DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular End Semester Examination – Winter 2022-23

Course: B. Tech. **Branch: Civil, Mechanical, Chemical & Petrochemical Engineering**

Semester: I

Subject Code & Name: (BTHM104/BTHM204) Communication Skills

Max Marks: 60 **Date: 27/03/2023** **Duration: 3 Hours**

Instructions to the Students:

1. *All the questions are compulsory.*
2. *The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.*
3. *Use of non-programmable scientific calculators is allowed.*
4. *Assume suitable data wherever necessary and mention it clearly.*

		(Level/CO)	Marks
Q. 1	**Solve any Two of the following**		
A)	How does listening play an important role in the process of language acquisition? Explain.	**L3/CO1**	6
B)	Write short notes on: i) Features of good writing ii) Importance of non-verbal Communication.	**L3/CO2**	6
C)	According to you, what are the ways to overcome (nervousness, mood, anxiety, attitude, etc.) the psychological barriers to communication.	**L3/CO1**	6
Q.2	**Solve any Two of the following**		
A)	Explain in your own words the DOs and DON'Ts of effective group discussion.	**L3/CO1**	6
B)	Assume you are going to face an interview next week, how will you get prepared for this interview?	**L2/CO2**	6
C)	'Proper use of PPT slides can make the presentation effective', elaborate.	**L3/CO3**	6
Q. 3	**Solve the following**		
A)	a) Transcribe the following: i) University ii) Examination iii) Engineering b) Spell the following: i) /pjʊə/ ii) /ˈsætədeɪ/ iii) /hiə/	**L2/CO3**	6
B)	How the study of RP and IPA contribute to the process of standardization of English language?	**L3/CO3**	6

Q.4 Solve the following.

A)	Use proper articles and rewrite the sentences: a) Human being is …….. intelligent animal. b) Mumbai is …… capital of Maharashtra. c) Kalpana Chawla was …… first Indian woman to go in space. d) It is always said that …….. student should respect his/her teacher.	**L3/CO4**	4
B)	Fill in the blank: i. Sairaj submitted the assignment ….. Communication Skills ….. the last moment. ii. The workers are requested to write their reports….. ink and submit ……. the proper medium.	**L2/CO4**	4
C)	**Do as directed:** i) Ashalata is leaving this company. (Rewrite using past perfect tense) ii) Saroj has returned the bunch of the research reports to the library, yesterday. (Rewrite the correct sentence) iii) Pessimistic (Suggest a synonym) iv) Dearth (Suggest an antonym)	**L3/CO5**	4

Q. 5 Solve Any One of the following.

A)	Compose a resume and write an application for the post of engineer in Siemens Limited, Birla Aurora, Plot No. 1080, Dr. Annie Besant Road, Worli, Mumbai - 400030. (The Indian Express 25 March 2023)	**L2/CO5**	12
B)	a) Explain the difference between technical writing and literary writing?	**L2/CO5**	6
	b) According to you, what are ways to make the email writing effective?	**L2/CO5**	6

***** End *****

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

End Semester Examination, Winter - 2022

Course: B. Tech **Semester: I**

Subject Name: Computer Programming in C **Subject Code: CP1204**

Max Marks: 60 **Date: 27/03/2023** **Duration: 3 Hr.**

Instructions to the Students:

1. *All Questions are compulsory.*
2. *Each question carries 12 marks.*
3. *Figures to the right indicate full marks.*
4. *Assume suitable data wherever necessary and mention it clearly.*

Q.1 Solve any two of the following.

A) Explain different phases in programming process. **(6)**

B) Draw the flowchart and write algorithm to find the entered integer is odd or even. **(6)**

C) Write short note on: **(6)**
a) Compiler b) Interpreter c) Assembler

Q.2 Solve the following Question

A) Explain the Token with example. **(6)**

B) Explain the precedence and order of evaluation for assignment operator. **(6)**

OR

B) Write short note on logical operators with example. **(6)**

C) Explain the different Data types in C with suitable example. **(6)**

Q.3 Solve any two of the following.

A) What is function in C? Write the syntax for function prototype, function definition and function call. **(6)**

B) Write a C program to calculate factorial of a number using function. **(6)**

C) Write a program in C to create simple calculator by using switch cases. **(6)**

Q.4 Solve the following

A) Define Array. What are various types of array and write syntax of any two of them. **(6)**

B) Write a program to read 0 to 10 numbers from the user by using array and display average of these numbers. **(6)**

OR

B) Write a program in C for addition of two dimension matrices using multi-dimentional Array. **(6)**

C) Write a C program to preform the string operations using inbuilt string functions. **(6)**
i) Concatenate ii) Copy iii) Length of the string

Q.5 Solve any two of the following

A) Write a program in C to create a structure having name as Student consisting of name, address, student_id as its members. Read the details of five studentss from user and then display the data entered by the user on Screen (Use array of structure). **(6)**

B) Write a prgram in C to create structure Rectangle, consisting of length and breadth as it's members. Calculate and display area of rectangle . **(6)**

C) What is structure in C? What is structure variable? Explain the difference between structure and array. **(6)**

***** End *****

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular End Semester Examination – Winter 2022

Course: B. Tech. **Branch :** All **Semester :I**

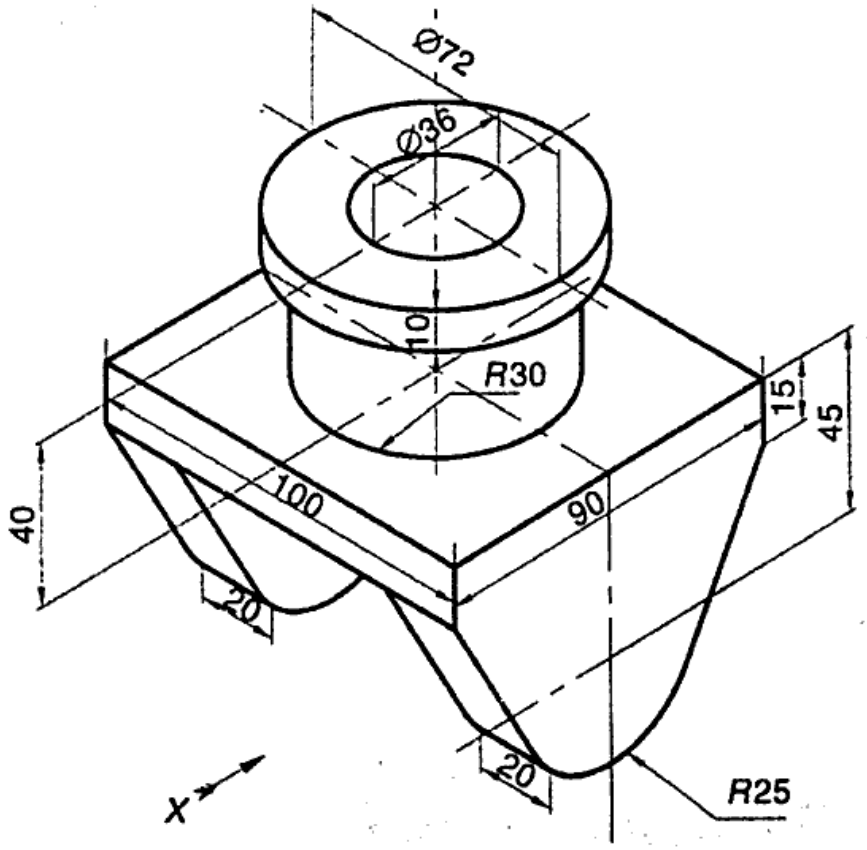
Subject Code & Name: BTES103G/ BTES203G Engineering Graphics

Max Marks: 60 **Date:** 25/03/2023 **Duration:**____ Hrs

Instructions to the Students:

1. *All the questions are compulsory.*
2. *The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.*
3. *Assume suitable data/dimensions wherever necessary and mention it clearly.*

		(Level/ CO)	Marks
Q. 1	**Answer Any Two of the following.**		
A)	Draw a regular pentagon of 30 mm side by any method.	U	6
B)	Draw the following types of lines according to drawing standard SP 46. 1. Locus line 2. Centre line 3. Cutting plane line	U	6
C)	Draw the projections of the following points on the same reference line, keeping the projectors 30 mm apart. *P*, 30 mm above the H.P. and 25 mm behind the V.P. *Q*, 40 mm below the H.P. and 20 mm behind the V.P. C, in the V.P. and 50 mm above the H.P.	U/A	6
Q.2	**Answer Any Two of the following.**		
A)	Draw the following views of the object (in X – direction) shown below, by using first angle projection method. **a) Front View (6)** **b) Top View (6)**	R/A	12



B) A circular plate of negligible thickness and diameter 80 mm has a point A on its circumference in the VP. The surface of the plate is inclined to the VP in such a way that the FV is seen as an ellipse of 50 mm long minor axis. Draw the projections of the plate when FV of diameter AB makes 45° with the HP. Find inclination of the plate with the VP. R/A 12

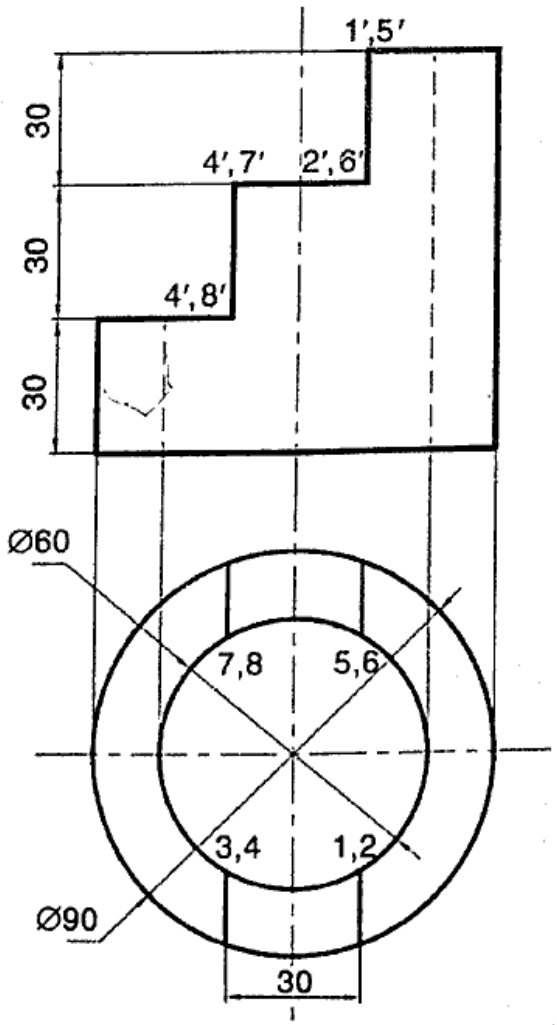
C) FV of a line measures 70 mm and makes an angle of 30° with XY. The end A is in the HP and the VT of the line is 10 mm below XY. The line is inclined at 45° to the VP. Draw the projections of the line and find its TL and true inclinations with the HP. Also locate the HT. R/A 12

Q. 3 Answer Any Two of the following.

A) A cone of diameter 60 mm and height 60 mm is resting on the HP on one of its generators. Draw its projections if its axis is parallel to the VP. R/A 12

B) A pentagonal pyramid having a base side of 45 mm and a slant length of 80 mm rests on its base on the HP with a base edge AB perpendicular to the VP. A section plane passing through corner D and perpendicular to the slant face ABO cuts the solid. Draw FV and sectional TV. (8)
The upper part of the solid is removed and kept on its cut surface on the HP without changing its orientation with respect to the VP. Draw the two views of the part of the pyramid. (4) R/A 12

C) Figure shows FV and TV of an object. Draw the isometric view that will show maximum details of the object. (Points in the figure are marked for your reference) R/A 12



*** End ***

U – Understanding; A – Applying; R – Remembering;

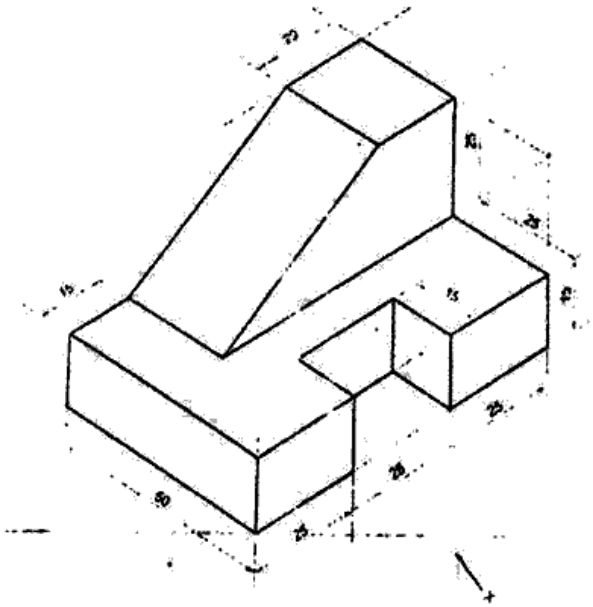
DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Practical Examination - Semester: I (A.Y. 2022-23)

Course: Engineering Graphics (BTS108L) **Program:-FY -Civil Engineering**

Max Marks: 20 **Date:- 30.03.2023 BATCH-MORNING** **Duration:- 1 Hr.**

Solve any two of the following.

Q.No	Question	Level- CO	Marks
Q1	Draw HEPTAGON of 60 mm side by using any method of drawing Polygon.	R/U-CO-1	10
Q2	Draw Projections of following Points on the same reference line by keeping 20 mm distance between the projectors a) Point A is in V.P. and 35 mm above H.P. b) Point B is 25 mm from H.P. and V.P. and is in the fourt quadrant. c) Point C is 25 mm behind V.P. and 50 mm below H.P. d) Point D is 20 mm above H.P., 20 mm behind V.P. e) Point M both on HP and VP.	R/U-CO-1	10
Q3	Draw F.V and T.V. by using First angle method of Projection 	R/U-CO-1	10
Q4	A line AB 70 mm is inclined at an angle of 30 degree to HP & 45 degree to VP. Its end A is 10 mm above HP & 20 mm in front of VP. Draw the projections of line AB. Assume the line to be in the first quadrant.	R/U-CO-1	10

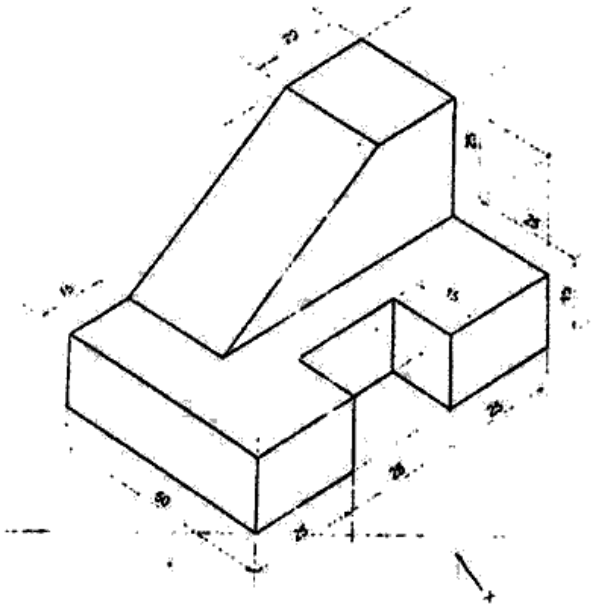
DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Practical Examination - Semester: I (A.Y. 2022-23)

Course: Engineering Graphics (BTS108L) **Program:-FY -Civil Engineering**

Max Marks: 20 **Date:- 30.03.2023 BATCH-MORNING** **Duration:- 1 Hr.**

Solve any two of the following.

Q.No	Question	Level- CO	Marks
Q1	Draw HEPTAGON of 60 mm side by using any method of drawing Polygon.	R/U-CO-1	10
Q2	Draw Projections of following Points on the same reference line by keeping 20 mm distance between the projectors a) Point A is in V.P. and 35 mm above H.P. b) Point B is 25 mm from H.P. and V.P. and is in the fourt quadrant. c) Point C is 25 mm behind V.P. and 50 mm below H.P. d) Point D is 20 mm above H.P., 20 mm behind V.P. e) Point M both on HP and VP.	R/U-CO-1	10
Q3	Draw F.V and T.V. by using First angle method of Projection 	R/U-CO-1	10
Q4	A line AB 70 mm is inclined at an angle of 30 degree to HP & 45 degree to VP. Its end A is 10 mm above HP & 20 mm in front of VP. Draw the projections of line AB. Assume the line to be in the first quadrant.	R/U-CO-1	10

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Supplementary Examination – Summer 2023

Course: B. Tech. (Common to all Branches) **Semester : I**

Subject Name & Code: Engineering Mathematics – I (BTBS 101)

Max Marks: 60 **Date:** **Duration: 3 Hrs.**

Instructions to the Students:

1. All the questions are compulsory.
2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.
3. Use of non-programmable scientific calculators is allowed.
4. Assume suitable data wherever necessary and mention it clearly.

		(Level/CO)	Marks
Q. 1	**Solve Any Two of the following.**		**12**
A)	Reduce to the Normal form and find the rank of the given matrix. $A = \begin{bmatrix} 6 & 1 & 3 & 8 \\ 4 & 2 & 6 & -1 \\ 10 & 3 & 9 & 7 \\ 16 & 4 & 12 & 15 \end{bmatrix}$.	**Understand/ CO1**	**6**
B)	Solve the equations: $4x_1 + 2x_2 + x_3 + 3x_4 = 0$; $6x_1 + 3x_2 + 4x_3 + 7x_4 = 0$; $2x_1 + x_2 + x_4 = 0$.	**Understand/ CO1**	**6**
C)	Verify the Cayley-Hamilton theorem for the matrix $A = \begin{bmatrix} 1 & 2 \\ 2 & -1 \end{bmatrix}$ and hence find A^{-1}. Also determine A^8.	**Understand/ CO1**	**6**
Q.2	**Solve Any Two of the following:**		**12**
A)	If $r^2 = x^2 + y^2 + z^2$ and $V = r^m$, prove that $V_{xx} + V_{yy} + V_{zz} = m(m+1)r^{m-2}$.	**Understand/ CO2**	**6**
B)	If z is a homogeneous function of degree n in x, y, then prove that $x^2\frac{\partial^2 z}{\partial x^2} + 2xy\frac{\partial^2 z}{\partial x \partial y} + y^2\frac{\partial^2 z}{\partial y^2} = n(n-1)z$.	**Understand/ CO2**	**6**
C)	If $u = f(y-z, z-x, x-y)$, show that $\frac{\partial u}{\partial x} + \frac{\partial u}{\partial y} + \frac{\partial u}{\partial z} = 0$.	**Understand/ CO2**	**6**
Q. 3	**Solve any Two of the following:**		**12**
A)	Expand $f(x,y) = e^x \cos y$ at $\left(1, \frac{\pi}{4}\right)$.	**Understand/ CO3**	**6**
B)	Test the function $f(x,y) = x^4 + y^4 - x^2 - y^2 + 1$ for maxima, minima and saddle point.	**Understand/ CO3**	**6**
C)	Find the maximum value of $x^m y^n z^p$ when $x + y + z = a$.	**Understand/ CO3**	**6**
Q.4	**Solve any Two of the following:**		**12**
A)	Evaluate $\int_0^a \frac{x^7 dx}{\sqrt{a^2 - x^2}}$.	**Understand/ CO4**	**6**

B)	Trace the curve $y^2 = \frac{x^2(a^2-x^2)}{a^2+x^2}$ (Lemniscate of Bernoulli).	**Understand/ CO4**	**6**
C)	Trace the curve $r = a \sin 3\theta$ (3 Leaved Rose).	**Understand/ CO4**	**6**
Q. 5	**Solve any Two of the following:**		**12**
A)	Evaluate $\int_1^a \int_1^b \frac{dydx}{xy}$	**Understand/ CO5**	**6**
B)	Change the order and Evaluate $\int_0^{\pi/2} \int_x^{\pi/2} \frac{\cos y}{y}$ dx dy.	**Understand/ CO5**	**6**
C)	Evaluate $\int_0^1 \int_{y^2}^1 \int_0^{1-x}$ x dz dx dy.	**Understand/ CO5**	**6**
	***** End *****		

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular & Supplementary Winter Examination-2023

Course: B. Tech **Branch: All** **Semester: I**

Course Code & Name: Engineering Mathematics-I (BTBS101)

Max Marks: 60 **Date:01-01-24** **Duration: 3 Hr.**

Instructions to the Students:

1. *All the questions are compulsory.*
2. *The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.*
3. *Use of non-programmable scientific calculators is allowed.*
4. *Assume suitable data wherever necessary and mention it clearly.*

		(Level/CO)	Marks
Q. 1	**Solve Any Two of the following.**		**12**
A)	Find the rank of matrix by converting it into Normal Form $A = \begin{bmatrix} 1 & 2 & -1 & 2 \\ 2 & 2 & -1 & 1 \\ -1 & -1 & 1 & -1 \\ 2 & 1 & -1 & 2 \end{bmatrix}$	**Understand (CO1)**	**6**
B)	Find eigen values & eigen vector for largest eigen value for the matrix $A = \begin{bmatrix} 1 & 1 & 3 \\ 1 & 5 & 1 \\ 3 & 1 & 1 \end{bmatrix}$	**Understand (CO1)**	**6**
C)	Check the consistency and solve: $2x - 3y + 5z = 1, 3x + y - z = 2, x + 4y - 6z = 1$	**Understand (CO1)**	**6**
Q.2	**Solve Any Two of the following.**		**12**
A)	If $z(x + y) = x^2 + y^2$, **show that** $\left(\frac{\partial z}{\partial x} - \frac{\partial z}{\partial y}\right)^2 = 4\left(1 - \frac{\partial z}{\partial x} - \frac{\partial z}{\partial y}\right)$	**Understand (CO2)**	**6**
B)	If $u = f(2x - 3y, 3y - 4z, 4z - 2x)$, prove that $\frac{1}{2}\frac{\partial u}{\partial x} + \frac{1}{3}\frac{\partial u}{\partial y} + \frac{1}{4}\frac{\partial u}{\partial z} = 0$	**Understand (CO2)**	**6**
C)	If $u = \tan^{-1}\left(\frac{x^3 + y^3}{x - y}\right)$, then find the value of $x^2\frac{\partial^2 u}{\partial x^2} + 2xy\frac{\partial^2 u}{\partial x \partial y} + y^2\frac{\partial^2 u}{\partial y^2}$	**Understand (CO2)**	**6**
Q. 3	**Solve Any Two of the following.**		**12**
A)	If $u = x + 2y^2 - z^3$, $v = 2x^2yz$, $w = 2z^2 - xy$ then evaluate $\frac{\partial(u, v, w)}{\partial(x, y, z)}$ at $(1, -1, 0)$	**Understand (CO3)**	**6**
B)	Discuss the maxima and minima for the function $x^2 + y^2 + (30 - x - y)^2$ and hence find the extreme value of the function.	**Understand (CO3)**	**6**
C)	Using Lagrange's undetermined multipliers find the maximum value of $x^2 + y^2 + z^2$ when $x + y + z = 3a$	**Understand (CO3)**	**6**

Q.4	**Solve Any Two of the following.**		**12**
A)	Evaluate $\int_0^a x^3(a-x)^{\frac{3}{2}}\,dx$	**Understand (CO4)**	**6**
B)	Trace the curve $y^2(2a-x)=x^3$.	**Understand (CO4)**	**6**
C)	Trace the curve $x=a(\theta-\sin\theta)$, $y=a(1-\cos\theta)$.	**Understand (CO4)**	**6**
Q. 5	**Solve Any Two of the following.**		**12**
A)	Evaluate $\int_0^1 \int_0^{z^2} \int_0^{z^2-x} xz\,dx\,dy\,dz$	**Understand (CO5)**	**6**
B)	Find the area bounded by $y^2=4x$ and $2x-3y=-4$.	**Understand (CO5)**	**6**
C)	Change to polar and evaluate $\int_0^\infty \int_0^\infty e^{-(x^2+y^2)}\,dx\,dy$.	**Understand (CO5)**	**6**

	DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE **Winter Examination – 2022** **Course: B. Tech. Branch : All Semester : I** **Subject Code & Name: Engineering Physics (BTBS102P)** **Max Marks: 60 Date:23/03/23 Duration: 3 Hr.**		
	Instructions to the Students: 1. *All the questions are compulsory.* 2. *The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.* 3. *Use of non-programmable scientific calculators is allowed.* 4. *Assume suitable data wherever necessary and mention it clearly.*		
		(Level/CO)	Marks
Q. 1	Solve Any Two of the following.		12
A)	Describe the construction and working for producing ultrasonic waves using magnetostriction method.	CO1	6
B)	Define free oscillation. Set up a differential equation for free oscillations and find it's solution.	CO1	6
C)	Define ultrasonic waves. List their applications in various fields. Give the details of any one application with labeled diagram.	CO1	6
Q.2	Solve Any Two of the following.		12
A)	Derive an expression for darkness due to reflected light for thin film interference.	CO2	6
B)	Explain the production of polarization due to birefringence (Double refraction) with neat diagram.	CO2	6
C)	Explain the construction and working of He-Ne laser with neat and labeled diagram.	CO2	6
Q. 3	Solve Any Two of the following.		12
A)	Derive Schrodinger's time independent wave equation.	CO3	6
B)	With neat diagram, explain the construction & working of Geiger-Muller Counter.	CO3	6
C)	Explain with neat diagram, how isotopes can be separated with the help of Bainbridge mass spectrograph.	CO3	6
Q.4	Solve the following.		12
A)	Describe the production of characteristic X-rays. Calculate the minimum wavelength of X-rays, if the X-ray is operated	CO4	6

	at 20 kV.		
B)	Calculate the relation between atomic radius and lattice constant for BCC and FCC.	CO4	6
Q. 5	Solve Any Two of the following.		12
A)	Differentiate between conductor, semiconductor and insulator on the basis of energy band diagram and discuss their properties.		6
B)	Explain Meissner effect in superconductors. State any two applications of superconductors.		6
C)	Explain B-H curve for ferromagnetic materials. Write the significance of B-H curve.		6
	*** End ***		