

**Q.38** Draw front elevation, sectional plan of a plate girder from the following design data:-

- a) Clear span of plate girder =8m
- b) Web plate= 100mm x 8mm
- c) Flange angles=215A 150 x 115X 8mm
- d) Bearing plate= 300x 400 x 12mm
- e) Thickness of filler plate =8mm
- f) End bearing stiffeners = ISA 150 x 115 x 8mm
- g) Intermediate stiffeners = ISA 100 x 75 x 8mm @ 1000 mn c/c
- h) Flange plate (cover plates)= 400 x 10mm one at top and one at bottom

**Q.39** Draw the plan, front elevation and side elevation of a slab base column for the following data:

- a) ISMB 350 @ 514 N/m
- b) Base plant = 500 x 500 x 16mm
- c) Web cleat = 150 x 115 x 15mm
- d) Flange cleat = 150 x 115 x 15mm
- e) Holding down bolts = 25mm dia, 4Nos 350 long
- f) Base slab = 700mm x 700mm x 500mm

Assume any other missing data.

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**6th Sem./Civil Engg.**

**Subject :Steel Structures Design and Drawing**

Time : 6Hrs.

M.M. : 150

**SECTION-A**

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

- Q.1 ISRO 50 means\_\_\_\_\_.
- Q.2 The size of the rivet is expressed in terms of \_\_\_\_\_.
- Q.3 The most commonly used rivet head is\_\_\_\_\_.
- Q.4 The rivet is also termed as\_\_\_\_\_.
- Q.5 Unit of slenderness ratio is\_\_\_\_\_.
- Q.6 The rivet line is also termed as\_\_\_\_\_.
- Q.7 As per unwin formula, nominal diameter is equal to\_\_\_\_\_.
- Q.8 The metal added at the joint while welding is known as\_\_\_\_\_.
- Q.9 The minimum size of filled weld is\_\_\_\_\_.
- Q.10 The permissible shear stress in weld is\_\_\_\_\_.

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## SECTION-B

**Note:** Very Short answer type questions. Attempt any ten questions out of twelve questions. (10x2=20)

- Q.11 Define structural steel.
- Q.12 Define ductility.
- Q.13 Define staggered pitch.
- Q.14 Write the formula for the size of Butt Weld.
- Q.15 Enlist any two factors on which strength of tension member depends.
- Q.16 Define slenderness ratio.
- Q.17 What is linking of column?
- Q.18 Define Rise.
- Q.19 Define shear force.
- Q.20 What is the economical spacing of roof truss?
- Q.21 Define compression member.
- Q.22 Define Tension Member.

## SECTION-C

**Note:** Short answer type questions. Attempt any eight questions out of ten questions. (8x5=40)

- Q.23 Brief about mechanical properties of steel.
- Q.24 What are in-determinates structure?
- Q.25 What is rivet? Also define rivet value.
- Q.26 What are the different ways of arrangement of rivets?

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- Q.27 What are tacking rivets?
- Q.28 State the conditions for side fillet weld.
- Q.29 Give differences between short and long columns.
- Q.30 Enlist various component of plate girder.
- Q.31 Draw a rough sketch of a heel joint of roof truss.
- Q.32 Draw various types of roof truss used for different spans in roof trussing.

## SECTION-D

**Note:** Long answer type questions. Attempt any three questions out of four questions. (3x10=30)

- Q.33 Calculate the strength of an ISA 100 x 75 x 8mm used as a tie member with longer leg connected at ends by 16mm diameter rivets. Provide tensile stress as  $150\text{N/mm}^2$ .
- Q.34 Calculate the effective throat thickness of the following fillet welds:
  - (i) 8mm fillet weld.
  - (ii) A fillet weld of one leg 6mm and other 8mm.
- Q.35 Calculate the value of a 30mm diameter rivet in a lap joint connecting plates of thickness 20mm and 25mm. Take the value of permissible shear stress =  $100\text{N/mm}^2$  and permissible bearing stress =  $300\text{N/mm}^2$ .
- Q.36 Explain the different elements of steel truss.

## SECTION-E

**Long answer type questions. Attempt any two questions out of the questions. (2x25=50)**

- Q.37 With the help of neat sketches, explain connections between purlin and roof covering in a roof truss.

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- Q.31 How solar seasoning plant works?
- Q.32 Explain the methods of increasing the strength of locally available materials being used in rural houses.

### SECTION-D

**Note:** Long answer type questions. Attempt any three questions out of four questions. (3x10=30)

- Q.33 What are prefabricated septic tanks? Explain its method of construction.
- Q.34 Explain Briefly the construction procedure of following:
- i) Low cost houses
  - ii) Fair weather Roads.
- Q.35 Write a short notes on the following:
- i) Soil Stabilization
  - ii) Chlorination of Open well.
- Q.36 What are commonly available tiles? Explain floor tiles in detail.

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**6th Sem. / Civil Engg.**  
**Subject : Rural Technology**

Time : 3 Hrs.

M.M. : 100

### SECTION-A

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

- Q.1 Soak pits are used for \_\_\_\_\_.
- Q.2 G.I sheets are less stronger than \_\_\_\_\_.
- Q.3 In terms of cost mud walls are \_\_\_\_\_ than bricks wall.
- Q.4 \_\_\_\_\_ are constructed above road side.
- Q.5 Road constructed in village is called \_\_\_\_\_.
- Q.6 Full form of D.P.C.
- Q.7 Chlorination of open well is done with \_\_\_\_\_
- Q.8 \_\_\_\_\_ increases the strength of Timber.

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Q.9 \_\_\_\_\_ are used on sloping roof as covering.

Q.10 Smokeless chullah is made up of \_\_\_\_\_.

### SECTION-B

**Note:**Very short answer type questions. Attempt any ten questions out of twelve questions.  
(10x2=20)

Q.11 Define Block mud walls.

Q.12 Define termite.

Q.13 Explain Mud of Plaster

Q.14 Define bush reinforced mud walls.

Q.15 Define Ventilation.

Q.16 Define Cluster of Houses.

Q.17 Define precast lintels.

Q.18 Define Fibre corrugated sheets.

Q.19 Define Ferro cement grain bins.

Q.20 Define Disinfection.

Q.21 Define Corrugated sheets.

Q.22 Describe Drains.

### SECTION-C

**Note:**Short answer type questions. Attempt any eight questions out of ten questions. (8x5=40)

Q.23 Explain the procedure for protection of locally available material against Decay.

Q.24 What do you mean by Rural Sanitation?

Q.25 Explain the low cost treatment of Thatched roof.

Q.26 Write briefly about the construction of smokeless chullah.

Q.27 Write a short note on "Solar cooker"

Q.28 Discuss the need and importance of low cost housing.

Q.29 Explain the construction of rapid burning low cost brick kilns.

Q.30 Sketch a soak pit and Explain it in brief.

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**6th / Civil, Const. Mgmt.**

**Subject : Railways Bridges & Tunnels**

Time : 3 Hrs.

M.M. : 100

**SECTION-A**

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

- Q.1 The spread of stones on the formation of railway track is known as .....
- Q.2 Fish Plate.
- Q.3 Railway survey.
- Q.4 Bridge Foundation
- Q.5 The end supports of bridge foundation is known as .....
- Q.6 Culvert
- Q.7 The removal of material excavated or blasted from the tunnel face is .....

Q.8 Tilting of rails.

Q.9 Adzing of Sleepers

Q.10 Define Tunnel

**SECTION-B**

**Note:**Very short answer type questions. Attempt any ten questions out of twelve questions. 10x2=20

Q.11 Rails

Q.12 Mucking

Q.13 Creep

Q.14 Semi-through Bridge

Q.15 Maintenance of track

Q.16 Contraction Bearing

Q.17 Temporary Bridge

Q.18 Scour

Q.19 Side drain

Q.20 Lead rail

Q.21 Tube railways

Q.22 Points and Crossings

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## SECTION-C

**Note:** Short answer type questions. Attempt any eight questions out of ten questions. 8x5=40

- Q.23 What is Gauge? Explain its types.
- Q.24 What is Permanent Way? Explain its components with sketch.
- Q.25 What are the requirements of an Ideal material for ballast?
- Q.26 What is rail joint? Explain its types with sketches.
- Q.27 What is the purpose of bridge bearing?
- Q.28 What is Ventilation of tunnels. Explain types of ventilation briefly.
- Q.29 What do you mean by sleeper density? What are the various factors which affect the sleeper density?
- Q.30 Draw X-Section of tunnel for National Highway.
- Q.31 Explain types of Crossing in brief.
- Q.32 What is Bridge? Write components of bridge with sketch.

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## SECTION-D

**Note:** Long answer type questions. Attempt any three questions out of four questions. 3x10=30

- Q.33 What is sleeper? Explain its types with sketch.
- Q.34 What is Pile foundation? Explain in detail.
- Q.35 Explain systems of railways. Write advantages of railways in comparison to highways.
- Q.36 Explain types of surveys for railway track.

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## SECTION-C

**Note:** Long answer type questions. Attempt any three questions. 3x10=30

- Q.3 What are the functions of construction management.
- Q.4 What do you understand by economic life of a construction equipment.
- Q.5 Briefly Explain :-
- (i) Temporary advances
  - (ii) Muster Roll.
  - (iii) Bill
  - (iv) Site order book
- Q.6 Prepare job layout for a project.
- Q.7 Explain principles of inspection.

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**6th Sem. / Civil Engg.**

**Subject : Construction- Management & Accounts**

Time : 3 Hrs.

M.M. : 100

## SECTION-A

**Note:** Very Short Answer type questions. Attempt any 15 parts. (15x2=30)

- Q.1 a) Enumerate different resources for construction Industry.
- b) Define Construction Management.
  - c) What is essence of any project.
  - d) Contract stage of a project.
  - e) Full form of PERT and CPM.
  - f) Organizing labour at site.
  - g) Name different (atleast 3) acts pertaining to the welfare of construction labour .
  - h) What do you mean by progress?

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- i) What is quality control of a project?
- j) What is safety campaign in construction.
- k) Name 5 construction equipments.
- l) Expenditure and revenue heads.
- m) What is life cycle of a project?
- n) What does inspection include?
- o) What are systems of payment of wages to workers?
- p) Output of an -equipment.
- q) Functions of a construction equipment.
- r) Define Contractor.

- iii) Give merits of live & staff organisation.
- iv) What are salient features of minimum wages act 1948.
- v) What corrective actions can be taken of a project is found to be delayed?
- vi) What is the importance of time of Completion of any project?
- vii) What will you inspect in an ongoing project?
- viii) What safety measures will you adopt while demolishing a building?
- ix) Why earth pills have to be compacted.
- x) What are the functions of a power shovel?
- xi) Enlist atleast 5 construction equipments.
- xii) What are the responsibility?
- xiii) Explain types of construction labour.
- xiv) What are the functions of trade union?
- xv) What are the common causes of accidents of a Junior engineer at site.

### SECTION-B

**Note:** Short answer type questions. Attempt any ten parts 10x4=40

- Q.2
- i) How do you classify construction projects.
  - ii) How do you prepare finance schedule.