

ANNEXURE – III
MODEL QUESTIONS FOR ENGINEERING

Mathematics (50 Questions of this type)

1. If $1, \omega, \omega^2$ are the cube roots of unity then $\begin{vmatrix} 1 & \omega & \omega^2 \\ \omega & \omega^2 & 1 \\ \omega^2 & 1 & \omega \end{vmatrix} =$
- a) 0 b) 1 c) 2 d) 3
2. $\lim_{n \rightarrow \infty} \frac{1^2 + 2^2 + \dots + n^2}{n^3} =$
- a) $\frac{1}{2}$ b) $\frac{1}{3}$ c) $\frac{1}{4}$ d) $\frac{2}{3}$
3. The particular integral of $(D^2 - 5D + 6)y = e^{4x}$ is
- a) $\frac{e^{4x}}{2}$ b) $2e^{4x}$ c) e^{4x} d) $\frac{e^{4x}}{3}$

Physics (25 Questions of this type)

- 1) A dimension less quantity
- a) Never has a unit b) May have a unit
c) Always has a unit d) Does not exist
- 2) The angle between two forces increases the magnitude of their resultant.
- a) Increases b) Decreases
c) First decreases then increases d) Remains unchanged.
- 3) The maximum velocity of a body vibrating with single harmonic motion has a period of $\pi/4$ & amplitude of 7 cm is
- a) 488 cm/s b) 56 cm/s c) 38.5 cm/s d) 55 cm/s

Chemistry (25 Questions of this type)

1. Which of the following orbital has less energy
- a) 3P b) 3d c) 4d d) 4f
2. Which of the following element has stable electronic configuration?
- a) H b) He c) Li d) Be
3. The pH of 0.001M NaOH is
- a) 1 b) 3 c) 11 d) 14
4. Brass is an alloy of
- a) Cu + Sn b) Cu + Zn c) Cu + Zn + Ni d) Fe + Cr + Ni

ENGINEERING PAPERS (100 Questions of this type)

I. Civil Engineering

1. The maximum shear force for a simply supported beam carrying udl occurs at
 - (a) Ends
 - (b) centre
 - (c) One third span
 - (d) three fourth span
2. For an under reinforced beam section,
 - (a) Actual neutral axis= Critical neutral axis
 - (b) Actual neutral axis >Critical neutral axis
 - (c) Actual neutral axis< Critical neutral axis
 - (d) Actual neutral axis \leq Critical neutral axis
3. The coefficient of discharge (C_d) of a venturimeter is
 - (a) 0.98
 - (b) 0.877
 - (c) 0.64
 - (d) 0.707

II. Electrical and Electronics Engineering

- 1) In the 2-wattmeter method of measuring 3-phase power, the two watt meters indicate equal and opposite reading, then the power factor angle is_____ degrees lagging.
 - a) 60^0
 - b) 0^0
 - c) 300^0
 - d) 90^0
- 2) If a 220 v rated heater is used on 110 V supply, heat produced it will be_____ as much.
 - a) One half
 - b) Twice
 - c) one fourth
 - d) four times
- 3) Induction watt-hour meters are free from_____ errors
 - a) Phase
 - b) Creeping
 - c) Temperature
 - d) frequency

III.Mechanical Engineering

1. Magnetic particle inspection is conducted to
 - a) Ferro alloy components
 - b) Non magnetic components
 - c) Copper alloys
 - d) Nickel alloys
2. Name the boiler accessory among the following
 - a) Pressure gauge
 - b) Water level indicator
 - c) Blow off cock
 - d) Economizer
3. The subroutine can be called anywhere in the main program by giving subroutine number preceded by the letter
 - a) G
 - b) M
 - c) L
 - d) T

IV. Electronics and Communication Engineering

1. An example of square law device is
 - (a) Diode
 - (b) Resistor
 - (c) JFET
 - (d) SCR
2. TWT uses a helix
 - (a) To reduce the axial velocity of RF field
 - (b) To ensure broadband operation
 - (c) To increase the efficiency
 - (d) To reduce noise
3. Quality factor of a tuned circuit is
 - (a) Product of BW and f_{resonant}
 - (b) BW/f_{resonant}
 - (c) f_{resonant}/BW
 - (d) $2 f_{\text{resonant}}$

IX. Electronics and Instrumentation Engineering

1. An n-bit register requires _____ no of flip flops.
a) $2n$ b) $n+1$ c) $2n$ d) n
- 2) LVDT is used to measure _____ parameters.
a) Temperature b) displacement c) torque d) density
- 3) The p^H of a solution is proportional to _____
a) $\text{Log} [H^+]$ b) $-\log [H^+]$ c) $-\log [H^+]$ d) $1/\log [H^+]$

X. Bio – Technology

- 1). Which component of transcribed RNA in eukaryotes is present in the initial transcript but is removed before translation occurs
a) Intron
b) 3' poly A tail
c) Ribosome binding site
d) 5' cap
- 2). A eukaryotic chromosome is made up of:
a) DNA only
b) Histones and nucleic acid
c) Centromeres and centrioles
d) DNA and RNA only

MODEL QUESTIONS FOR PHARMACY (200 questions)

1. Hypotonic solution on injecting leads to
a) Osmosis b) Haemolysis
c) Crenulation d) Hydrotrophy
2. The type of emulsion depends on
a) Method used b) Oil
c) Emulsifying agent d) Trituration
3. An example of general anesthetic.
a) Diethyl ether b) Acetone
c) Morphine d) Procaine
4. Causative agent of the Measles disease
a) Entamoeba histolytica b) Ascaris lumbricoidis
c) Varicella zoster d) Rubeola virus
5. Cardiac muscle is a type of
a) Epithelial tissue b) Muscular tissue
c) Connective tissue d) Nervous tissue

MODEL QUESTIONS FOR B.Sc. (MATHEMATICS)

I. Mathematics (100 Questions of this type)

1. The integrating factor of $xdy - ydx = xy^2dx$ is

a) $\frac{1}{y^2}$ b) $\frac{1}{x^2}$ c) $\frac{x}{y}$ d) $\frac{y}{x^2}$

2. The equation of a line through two distinct points (x_1, y_1, z_1) and (x_2, y_2, z_2) is

a) $\frac{x-x_1}{x_2-x_1} = \frac{y-y_1}{y_2-y_1} = \frac{z-z_1}{z_2-z_1}$ b) $\frac{x_2-x_1}{x-x_1} = \frac{y_2-y_1}{y-y_1} = \frac{z_2-z_1}{z-z_1}$

c) $\frac{x-x_1}{x_2-x_1} = \frac{y-y_1}{y_2-y_1} = \frac{z-z_1}{z_2-z_1}$ d) $\frac{x+x_1}{x_2+x_1} = \frac{y+y_1}{y_2+y_1} = \frac{z+z_1}{z_2+z_1}$

3. Of $G = \{1, -1, c, -c\}$ then the order of a group.

- a) $O(G) = 4$
 b) $O(G) = 2$
 c) $O(G) = 1$
 d) $O(G) = 3$

II. Analytical Ability (50 Questions of this type)

1. In which year was Rahul born?

- I. Rahul at present is 25 years younger to his mother.
 II. Rahul's brother, who was born in 1964, is 35 years younger to his mother.

- (a). I alone is sufficient. (b) II alone is sufficient.
 (c) Both I and II are sufficient. (d) Neither I nor II is sufficient.

2. 8, 27, 64, 100, 125, 216, 343.

- (a) 27 (b) 100 (c) 125 (d) 234

3. If CERTAIN is coded as XVIGZRM, how can MUNDANE be coded.

- (a) MFMXZMV (b) NFMWZMX
 (c) NFMWZMV (d) VMZWVFN

4. Introducing a boy, a girl said "He is the son of the daughter of the father of my uncle"
 How is the boy related to the girl?

- (a) Brother (b) Nephew (c) Uncle (d) Son-in-law.

III. Communicative English (50 Questions of this type)

1. Choose the correct synonym of the word 'resound'

- a) Echo b) reflect
 c) Record d) open

2. Identify the error in the following sentence.

"Thank you so much for lending me your's notes"

- a) So much b) for lending c) your's d) Thank You

Answer the following question after reading the passage

"His originality consists in an early use of the stream-of-consciousness technique- a technique that depicts the flux of emotions and sensations passing through the consciousness of the character, without any":

3. Stream-of-consciousness technique deals with

- a) novelist's originality
- b) consciousness of the character
- c) flux of emotions and sensations
- d) ordering and passing