

# **Engineering Viva Questions**

## **Question 01**

**What is the void ratio?**

⇒ The void ratio is the ratio of the volume of voids to the volume of solids.

## **Question 02**

**Stock rails are fitted**

⇒ Against tongue clearance

## **Question 03**

**The switching angle is the angle subtended between the gauge faces of the**

⇒ Stock rail and check

## **Question 04**

**Explain what is Critical Path Method (C.P.M)?**

⇒ Critical Path Method is a strategy and method of representing the respective tasks and activities involved in the construction through a symbolic diagram.

## **Question 05**

**What is Full of EGL?**

⇒ Existing ground level.

**Question 06**

**A First Class Brick Should Absorb Water More than?**

⇒ 20 %

**Question 07**

**The maximum value of the throw of a switch for a broad gauge track is**

⇒ 95mm

**Question 08**

**In INDIA, the crossing number for passenger turnout is taken as**

⇒ 12

**Question 09**

**A Warner signal, which is first seen by the driver, is known as**

⇒ Outer signal

**Question 10**

**What is the minimum no of bars to be provided in the circular column**

⇒ 6

**Question 11**

**The reception signal is**

⇒ Outer signal, home signal

### **Question 12**

**In a shunting signal, if the red band is horizontal, it indicates**

⇒ Proceed

### **Question 13**

**What are the steps involved in Building Construction?**

⇒ There are different steps involved in Building construction like

- a. Concreting
- b. Masonry work
- c. Plastering work
- d. Flooring work
- e. Formwork
- f. Steel cutting and Bending

### **Question 14**

**How do you measure the volume of concrete?**

⇒ The volume of concrete is calculated by Multiplying its Length, Width, and Thickness together. For Example –  $1\text{m} \times 1\text{m} \times 1\text{m} = 1 \text{ m}^3$  of volume of concrete.

### **Question 15**

**Why Concrete Cover is provided for reinforcement?**

⇒ Concrete cover for reinforcement is required to protect the rebar against corrosion and to provide resistance against fire.

### **Question 16**

**How to check the level on the construction site?**

⇒ I will check the level on the construction site by Spirit level, Dumpy Level, and Leveling Pipe.

### **Question 17**

**What is the accuracy of the dumpy level or minimum reading we can take?**

⇒ With the help of a dumpy level, we can take up 5mm accurate reading or minimum reading.

### **Question 18**

**How do you calculate the weight of 12m long and 10mm dia? Is steel on-site?**

⇒ By multiplying the length of the steel bar by its unit weight

(unit wt of 10mm = 0.60 kg/m)

Weight of steel =  $0.60 \times 12$

Weight of steel = 7.2 kg

### **Question 19**

**What is the equation used for calculating the unit weight of a steel bar?**

⇒  $(D^2/162)$

### **Question 20**

**What is the size of a concrete cube?**

⇒ 15 cm x 15 cm x 15 cm

### **Question 21**

**What do you do if any concrete cube fails in 28 days compressive strength test?**

⇒ If the concrete cube fails in the strength test, I will conduct a core cutter test on the concrete and send a report to higher authorities.

### **Question 22**

**What is the mix ratio for M20 Grade of concrete?**

⇒ 1: 1.5: 3

### **Question 23**

**What is the Unit weight of 12 mm Steel Bars?**

⇒ 0.89 kg/m

### **Question 24**

**Explain what is floating slab foundation is.**

⇒ A floating concrete foundation is a type of mat foundation that consists of a hollow mat formed by a grid of thick reinforced concrete walls between two thick reinforced concrete slabs.

### **Question 25**

**What is the Density of Steel?**

⇒ 7850 kg/m<sup>3</sup>

### **Question 26**

**In Fe415 Steel Grade, 415 indicates Steel.**

⇒ Tensile Strength

### **Question 27**

#### **The height of the low Kerb?**

⇒ A kerb is a structure used to separate pavement and median, pavement and shoulder, pavement, and footpath. In low kerb height is restricted to 100 mm only.

### **Question 28**

#### **What is the Volume of a 50 kg bag of cement?**

⇒ 0.035 m<sup>3</sup>

### **Question 29**

#### **What are the functions of grout inside tendon ducts?**

⇒ Grout in prestressing works serves the following purposes:

1. Protect the tendon against corrosion.
2. Improve the ultimate capacity of the tendon.
3. Provide a bond between the structural member and the tendon.
4. In case of failure, the anchorage is not subject to all strain energy.

### **Question 20**

#### **In Residential Buildings, Average Value of Stair Width?**

⇒ 900 mm

### **Question 31**

**What is the function of shear keys in the design of retaining walls?**

⇒ In determining the external stability of retaining walls, failure modes like bearing failure, sliding and overturning are normally considered in the design.

In considering the criterion of sliding, the sliding resistance of retaining walls is derived from the base friction between the wall base and the foundation soils.

To increase the sliding resistance of retaining walls, other than providing a large self-weight or a large retained soil mass, shear keys are to be installed at the wall base.

### **Question 32**

**The Slope of the Stair Should not Exceed.**

⇒ 25 - 40°

### **Question 33**

**What are the major problems in using pumping for concreting works?**

⇒ In pumping operation, the force exerted by pumps must overcome the friction between concrete and the pumping pipes, the weight of the concrete, and the pressure head when placing concrete above the pumps.

In fact, as only water is pumpable, it is the water in the concrete that transfers the pressure.

The main problems associated with pumping are the effect of segregation and bleeding. To rectify these adverse effects, the proportion of cement is increased to enhance cohesion in order to reduce segregation and bleeding.

On the other hand, a proper selection of aggregate grading helps to improve the pumping ability of concrete.

### **Question 34**

**Minimum diameter of steel in Column.**

⇒ 12 m

### **Question 35**

**Standard Size of Brick?**

⇒ 19 cm x 9 cm x 9 cm

### **Question 36**

**What is the Unit Weight of RCC?**

⇒ 2500 kg/ m<sup>3</sup>

### **Question 37**

**What are the disadvantages of curing by ponding and polythene sheets?**

⇒ The purpose of curing is to reduce the rate of heat loss of freshly placed concrete in the the atmosphere and to minimize the temperature gradient across the concrete cross-section.

Moreover, curing serves to reduce of the loss water from freshly placed concrete to the atmosphere.

#### **a. Ponding:**

This method of thermal curing is readily affected by weather conditions (cold wind).

Moreover, a large amount of water used has to be disposed of at the construction sites after curing.

#### **b. Polythene sheet:**

This method of curing is based on the principle that there is no flow of air over the concrete surface and thereby no evaporation can take place on top of the freshly concreted surface by the provision of polythene sheets.

However, it suffers from the demerit that polythene sheets can be easily blown off in windy conditions and the performance of curing would be affected. Moreover, for water lost due to self-desiccation, this method cannot replenish these losses.



### **Question 38**

**Explain what are the problems one might face while having a Cantilever balcony.**

⇒ Cantilever balconies are usually unsupported and extend outwards, so the problem with Cantilever balconies is:

- a. Excess deflection or bounce
- b. Weakness of the deck structure
- c. Rot and water damage to the interior of the house
- d. Unevenness inside the house
- e. Can't use the balcony for gardening or other purposes as it is not designed to lift excess amount of weight.

### **Question 39**

**One Acre = Sq. ft.**

⇒ 43560 sq. ft.

### **Question 40**

**What is the Full Form of UTM?**

⇒ Universal Testing Machine

### **Question 41**

**What do you understand by segregation?**

⇒ Segregation is defined as a process of filtering cement & sand separately from the concrete mixture. In other words, segregation is caused due to vibration between materials forming concrete.

One material being high in weight & one being less tend to be uneven while in a liquid state. The heavier material gets settled at the bottom of the concrete & lighter material moves on top.

**Question 42**

**Cement Expire After?**

⇒ 3 month

**Question 43**

**What is the IS code for Plain and Reinforced Concrete**

⇒ IS:456

**Question 44**

**One square meter = Sq. ft?**

⇒ 10.76 sq. ft

**Question 45**

**What are the standard American codes for steel and concrete**

⇒ ACI and AISC

**Question 46**

**What is the code of practice for General Construction in steel**

⇒ IS:800

**Question 47**

**What is the unit weight of 25 mm Steel Bars**

⇒ 3.85 kg/m

**Question 48**

**One Hectare = \_\_\_\_\_Acres**

⇒ 2.47 Acres

**Question 50**

**Which type of cement is used in the construction of massive Dam structures**

⇒ Low-heat cement

**Question 51**

**One kilonewton is equal to kilograms**

⇒ 101.97 Kg

**Question 52**

**For Steel structures what is permissible vertical deflection**

⇒ Span / 325

**Question 53**

**One Tonne is equal to kilograms**

⇒ 1000 KG

**Question 54**

**Maximum Free fall of concrete allowed is?**

⇒ 1.5 m

**Question 55**

The instrument used for level work on a construction site?

⇒ Dumpy Level

**Question 56**

What is the minimum reinforcement in beams

⇒  $A_{st}/b*d = 0.85/ f_y$

**Question 57**

What is the maximum reinforcement in beams

⇒  $0.04*b*d$

**Question 58**

What is the minimum reinforcement in slabs

⇒ 0.12 % of the gross area

**Question 59**

What is the minimum reinforcement in columns

⇒ 0.8% of the Area

**Question 60**

What is the maximum reinforcement in columns

⇒ 4%

**Question 61**

**Minimum Bars in Circular Column Should be \_\_\_\_\_?**

⇒ 6 Nos.

**Question 62**

**What is the Full Form of AAC?**

⇒ Autoclaved Aerated Concrete

**Question 63**

**One Gallon = .....Liters?**

⇒ 3.78Liters