

NAME:

LD:

END TERM EXAM -2021

Course Name: Engg Mathematics I

Max Marks: 60

Course Code: MAS 416

Time: 2hrs

NOTE: All questions are compulsory and their respective marks are given against their corresponding sections. Symbols have their usual meaning.

Fill in the blanks

5X2=10

1. If $x = r\cos\theta, y = r\sin\theta$ then $\frac{dr}{d\theta} = \dots\dots\dots$
2. Given $u = x^2 - y^2, v = 2xy$ then $\frac{\partial(x,y)}{\partial(u,v)}$ is
3. Rank of singular matrix of order 4, can be at the most....
4. The eigen values of A are 2,3,4 then the eigen values of A^2 is.....
5. A unit normal to the surface $z = 2xy$ at (2,1,4) is

Each of the following question (6-13) carries 5marks

6. Find the nth derivative of $x^3 \cos x$
7. If $y = \cos(m \log x)$ show that $x^2 y_{n+2} + (2n+1)xy_{n+1} + (m^2 + n^2)y_n = 0$
8. If $u = \log(\tan x + \tan y)$ prove that $\sin 2x \frac{\partial u}{\partial x} + \sin 2y \frac{\partial u}{\partial y} = 2$
9. By reducing to their normal form, find the rank

$$\begin{bmatrix} 1 & 2 & 3 \\ 2 & 4 & 7 \\ 3 & 6 & 10 \end{bmatrix}$$

10. Evaluate $\iint y dx dy$ over the area bounded by $x = 0, y = x^2$ and $x + y = 2$, in the first quadrant.
11. Evaluate $\int_0^4 \int_0^x \int_0^{x+y} x dz dy dx$
12. Find the divergence and curl of the vector field $V = (x^2 - y^2)\mathbf{i} + 2xy\mathbf{j} + (y^2 - xy)\mathbf{k}$
13. Find the value of x and y for which $x^2 + y^2 + 6x = 12$ has a minimum value and find its minimum value.

14. Verify Cayley Hamilton theorem for the matrix $A = \begin{bmatrix} 1 & 2 & 4 \\ -1 & 0 & 3 \\ 3 & 1 & -1 \end{bmatrix}$

10 Marks

Hence evaluate inverse of A.



End Term Examination, December 2021
Sam Higginbottom University of Agriculture, Technology and Sciences.
Vaugh Institute of Agriculture Engineering and Technology.
Department of Electronics and Communication Engineering.

Branch : B.Tech (CSE, ECE, EE)
Subject : Moral and Value Education.
Credit: 2 (2-0-0)
Max Marks : 100

Semester : 1
Code : GPT-301
Mode: Google Classroom
Time : 2 Hr.

Write your complete ID.
All questions are to be answered.

Objective Type :

Fill in the blanks :

[2X7]

- 1) A person's annual income if divided by the number of hours they work in a given year will come up with their hourly rate of pay which is the ____.
- 2) ____ is also defined as an activity done with a will of achieving something.
- 3) Nationalism also encourages pride in national achievements and is closely linked to ____.
- 4) ____ is a complex, chronic brain condition influenced by genes and the environment that is characterized by substance use or compulsive actions that continue despite harmful consequences.
- 5) ____ have been the focus of attention of city planners, architects, and urban designers for a long time.
- 6) Human communication, or ____, is the field dedicated to understanding how humans communicate.
- 7) ____ is an idea and movement that holds that the nation should be congruent with the state.

Short Answer Type :

- 1) Define Value Education. [7]
- 2) What can be the reasons for examining small groups? [7]
- 3) What is the difference between Curriculum and Syllabus ? [7]
- 4) What is the difference between Moral and Ethics ? [7]
- 5) Define :
Truth, Property, Liberty, Right to Life, Respect, Will [8]

Long Answer Type :

- 1) Comment on Discovery of Self. [10]
- 2) What do you understand by the growth of intellect. [10]
- 3) Explain the concept of Nationalism and Internationalism. [10]
- 4) Why is Ecology important for us to study. [10]



SAM HIGGINBOTTOM UNIVERSITY OF AGRICULTURE TECHNOLOGY AND SCIENCES
END TERM EXAMINATION- -2021

Subject : Workshop Practice

Branch :B.Tech CSE/B.Tech ECOE/B.Tech ECE/ B.Tech EE

Max. Marks : 100

Note : Attempt all questions and draw diagrams where ever necessary.

Code : ME-305

Semester : 1st

Time : 2hrs

Q1. Fill in the Blanks

(2x5=10)

- a)represents deformation caused per unit length
- b)is the measure of the capacity of a material to absorb energy
- c) rings are formed annually.
- d) The striking voltage required for welding is.....
- e)is also called Stiffness.

Q2. True or False.

(2x5=10)

- a) Electric Arc welding is same as Gas welding
- b) 3 high rolling mill uses 4 rollers.
- c) Welding voltage is 220v.
- d) Anvil is a measuring tool.
- e) Knob is a major part of Saw.

(Q3 to Q12, each question carry 5 marks)

Q3. Explain with diagram the structure of Timber.

Q4. Define the following processes

- a) Seasoning
- b) Welding
- c) Forging
- d) Quenching
- e) Rolling

Q5. Briefly explain the Stress-Strain curve with a neat diagram.

Q6. Differentiate between Soft wood and Hard wood.

Q7. How does the properties and uses of Tin and Copper differ from the properties and uses of Nickel.

Q8. Depict the structure of steel with a neat diagram.

Q9. State difference between AC welding and DC welding.

Q10. Represent the following with neat diagrams.

- a) Try Square
- b) Chisel
- c) Iron Jack Plane
- d) Straight Peen Hammer
- e) Anvil

Q11. Define Layout. State the advantages and disadvantages of Fixed position layout.

Q12. State advantages and limitations of Hot Extrusion.

(Q13 to Q15, each question carry 10 marks)

Q13. What is seasoning, state its advantages and also explain in detail any Two methods of seasoning.

Q14. Explain in detail the process of TIG welding with a neat diagram

Q15. Explain with detail the process of chemistry of a Blast Furnace. Also draw a neat and labeled diagram of Blast Furnace.