1st Year / Arch Engg.

Subject : Applied Science & Mathematics

Time : 3 Hrs.   M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory   (6x1=6)

Q.1   S.I unit of Heat Capacity is

a)   J/K   b)   J/Kg/k

c)   Joule   d)   J KG/K

Q.2   Echo is caused due to_____ of sound.

a)   Interference   b)   Diffraction

c)   Reflection   d)   Refraction

Q.3   A force which acts for a small time and also varies with time is called:

a)   Electrostatic force

b)   Electromagnetic force

c)   Impulsive force

d)   Centripetal force

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions.   (2x8=16)

Q.23   What are components of Air conditioner system and what is the working principle of Air conditioner system.

Q.24   What is the principle of acoustics modeling? What are the factors kept in mind while designing acoustics of building?

Q.25   Evaluate $\int x \cos x \, dx$.

Q.4 The value of $\tan 45°$ is

a) 0   b) 1

c) 1/2   d) -1

Q.5 The value of 6! is

a) 10   b) 720

c) 50   d) 100

Q.6 If $y = \tan x$, then $\frac{dy}{dx}$ is

a) $\sin x$ b) $\sec^2 x$.

c) $\cos x$ d) $\tan x$

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory.   (6x1=6)

Q.7 What is Green house effect?

Q.8 Two bodies moving with constant velocities collide with each other. During collision _____ remain conserved?

Q.9 Vibration is _____ phenomena.

Q.10 $\sin(A+B) =$ _____.

Q.11 $\pi \, radians =$ _____ Degrees.

Q.12 The angle $-1425°$ lies in _____ quadrants.

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions.   (8x4=32)

Q.13 What is Thermal stress with examples?

Q.14 Explain solar energy. What are two types of solar techniques?

Q.15 What is absorption coefficient? What are two different types of sounds?

Q.16 Define Luminous intensity and Luminous Flux.

Q.17 Expand $(1+X)^2$ and write the first three terms.

Q.18 Find the value of $\cos 105°$.

Q.19 Differentiate $2x^6 + 4x^5 + 7x^4 + 3x^2 - 5x - 7$ w.r.t. x

Q.20 Evaluate $\int 12 \cos\Theta + 5 \tan\Theta + x^5 + 7x^2 + 5$ with respect to x

Q.21 Express $\cos 9\Theta + \cos 3\Theta$ as product.

Q.22 Differentiate $Y = x \cos x - x^2 - 2 \sin x$ w.r.t x