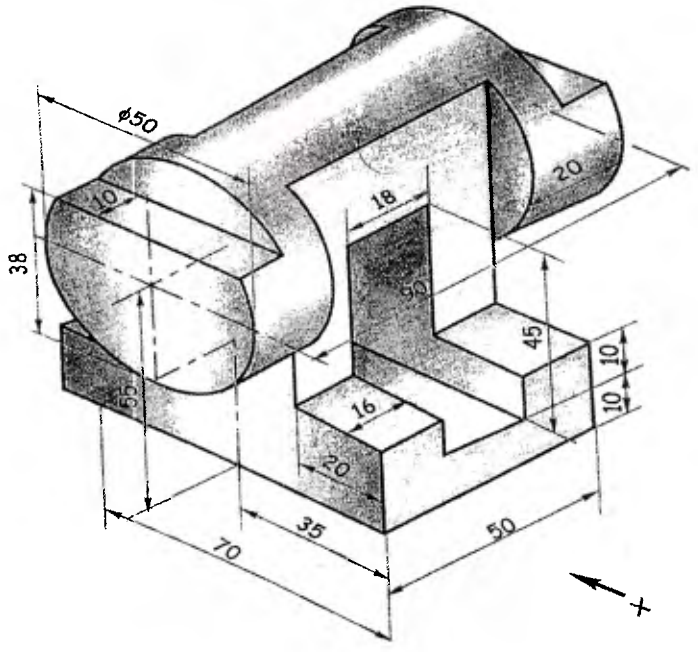
(A Government Aided Autonomous Institute)
Munshi Nagar, Andheri (West), Mumbai – 400058.
End Semester Exam
May 2018 (SET B)

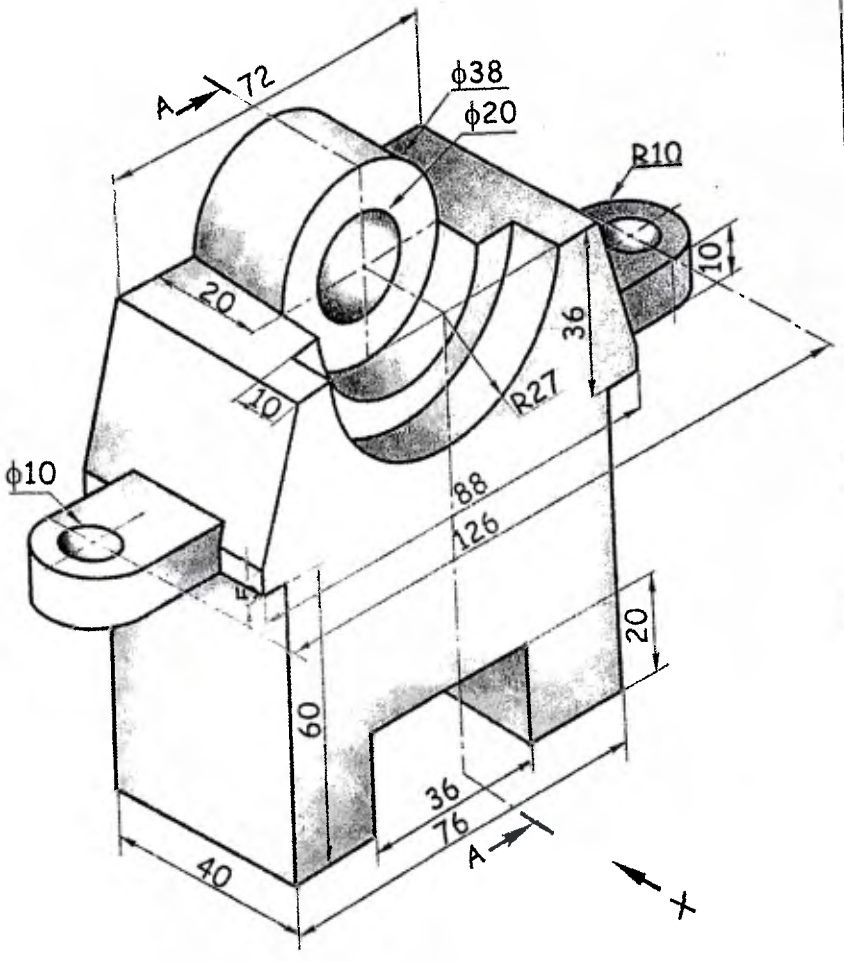
Max. Marks:100 Duration: 3HR
Class: F.Y.B.Tech(Civil) Semester: II
Program: CIVIL ENGINEERING
Name of the Course:
Engineering Graphics-II
Course Code : BT203

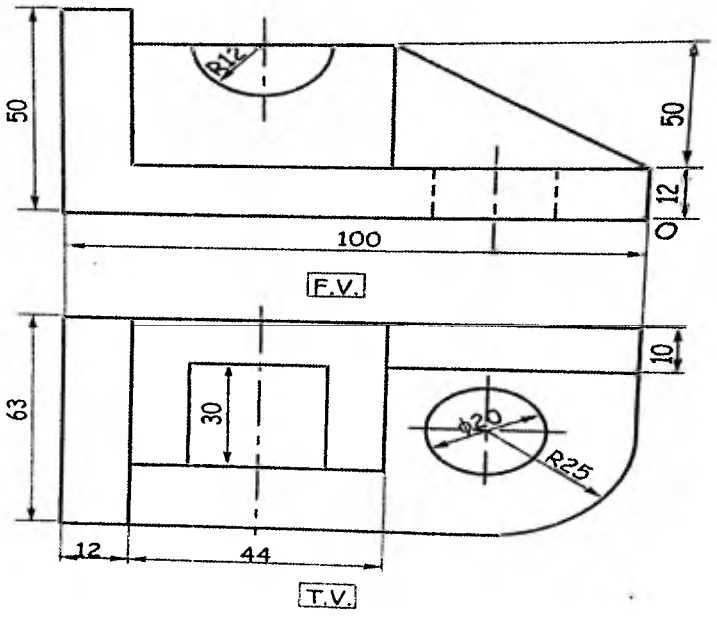
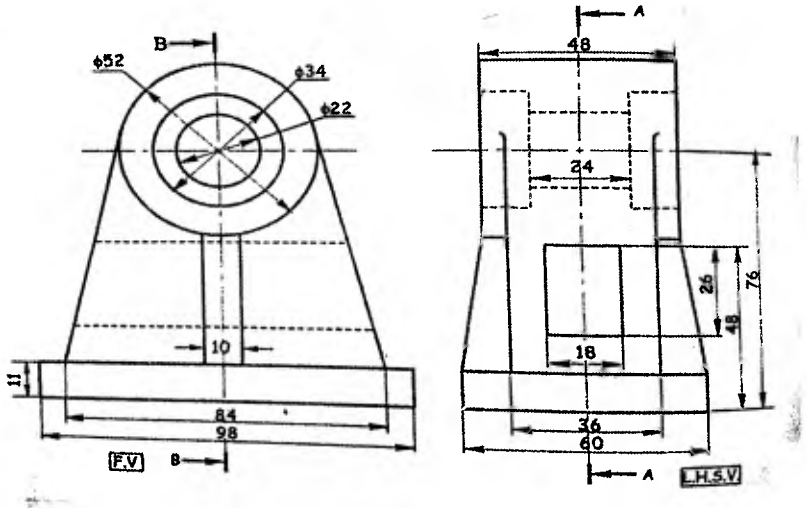
Exam Seat No	
Reg.NO.	
Machine NO.	
Sign of Invigilator	

Instructions:

1. All Questions are compulsory.
2. Draw neat diagrams.
3. Assume suitable data if necessary and clearly indicate the same.
4. Use only **First angle projection** method.

Question No		Maximum Marks	CO NO	Module No.
Q1	Draw the following orthographic projection view of figure 1}FRONT VIEW 2} TOP VIEW 3} LHSV  	20	1,4	2

Q2.	Draw the following views by the first angle method of projection 1] A front view along the direction of an arrow X. 2] A sectional LHSV on section plane A-A 3]Top view 	20	1,4	3

Q3	Shows two view of an object. Draw its isometric view. 	20	2,4	4,5
Q4	Show the front view and L.H.S.V of an object. Draw the Following views.1] sectional front view across section plane A-A. 2] sectional L.H.S.V across section plane B-B 3] Missing TV showing all details. 	20	3,4	6
Q5	Draw the following with suitable dimension a] Square Headed Bolt B] Slotted Counter Sunk Screw. c] Square Neck Stud d] Hexagonal Nut	20	4	7

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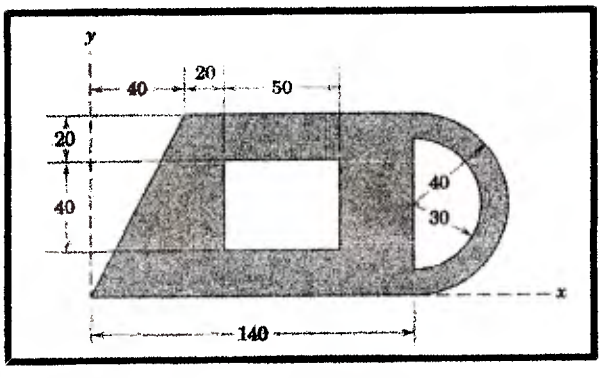
END SEM

Max. Marks: 100
Duration: 3hrs
Class: FY B.Tech
Name of the course: Engineering Mechanics-II

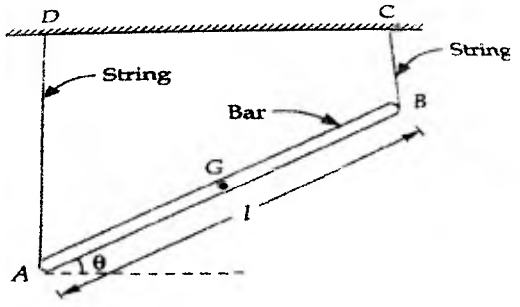
Q.P. Code: BT 204
Course Code : BT 204
Sem- II

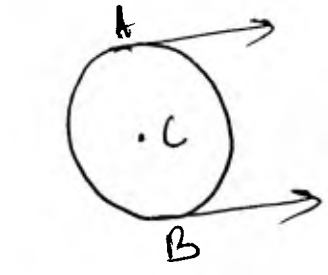
Instructions:

1) Attempt any FIVE questions out of SEVEN Questions.
2) Answers to all sub questions should be grouped together.
3) Assume suitable data necessary and state clearly.

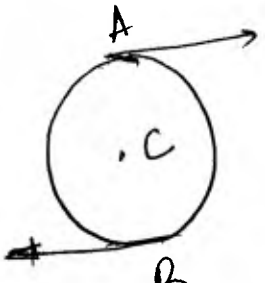
Question No		Maximum Marks	Course Outcome Number	Module Number
1 a)	Find the centroid of the area as shown in figure below 	08	1	1
b)	Find the moment of inertia shown in figure above about X and Y axes	12	1	2
2 a)	A projectile is fired with an initial velocity of 240m/s at a target B located 600 m above the gun A and at a horizontal distance of 3.6kms. Neglecting air resistance determine the value of firing angle.	10	2	3
b)	A particle, starting from rest in a straight line,whose acceleration is given by equation : $a= 15-0.006s^2$ where **a** is in m/s2 and **s** is in metres .Determine 1) Velocity of the particle, when it has travelled 50 metres 2) Distance travelled by the particle before coming to rest.	10	2	3

3 a)	Two trains A and B leave the same station on parallel tracks.The train A starts with a uniform acceleration 2.0 m/s2 and attains a speed of 45kmph which remains constant. The train B leaves 1 minute later, with a uniform acceleration 0.4 m/s2 to attain a maximum speed of 72 kmph. When will train B overtake A.	08	2	3
b)	A body ,moving with simple harmonic motion ,has an amplitude of 1 metre and the period of complete oscillation is 2 seconds. What will be the velocity and acceleration of the body after 0.4 second from extreme position.	06	2	3
c)	A stone is thrown vertically up from the top of tower with a certain initial velocity. It reaches ground in 5.64 seconds. A second stone ,thrown down from the same tower with the same initial velocity reaches ground in 3.6 seconds .Determine the height of tower and initial velocity of stones.	06	2	3
4 a)	A body of 10kg mass moving towards right with a speed of 8m/s strikes with another body of 20kg mass moving towards left with 25 m/s. Determine: a) Final velocity of the two bodies b) loss in kinetic energy due to impact c) Impulse acting on either body during impact. Take coeff. Of restitution between the bodies as 0.65.	12	2	6
b)	A block of 4 kg mass slides from rest at point 1 along a frictionless inclined plane that makes an angle of 30 degrees with the horizontal. What will be the speed of block at point 2 which lies at a distance of 2.5 m from point 1 along the plane.	8	2	6
5 a)	Two bodies of weights 50 N and 10 N are connected to the two ends of a light inextensible string which passes over a smooth pulley .The weight of 10 N is placed is placed on rough inclined plane of angle of inclination 20 degrees while the weight of 50 N hangs vertically downwards. If the coefficient of friction between body and plane is 0.2 calculate acceleration of system, tension induced in the string , reaction at pulley and the distance moved by the body in 3 seconds starting from rest.	10	3	5
b)	Two bodies weighing 300N and 450 N are hung to the ends of a rope passing over an ideal pulley. With what acceleration would the heavier body come down ?What is the tension in the rope. Obtain the solutions using **D'Alembert's** principle only.	10	2	5
6 a)	A flywheel has an initial angular speed of 3600 rev/min in clockwise direction. When a constant turning moment was applied to the wheel, it got subjected to a uniform anticlockwise angular acceleration of 3 rev/sec2.Determine the angular velocity of the wheel after 20 seconds and total revolutions made during this period.	10	2	4
b)	A cylindrical roller 50 cm in diameter is in contact with two horizontal conveyor belts running at uniform speed of 5m/s and 3 m/s in – Refer fig 1 CASE A- Same directions CASE B- Opposite directions. Assuming no slip condition determine for both case A and B 1) Position of instantaneous centre of the roller 2) Linear velocity of centre C of cylindrical roller	10	3	4

7 a)	A thin uniform bar of mass m and length is held at an angle Θ with the horizontal by means of two vertical inextensible strings , one at each end as shown in figure below. Suddenly the string at right end breaks ,leaving the bar to swing. What will be the angular acceleration of the bar and tension induced in the string at the left end immediately after the string breaks?  	10	3	7
b)	A body of weight 8 N is suspended by a light rope wound round a pulley of weight 60 N and radius 30 cm. The other end of the rope is fixed to the periphery of the pulley.If the weight is moving downwards, calculate the acceleration of 8N weight and tension in the string.	10	3	7



Case A



Case B

Fig 1