04/08/23

Printing Pages : 1 **Paper Code DAS-201** **(C) (SVSU:2022-2023/S)**

Enrollment No. | | | | | | | | | | | | | | |

DIMPLOMA IN ENGG (Common All)
II YEAR EXAMINATION
Applied Mathematics-II

[Time: 2:30 Hours **Max. Marks: 50]**

Note/Instructions: Additional sheets may be used, if required.

i. Attempt all questions as per given instructions. दिए गए निर्देशों के अनुसार सभी प्रश्नों का प्रयास करें।		
ii. Marks are indicated against each section. प्रत्येक अनुभाग के सामने अंक दर्शाए गए हैं		
iii. Assume missing data if any. अनुपस्थित डेटा मान लें यदि कोई हो।		
Ques.1	Answer ***ANY TWO*** of the following questions निम्नलिखित प्रश्नों में से किसी दो का उत्तर दें	**(5X 2=10)**
(a)	Define the orthogonal matrix.	
(b)	Write down the properties of normal distribution.	
(c)	Define the addition and multiplicative theorem of probability.	
Ques.2	Answer ***ANY TWO*** of the following questions निम्नलिखित प्रश्नों में से किसी दो का उत्तर दें	**(5X 2=10)**
(a)	Find the determinant of given matrix $A=\begin{bmatrix} 3 & 5 & 0 \\ 2 & 1 & 6 \\ 1 & -3 & 2 \end{bmatrix}$	
(b)	Find the probability of throwing 9 with two dice.	
(c)	Solve the differential equation $(1+x^2)dy=(1+y^2)dx$.	
Ques.3	Answer ***ANY TWO*** of the following questions निम्नलिखित प्रश्नों में से किसी दो का उत्तर दें	**(5X 2=10)**
(a)	Write the properties of elementary transformation.	
(b)	Explain about the binomial distribution.	
(c)	From a pack of 52 cards, one card is drawn at random. Find the probability of getting a red card.	
Ques.4	Answer ***ANY TWO*** of the following questions निम्नलिखित प्रश्नों में से किसी दो का उत्तर दें	**(5X 2=10)**
(a)	Find the differential equation whose solution is $ax^2+by^2=1$.	
(b)	Discuss the probability laws and conditional probability.	
(c)	Prove that gamma (n+1) = n n!	
Ques.5	Answer ***ANY TWO*** of the following questions निम्नलिखित प्रश्नों में से किसी दो का उत्तर दें	**(5X 2=10)**
(a)	Prove that $A=\begin{bmatrix} 1 & 0 & 2 \\ 0 & 2 & 1 \\ 2 & 0 & 3 \end{bmatrix}$ satisfy Cayley-Hamilton theorem.	
(b)	Define the relation between beta and gamma functions.	
(c)	Find the solution of the differential equation $\frac{dy}{dx} - x\tan(x-y)=1$.	

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