Q.26 Write down the characteristics of a good refractory material.

Q.27 Define addition polymerization with suitable example.

Q.28 Write a note on cathodic protection method prevention of corrosion.

Q.29 Write properties and uses of copper.

Q.30 Draw flow diagram of manufacturing of aluminium

Q.31 Define modulus of elasticity and explain its types.

Q.32 Define amplitude and frequency.

Q.33 Describe basic principle and working of heat engine.

Q.34 Explain working of solar cell.

Q.35 Explain any two waterproofing techniques.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

Q.36 Prove that $\tan 56^0 = \frac{\cos 11^0 + \sin 11^0}{\cos 11^0 - \sin 11^0}$

Q.37 a) Write a note on smelting.

b) Write applications of plastic in daily life

Q.38 a) Define reverberation and reverberation time.

b) Explain the principle of working of bimetallic thermometer.

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1st Sem / Architecture
Subject:- Applied Science and Mathematics

Time : 3Hrs. M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

Q.1 How many terms are there in binomial expansion of $(x+3y)^5$

a) 5 b) 4

c) 6 d) 3

Q.2 $\log_a m + \log_a n =$ _____

a) $\log_a (m+n)$ b) $\log_a (m-n)$

c) $\log_a m . \log_a n$ d) $\log_a m.n$

Q.3 The perimeter of a square whose side is 25 c.m. is_____

a) 625 c.m. b) 100 c.m.

c) 50 c.m. d) 200 c.m.

Q.4 $\sin 2x$_____

a) $\sin x + \cos x$ b) $2\sin x \cos x$

c) $\cos^2 x - \sin^2 x$ d) None of above

Q.5 Hall's process is related to

a) Aluminum b) Copper

c) Steel d) Iron

Q.6 The monomer of PE is

a) Ethyl chloride b) Tetra chloro ethane

c) ethylene d) None of the above

Q.7 SI unit of current is

a) Kg b) Joule

c) ampere d) Coulomb

Q.8 SI unit of temperature is

a) Celsius b) Kelvin

c) Fahrenheit d) None of the above

Q.9 Force of attraction between molecules of same substance is called

a) Electrical force b) Adhesive force

c) Cohesive force d) Nuclear force

Q.10 SI unit of radiant energy is

a) Calories b) Joule

c) Lumen d) candela

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 $\frac{d}{dx}$ (cosecx) =_____

Q.12 The total surface area of cylinder is_____

Q.13 The Logarithmic form of 10^5 is_____

Q.14 $\int \sec^2 x \, dx$ =_____

Q.15 Write one example of saturated hydrocarbon

Q.16 Write one use of iron

Q.17 Write full form of FPS

Q.18 SI unit of heat energy is_____

Q.19 Solar cells convert solar energy into _____ energy.

Q.20 _____ is the device used to measure high temperatures.

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Find the volume and surface area of a cuboid of 1=0.5m., b = 4 c.m., h= 7 c.m.

Q.22 Differentiate $y = \sin x \, e^{\sin x}$ w.r.t.x.

Q.23 Prove that $\sin 22^0 \cos 8^0 + \cos 22^0 \sin 8^0 = \frac{1}{2}$

Q.24 Evaluate $\int e^{5x} + \cos 5x + 4x^7 \, dx$

Q.25 Find the volume of sphere of diameter 28 c.m.