
Electrical Engineering

1) The principles of homogeneity and superposition are applied to what type of systems?

- A) Non-linear time variant
- B) Non-linear time invariant
- C) Linear time variant
- D) Linear time invariant**

2) If the anode current of a conducting SCR is 50A and the gate current is reduced to one fifth, What will be the new anode current?

- A) 10A
- B) 50A**
- C) 25A
- D) Zero

3) What type of power supply is used normally in residential areas?

- A) Single phase, two wire
- B) Three phase, three wire
- C) Three phase, four wire**
- D) Two phase, four wire

4) Why the heater wire of thermocouple instrument is made very thin?

- A) To have a high value of resistance
- B) To reduce skin effects at high frequencies**
- C) To reduce the weight of the instrument
- D) To decrease the over-ranging capacity of the instrument

Mechanical Engineering

1) An automobile weighing 1000 kg is driven down a 50 incline at a speed of 72 km/h. When the brakes are applied, causing a constant braking force (applied by the road on the tires) of 5000 N. What is the distance travelled by the automobile when it comes to a stop?

- A) 48.25 m
- B) 18.25 m
- C) 28.28 m
- D) 38.25 m

2) Which of the following is the composition of soft solder?

- A) Lead 37% and tin 63%
- B) Lead 50% and tin 50%
- C) Lead 63% and tin 37%
- D) Lead 70% and tin 30%

3) Which of the following is the primary detector in a pressure gauge?

- A) Bellows
- B) Diaphragm
- C) Bourdon tube
- D) Spring

4) Which of the following motion exists when the liquid rotates inside the impeller of a centrifugal pump?

- A) Rectilinear
- B) Free vortex
- C) Forced vortex
- D) Spiral vortex

Civil Engineering

1) Which is the correct assumption for Terzaghi's Analysis of shallow foundations?

- A) The soil is heterogeneous
- B) The soil is homogenous**
- C) The soil is 100% saturated
- D) The base of the footing is smooth

2) What is the main source of Sulphur di oxide in contribution to the atmosphere?

- A) Thermal power plants**
- B) Nuclear power plants
- C) Incineration plants
- D) Gases evolved from automobiles.

3) The amount of night soil, debris, rubbish, garbage collected at a place is 40t, 35t, 20t, 30t respectively. What is the amount of organic solids in the composition?

- A) 75t
- B) 60t**
- C) 125t
- D) 70t

4) If a simply supported concrete beam prestressed with a force 1000KN, is designed by load balancing concept for an effective span of 10m and to carry a total load 16KN/m. What should be the central dip of the cable profile?

- A) 100m
- B) 200m**
- C) 300m
- D) 400m

Controls and Instrumentation Engineering

1) A computer has to be used to control flow through a pumping station. The pump exhibits a surging effect with a period of 3.5 seconds. What is the minimum sampling rate to ensure good controllability?

- A) 0.57 Hz
- B) 3.5 Hz
- C) 0.29 Hz
- D) 35 Hz

2) In a circuit having 90 ohms resistance in series with 90 ohm inductive reactance, driven by a sinusoidal supply, what will be the angle of phase difference between the applied voltage and the current?

- A) 45 degree
- B) 60 degree
- C) 90 degree
- D) 120 degree

3) In AC Bridge, stray capacitance exists among the various Bridge elements, ground and bridge arm. What is the method that is used to eliminate this stray capacitance?

- A) Use Moving Magnet Type Vibration Galvanometer
- B) Use of shielded wire
- C) Use Wagner Ground Connection
- D) Use of Beat tone detector

4) Which of the following instrument is an absolute instrument?

- A) Glass thermometer
- B) Rayleigh's current balance
- C) Galvanometer
- D) Potentiometer

Finance

1) A company has a cost that is Rs. 6.00 per unit at a volume of 9,000 units and Rs. 6.00 per unit at a volume of 12,000 units. The cost comes under which of the following categories?

- A) Fixed
- B) Variable**
- C) Mixed
- D) Incremental

2) Sales total is Rs.200, 000 when variable costs total is Rs.150, 000 and fixed costs total is Rs.30,000. What is the breakeven point in sales (in rupees)?

- A) Rs. 40,000
- B) Rs. 200,000
- C) Rs.120,000**
- D) Rs. 30,000

3) A project has an initial cost of Rs.90,000 and it is expected to generate an ordinary annuity for ten years. For the project to be accepted, what should be the minimum annuity amount (to the nearest rupee) when the required rate of return is 10%?

- A) Rs.14, 647**
- B) Rs.17, 542
- C) Rs.9, 000
- D) Rs.18, 000

4) Which of the following will appear in the profit and loss appropriate in account?

- A) Provision for taxation for the current year
- B) Proposed dividend**
- C) Penalty paid under disputes
- D) Directors' remuneration

APTITUDE

1) 15 men could finish a piece of work in 210 days. But at the end of 100 days, 15 additional men are employed. In how many more days will the work be complete?

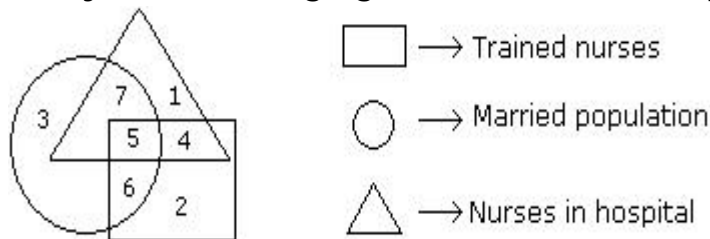
- A) 80 days
C) 55 days
- B) 60 days
D) 50 days

2) There are two pipes in a tank. Pipe A is for filling the tank and pipe B is for emptying the tank. If A can fill the tank in 10 hours and B can empty the tank in 15 hours then find how many hours will it take to completely fill a half empty tank?

- A) 30 hours
C) 20 hours
- B) 15 hours
D) 33.33 hours

Directions for Questions 3-6:

Study the following figure and answer the questions given below.



3) If hospital management requires only married trained nurses for operation theater, which part of diagram should be chosen by him?

- A) 7
B) 4
C) 5
D) 6

4) By which number, married but untrained nurses in the hospital are represented?

- A) 4
B) 6
C) 7
D) 5

5) What is represented by the number 7?

- A) Married nurses in the hospital
B) Trained nurses
C) Unmarried trained nurses
D) Married trained nurses

6) By which number, the trained unmarried nurses in the hospital are represented?

A) 6

B) 5

C) 7

D) 4

General Awareness

7)The Indian Railways is in the process of purchasing Bullet Train Technology from which of the following nations ?

A) France

B)China

C) **Japan**

D)Russia