F4 - Engg All first year all: FE-B.Tech. All

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Mid Semester Examination – March 2019

Course: - : First Year B. Tech(Group- A and B) | **Sem: II**

Subject Name: Engineering Mathematics -II | **Subject Code: BTBS 201**

Max Marks: 20 | **Date:- 11/03/2019**

Duration:- 1 Hr.

Instructions to the students:

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

		(Level/CO)	Marks
Q. 1	**Attempt the following Questions**		**1*6=6**

1.The polar form the complex number z =1 is /CO1

a) $(\cos 0 + i\,sin0)$ b) $(\cos\pi + i\,sin\pi)$

c) $\sqrt{2}(\cos 0 + i\,sin0)$ d) $(\cos\frac{\pi}{2} + i\,sin\frac{\pi}{2})$

2. *The complex number* $z = -1 + 3i$ *lies in* $---$ /C O1

a) *First quadrant* b) *Second quadrant*

c) *Third quadrant* d) *Fourth quadrant*

3.*The circular function sinx is equal* $----$ /CO1

a) $\frac{e^{ix}+e^{-ix}}{2i}$ b) $\frac{e^{ix}-e^{-ix}}{2i}$ c) $\frac{e^{ix}+e^{-ix}}{2}$ d) $\frac{e^{ix}-e^{-ix}}{2}$

4. The necessary condition for the differential equation M(x,y) dx + N(x,y) dy =0 to be exact is /CO2

a) $\frac{\partial N}{\partial y} = \frac{\partial N}{\partial x}$ b) $\frac{\partial M}{\partial y} = \frac{\partial M}{\partial x}$ c) $\frac{\partial M}{\partial y} = \frac{\partial N}{\partial x}$ d) $\frac{\partial M}{\partial x} = \frac{\partial N}{\partial y}$

5.*The differential equation of an electric circuit containing an inductance L, r Voltage E, the current i* is given by _____ /C O2

a) $L\frac{di}{dt} + Ri = E$ b) $L\frac{di}{dt} - Ri = E$

c) $L\frac{di}{dt} + Ri = -E$ d) $\frac{di}{dt} + \frac{R}{L}i = E$

6.The differential equation of family of curves $xy = k^2$ is ------ /CO2

a) $x\frac{dy}{dx} + y = 0$ b) $y\frac{dx}{dy} + x = 0$ c) $-x\frac{dy}{dx} + y = 0$ d) $-y\frac{dx}{dy} + x = 0$

upto 13th Morning

2*3=6

Q.2 Attempt any TWO of the following:

(A) Prove that $(x+iy)^{\frac{m}{n}} + (x-iy)^{\frac{m}{n}} = 2\sqrt{x^2+y^2}^{\frac{m}{n}} \cos\left(\frac{m}{n}\tan^{-1}\frac{y}{x}\right)$ — Moderate/ CO1

(B) Solve $\frac{dy}{dx} = -\frac{(y.cosx + siny + y)}{(sinx + x.cosy + x)}$ — Moderate/ CO2

(C) Prove that $\cos\left[i \log\frac{a-ib}{a+ib}\right] = \frac{a^2-b^2}{a^2+b^2}$ — Easy/ CO1

2*4=8

Q. 3 Attempt the following

(A) *If z_1 and z_2 are two complex numbers such that $|z_1 + z_2| = |z_1 - z_2|$. Prove the difference of their amplitudes is $\frac{\pi}{2}$.* — Moderate /CO1

(B) A resistance of 100 ohms and inductance of 0.1 henries are connected in series with a battery of 20 volts. Find the current in the circuit at any time t , if the relation between L,R and E is $L\frac{di}{dt} + Ri = E$ — Difficult CO2

OR

2*4=8

Q. 3 Attempt the following

(A) Solve $x^{10} + 11x^5 + 10 = 0$ — Difficult /CO1

(B) Solve $\frac{dy}{dx} - y\tan x = y^4 \sec x$ — Moderate /CO2

***** End *****

(34)

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Mid Semester Examination – MARCH 2019

Course: FY B. Tech GROUP A **Sem: II**

Subject Name: ENGINEERING MECHANICS **Subject Code: BTES203**

Max Marks: 20 **Date: 13/3/2019** **Duration:- 1 Hr.**

Instructions to the Students:

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

QUESTIONS Marks

Q. 1 **Multiple choice questions** 6

1. The forces ,whose line of action lies in the same plane and are meeting at one point, are known as.....

A) Co-planar concurrent forces. B) Non co-planar concurrent

C) co-planar non concurrent D) none of the above

2.If an object is on an inclined plane having an angle θ, the component of weight (w) parallel to incline is _____.

A. w cos θ B. w sin θ

C. w tan θ D. w cot θ

3.Type of distributed loads are .....

A) Point load B) Uniformly distributed load

C) Uniformly Varying load D) Both B & C

4 A Block of 500N is kept on Horizontal surface. A Horizontal force of 190N is required to just move it. If μ=0.38 what is Resultant Reaction.....

A) 500 B) 544 C) 534 D) 556

5. Second moment of area is the product of.....

A. area and square of the distance from the reference axis

B. area and distance from the reference axis

C. square of the area and distance from the reference axis

D. square of the area and square of the distance from the reference axis

6. A Truss which satisfies relation m > 2j - r then Truss is called as.....

A)Redundant Truss B)Perfect Truss c) Deficient truss D) Unstable

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

(A) **State and prove Varignon's Theorem.**

(B) **Locate centroid**

of the following I-Section fig-1 with the following details

i) Top flange= 20mm x 10 mm ii) Bottom flange=100 mm x 20 mm

iii) web thickness=15 mm iv) overall depth 250 mm

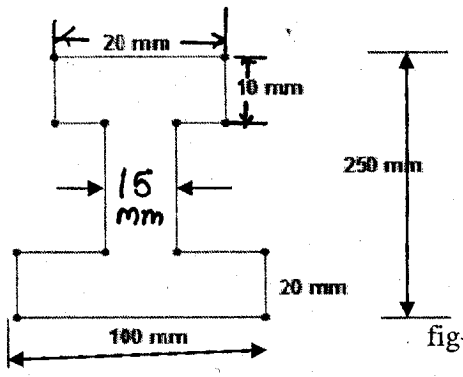

fig-1

(C) A block of weight 600N is placed on a inclined plane at an angle of 20° with the horizontal. If coefficient of friction is 0.14.find the force P Applied parallel to the plane. Just move the body up the plane.

Q. 3 Solve Any One of the following. **1 X 8**

(A) A beam is loaded by Hinge support at A & Roller support at D. Calculate reactions at A & D, Refer Fig-2

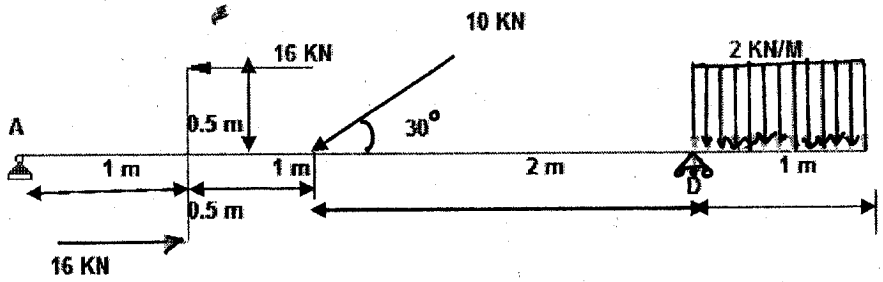

Fig-2

(B) Find the support Reactions and member forces for Truss which is supported by hinge support at A & Roller Support at C. As shown in Fig-3

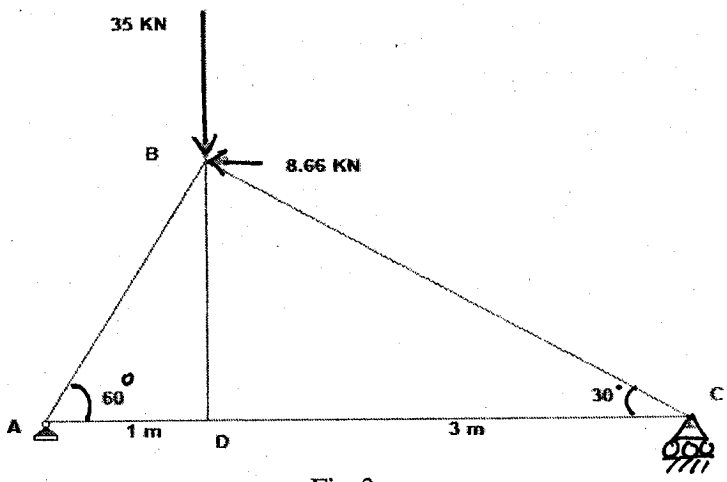

Fig-3

*** End ***

FY (All)
Borade Sir

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

Course: F.Y.B.Tech(CSE) **Sem: II**
Subject Name: Computer Programming in c **Subject Code: BTES204**
Max Marks: 20 **Date:- 14/03/2019** **Duration:- 1 Hr.**

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

Q.1. Attempt following Questions (1*6 = 6 Marks)

1. The _____ scans the entire C program and translates it as a whole into machine code
   (a) Interpreter (b) Compiler
   (c) Operating system (d) Assembler

2. The smallest unit that is used for memory storage is-
   (a) Byte (b) Bit
   (c) Nibble (d) baud

3. Which of the following is not a logical operator?
   (a) ! (b) &
   (c) && (d) ||

4. If 'a' is an integer variable , a=5/2; will return a value
   (a) 2.5 (b)3
   (c) 2 (d) 0

5. Which of the following is not a C variable?
   (a) Var123 (b) Var_123
   (c) 123Var (d) X_123_Var

6. what will be the output for following program

```
#include<stdio.h>
 void main()
{
 int i=2;
 int  a=++i + i;
 printf("%d\n",a);
}
```

   (a) 6 (b) 5
   (c) 4 (d) compile time error

Q. 2. Attempt any **two** of the following (2*3 =6 Marks)

A. In C program contains the following variable declarations
int i=1245; float j=3.14; char k='a';
Show the output resulting from each of the following printf statement
printf("%d %d \n", i,j);
printf("%d %c",k,k);

B. Enlist the data types in c. also write the amount of size required to store the data type in the memory.

C. Explain increment & decrement operators with suitable example.

Q.3. Attempt any **one** of the following (1* 8 = 8 Marks)

A. Explain structure of c program with suitable example

B. Take the distance in Kilometers (KM) as a input through keyboard, write a ç program to convert & print distance in Meters (M) & Centimeters (CM)

END

	DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE **Mid Semester Examination – Mar. 2019** **Course: B. Tech in Computer Science/Electronics/Electrical/IT Engineering** **Sem.: II** **Subject Name: Energy and Environment Engineering** **Subject Code: BTES205** **Max Marks:20** **Date:- /03/2019** **Duration:- 1 Hr.**	
	Instructions to the Students: 1. Please check whether you have got the right question paper 2. Clearly mention the main question number along with the sub questions. 3. Question No. 1 is compulsory. 4. Figures carries marks	
		Marks
Q. 1	**Select the right choice from the given answers**	**6**
	1. The major heat loss in a steam power station occurs in---------- a) heat chamber b) penstock c) spillways d) condenser	
	2. Gas power plant are generally used as, a) peak load plant b) base load plant c) standby plant d) none of the above	
	3. Fuels we use in cars, airplanes, ships and many other machinery are generally a) energy resources b) coal and gas c) petroleum d) gas and oil	
	4. Most common activity to conserve natural resources is by, a) turning extra light off b) turning washing machine off c) turning AC generators on d) turning UPS (utility power supply) on	
	5. Most natural resources we consume at our homes or in our cars are, a) renewable b) nonrenewable c) infinite d) all of above	
	6. Another major problem of nuclear power plant is, a) accidental release of radiation b) land pollution c) air pollution d) water pollution	

	DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE **Mid Semester Examination – Mar. 2019** **Course: B. Tech in Computer Science/Electronics/Electrical/IT Engineering** **Sem.: II** **Subject Name: Energy and Environment Engineering** **Subject Code: BTES205** **Max Marks:20** **Date:- /03/2019** **Duration:- 1 Hr.**	
	Instructions to the Students: 1. Please check whether you have got the right question paper 2. Clearly mention the main question number along with the sub questions. 3. Question No. 1 is compulsory. 4. Figures carries marks	
		Marks
Q. 1	**Select the right choice from the given answers**	**6**
	1. The major heat loss in a steam power station occurs in---------- a) heat chamber b) penstock c) spillways d) condenser	
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DR.BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE.

Mid Semester Examination- March 2019

Course: First Year B.Tech **Semester: II**

Subject: Communication skills **Sub Code: BTHM204**

Marks: 20 **Date: 14/03/2019** **Duration: 1 hour**

Instructions: 1] All the Questions are compulsory. 2] Illustrate your answers with neat sketches wherever necessary. 3] Figures to the right indicate full marks.

(Level/CO) **Marks**

Q.1- Choose the correct option and fill the blanks: **(Remember)** **(6 marks)**

1- Hearing is .....

a) Involuntary b) Voluntary c) Casual d) None of these.

2- Which one of the following is a barrier to listening----------.

a) Lack of interest on the part of the listener. b) Partial listening c) External noise
d) All of these

.3- Which is not the common purpose for holding group discussion

a) To explore ideas and exchange information b) To critique proposals or new ideas
c) To prepare existing policies d) To look for the best solution to a problem

4- To be an active listener you must ----------

a) Make eye contact with the speaker.
b) Communicate your response through expressions and gestures.
c) Sit upright, more leaning forward than leaning backward.
d) All of these.

5- Wear a ..... on your face when you speak. It is an effective ice□break.

a) Scorn b) Smile c) Surprise d) Shock

6- A..... topic gives scope for argument and debate

a) Factual b) Controversial c) Abstract d) Subjective

Q2- Attempt any two of the following: **(6 marks)**

1- Explain the sub types of non verbal communication. **(Understanding)**
2- Differentiate between oral and written communication. **(Analyzing)**
3- Classify the following examples into verbal and non- verbal communication or both. Make three columns.**(Smile, advertisements, notices, interview, traffic signal, e-mail, raising the eyebrows)** **(Remembering)**

Q3- Attempt any one of the following: **(8marks)**

1- Define communication. Explain the 7 C's of effective communication. **(Understanding)**

2- Explain with examples the barriers in the process of communication. **(Applying)**

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Mid Semester Examination – March 2019

Course: - : First Year B. Tech(Group- A Chem, Mech, Civil) **Sem: II**

Subject Name: Engineering Chemistry **Subject Code: BTBS 202**

Max Marks: 20 **Date:- 12/03/2019**

Duration:- 1 Hr.

Instructions to the students:

1. Do not write anything on question paper
2. Neat and labeled diagram must be drawn whenever necessary.
3. Use of non programmable calculator is allowed.
4. Figures to the right indicate full marks.
5. Assume suitable data if required
6. All questions are compulsory

		(Level/CO)	Marks
Q. 1	**Attempt the following Questions**		6
1.	**If degree of freedom for any system is zero, the system is said to be** a) Zero Varient b) Divarient c) Invarient d) Both a & c	/CO3	
2.	For the given system degree of freedom is, $NaCl_{Solid} \rightleftharpoons NaCl_{Solution} \rightleftharpoons H_2O_{Vapour}$ a) 1 b) 2 c) 3 d) 4	/CO3	
3.	**Phase diagram of sulphur system has.....triple point(s).** a) 4 b) 3 c) 2 d) 1	/CO3	
4.	**Exhausted zeolite can be regenerated by using** a) HCl b) NaOH c) NaCl d) All of these	/CO1	
5.	**Sodium Zeolite can be represented as** a) $Ca_2O.Si_2O_3.xNa_2O.yH_2O$ b) $Mg_2O.Al_2O_3.xSiO_2.yH_2O$ **b)** $Si_2O.Al_2O_3.xNa_2O.yH_2O$ d) $Na_2O.Al_2O_3.xSiO_2.yH_2O$	/CO1	
6.	**Hardness of water is usually expressed in equivalent with** a) $Ca(OH)_2$ b) $CaCl_2$ c) CaO d) $CaCO_3$	/CO1	
Q.2	**Solve Any Two of the following.**		3 X 2
A)	**What is condensed phase rule? When it is applied?**	/CO3	
(B)	**Ion exchange method is more advantageous than zeolite method, give your review.**	/CO1	
(C)	**Define the term Phase, Invariant system and temporary hardness**	/CO1, CO3	
Q. 3	**Solve Any One of the following.**		8
(A)	**How we determine hardness of water by EDTA method? What happen when hard water is used for industrial applications?**	/CO1	
(B)	**Draw neat labeled phase diagram for water system and explain areas, curves and triple points in it. What are the advantages of phase rule?**	/CO3	

***** End *****

	DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE **Mid Semester Examination – March 2019** **Course: F.Y.B. Tech Sem: II** **Subject Name: Engineering Graphics** **Subject Code: ME104** **Max Marks: 20** **Date:-** **Duration:- 1 Hr.**		
	Instructions to the Students: **1. Assume suitable data if necessary and state it clearly.** **2. Figures to the right indicate full marks.** **3. Retain all construction lines.**		
		(Level/CO)	Marks
Q.1	**Solve *any two* out of the following:**		**5x2=10**
	1. Inscribe a regular heptagon inside a given circle of diameter 80 mm.	**CO1,2**	
	2. Super scribe a regular octagon about a given circle of 70 mm diameter..	**CO1,2**	
	3. Explain various types of lines with their illustrations, thickness and applications.	**CO1**	
Q.2	**Draw front view, top view and right hand side view of the object shown in figure 1 below:- (Use first angle method of projection)**	**CO4**	**10**

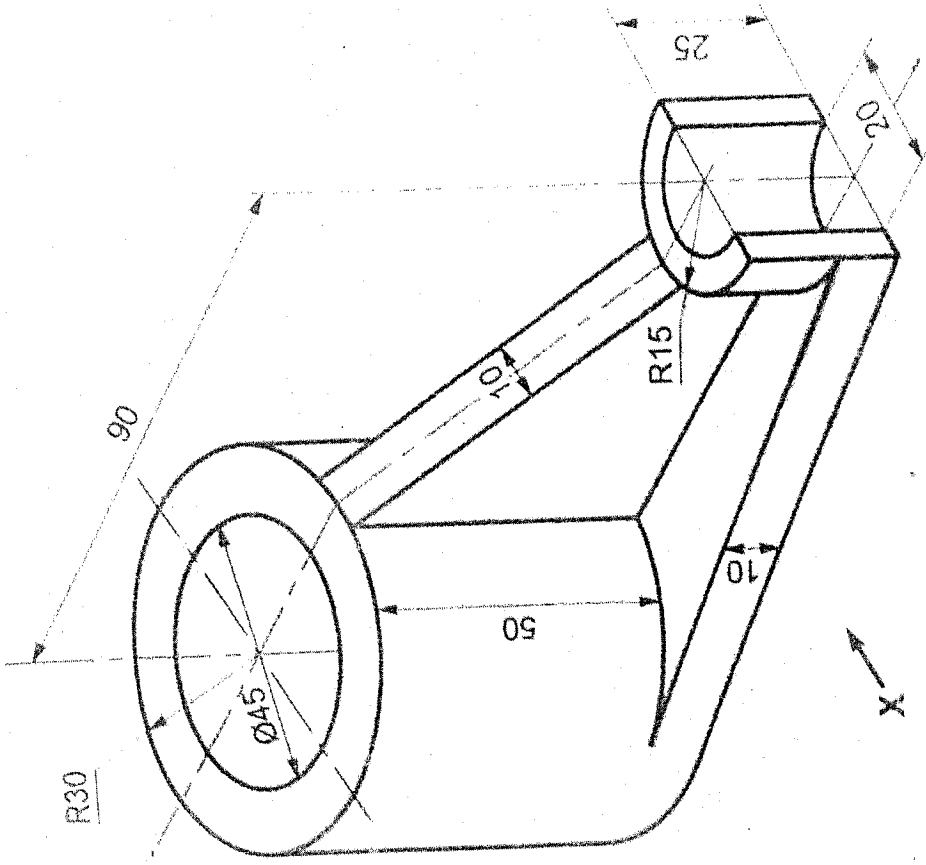

Figure 1

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE
RAIGAD-402103
Mid semester Examination- March-2019

Branch: Group B (CSE, ECT, EEP,IT) **Sem.:- II**
Subject: Engineering Physics (BTBS202) **Marks:20**
Date: 12/03/2019 **Time:1 Hrs**

Instructions:-

1. *Do not write anything on question paper.*
2. *Neat and labeled diagram must be drawn wherever necessary.*
3. *Use of non- programmable calculator is allowed.*
4. *Figures to the right indicate full marks.*
5. *Assume suitable data if required.*

Q.1. Attempt following questions **(6 Marks)**

a) In dielectric, the polarization is **[CO1]**

i. linear function of applied field ii. Square function of applied field

iii. exponential function of applied field iv. Logarithmic function of applied field.

b) In free vibrations, the property that remains constant is **[CO1]**

i. Amplitude ii. Total energy iii. Both iv. None of above

c) The substances that rotate plane of polarization are said to be **[CO2]**

i. Optically active ii. Optically inactive iii. opaque iv. Polaroids.

d) Which of the following can be used to produce ultrasonic wave? **[CO1]**

i. Ni-rod ii. Co-rod iii. Fe-rod iv. All

e) In the structure of optical fibre cable, the refractive index of core is always..... than the refractive index of cladding. **[CO2]**

i. less than ii. Equal to iii. greater than iv. none of above.

f) The unit of dipole moment/unit volume is **[CO1]**

i. coulomb/meter ii. coulomb/meter^2 iii. coulomb/meter^3 iv. coulomb

Q. 2. Attempt any TWO of the following **(6 Marks)**

i) Discuss important applications of ultrasonic waves **[CO1]**

ii) Explain the structure of optical fiber and mechanism of light propagation in to the fiber. **[CO2]**

iii) In Newton's ring experiment, the diameter of the 15th ring was found to be 0.59cm and of the 5th ring was 0.336cm. If the radius of the plano-convex lens is 100cm, compute the wavelength of light used. **[CO2]**

Q.3. Attempt any ONE of the following **(8 Marks)**

i.) What is damped oscillation? Obtain a differential equation for damped vibration and find its solution. **[CO1]**

ii.)Explain the principle, construction and working of Ruby laser. **[CO2]**