

- Q.30 A rice crop requires about 14.5 cm depth of water after an interval of 9 days and the base period for rice is 120days. Find out delta for rice.
- Q.31 Enumerate benefits of irrigation?
- Q.32 Explain Gross command area.
- Q.33 What are factors affecting run off?
- Q.34 What are various components of a drip irrigation?
- Q.35 Write a short note on guide bank.

SECTION-D

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

- Q.36 What is surface Irrigation? Explain its different methods.
- Q.37 Explain various types of Rain Gauges with neat sketches.
- Q.38 Explain tube wells with diagrams.

SECTION-E

Note: Long answer type questions. Attempt any two questions out of three questions. (2x25=50)

- Q.39 Draw cross section of a lined channel fully in filling. Assume data.
- Q.40 Draw detailed plan of the layout of a canal Headwork's showing its different components.
- Q.41 Draw plan and cross section at D/S Curved Head of a guide bak showing its different component.

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No. of Printed Pages : 4
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3 rd Sem. / Civil, Brick Tech, Constr. Mgmt Subject : Irrigation Engg & Drawing

Time : 4 Hrs.

M.M. : 150

SECTION-A

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

- Q.1 Wheat is the ____ crop.
- a) Kharif b) Food
c) Rabi d) Non food.
- Q.2 Delta is equal to
- a) 8.64B/D b) 8.64D/B
c) 8.75B/D d) 6.84B/D
- Q.3 The drip Irrigation is also known as
- a) Flow Irrigation b) Trickle Irrigation
c) Overhead Irrigation
d) Sprinkler Irrigation
- Q.4 Which of the following is a method of Construction or boring tube wells.
- a) Rotary boring b) Wash boring
c) Reverse rotary boring. d) All of above.

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- Q.5 Gravity dam is a
 a) Rigit Dam. b) Non Rigid Dam.
 c) Storage dam. d) None of these
- Q.6 In case of super passage, Canal flow
 a) Under the drainage.
 b) Over the drainage.
 c) At same level.
 d) None of above.
- Q.7 The Water logging takes place due to
 a) Rise in ground water
 b) Lowering in ground water table
 c) Deep in percolation.
 d) None of above
- Q.8 The first watering after plants have grown few centimetres is known as
 a) Kor-watering b) Paleo
 c) First Irrigation d) None of above
- Q.9 GCA stands for
 a) Gross culturable area.
 b) Gross command area.
 c) Gross culturable area
 d) None of above
- Q.10 Confined aquifer is the aquifer which lies between two
 a) Impervious strata
 b) Pervious Strata
 c) Aquiclude
 d) None of above

(2)

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SECTION-B

Note: Objective type questions. All questions are compulsory. (10x2=20)

- Q.11 Define irrigation
 Q.12 Define crop rotation.
 Q.13 Give two examples of Kharif crop
 Q.14 Define rain gauge.
 Q.15 what is aquifer?
 Q.16 Define Earth dam.
 Q.17 What do you mean by Canal Headworks?
 Q.18 What is canal fall?
 Q.19 Why river training works are provided?
 Q.20 what is water logging?

SECTION-C

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

- Q.21 What are various causes of water logging?
 Q.22 What are functions of River training works?
 Q.23 What are requirements of a good canal outlet?
 Q.24 What is cross drainage work? Describe anyone with a neat sketch.
 Q.25 Different between weir and barrage?
 Q.26 What are advantages of Gravity dams?
 Q.27 Explain yield of a tube well.
 Q.28 Explain advantages and disadvantages of brick lining of canal.
 Q.29 What are advantages of unit hydrograph theory?

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- Q.24 Define stabilized soil? Describe the application of stabilized cow dung slurry. (CO-3)
- Q.25 Explain how the fire retardant is given on the thatched roof? (CO-4)
- Q.26 Enlist any five importance of low cost housings. (CO-5)
- Q.27 What are the sources of water for rural water supply scheme? (CO-6)
- Q.28 Give the method of chlorination of open well. (CO-6)
- Q.29 Explain the principle of operation and construction of hand pump? (CO-6)
- Q.30 What do you understand by rural sanitation? (CO-7)
- Q.31 Describe the constructional of a low cost toilet. (CO-7)
- Q.32 Define individual and community bio gas plant. (CO-7)
- Q.33 Give the classification on rural roads. (CO-8)
- Q.34 Enlist the salient feature of design and construction of rural roads. (CO-8)
- Q.35 Explain the constructional details of a pre-fabricated septic tank (CO-9)

SECTION-D

- Note:** Long answer type questions. Attempt any two questions out of three questions. 2x10=20
- Q.36 Explain the preparation of NEM (Non-Erodible mud plaster. How it is applied on the mud wall) ? (CO-3)
- Q.37 Describe the method of preparing manually pressed thatched panel. How the water treatment is given to the thatched roof? (CO-4)
- Q.38 Given the specifications of following components adopted for low cost housing (CO-5)
- | | |
|----------------|--------------------|
| (a) Foundation | (b) superstructure |
| (c) roofing | (d) flooring. |
| (e) joinery. | |

No. of Printed Pages : 4
Roll No.

030766 C

6th SEM / Civil Engineering Subject : Rural Technology

Time : 3 Hrs.

M.M. : 100

SECTION-A

- Note:** Multiple choice questions. All questions are compulsory (10x1=10)
- Q.1 Concept of rural technology includes (CO-1)
- capital investment & modern technology
 - labour intensive local resources based technology
 - cost effective & intensive local resources based technology
 - High sophisticated technology based on modern equipment
- Q.2 The use of locally available material carries importance due to (CO-2)
- The rural poor cannot afford modern material and scientific technique
 - Adverse environmental impact and scare building material.
 - Higher cost and imported technology
 - Its beyond the reach of poor people
- Q.3 Mud houses are constructed by using (CO-3)
- Concrete blocks for wall construction
 - Mud wall and application of non-erodible mud plaster.
 - Stabilized soil for wall construction
 - Rcc prefabricated panels.
- Q.4 Thatched roofs are constructed by using (CO-4)
- Bamboo sticks and polythene sheets.
 - Coconut leaves and rice/ wheat straw.

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- c) Local palmyra leaves and reeds.
d) All of the above
- Q.5 The life of the thatched roofs is increased by (CO-4)
a) Use of fire retardant and water proofing treatment
b) using improved thatched panels
c) introducing reinforced steel bars- applying.
d) NEM on the exposed surface.
- Q.6 A low cost house in one which is (CO-5)
a) Functionally and environmentally habitat
b) Constructed by locally available material & substitute technology option
c) Constructed by using RCC frame structure
d) Constructed by imported building material and construction techniques
- Q.7 Sub-surface source of water are (CO-6)
a) Springs, infiltration galleries and wells.
b) Storage or impounded reservoirs.
c) Streams of lakes. d) Tube wells
- Q.8 Rural sanitation involves (CO-7)
a) Disposal of waster and human excreta.
b) Surface waste water disposal
c) Treatment of sewage disposal.
d) Recycling of waste water.
- Q.9 Stabilization of soil is done to (CO-8)
a) Protect the sub -base from undulation
b) Increase the strength and durability of rural roads.
c) Economic in the construction of the rural road.
d) Provide strength to the wearing coat.
- Q.10 Ferro cement products offer the following advantages
a) Tin component with reduced weight. (CO-8)
b) Strong durable and dependent construction.
c) Suitable for light and temporary construction.
d) Increased strength due to heavy reinforcement.

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SECTION-B**Note:** Objective type questions. All questions are compulsory.

10x1 = 10

- Q.11 Low cost construction rural areas can be achieved by _____? (CO-1)
- Q.12 National rural development institute is situated at _____? (CO-1)
- Q.13 The use of locally available material carries importance due to the rural can not afford _____ and _____? (CO-2)
- Q.14 Non-erodible mud plaster is prepared by using of _____ & _____? (CO-3)
- Q.15 The life of the thatched roofs is increased by using _____? (CO-4)
- Q.16 The low cost housing attract the attention of engineer and planner due to adopt _____ technique. (CO-5)
- Q.17 Chlorination is necessary for disinfection of _____ water? (CO-6)
- Q.18 Septic tank attached with soakage pit it constructed for disposal of _____? (CO-7)
- Q.19 Maintenance of rural road are necessary for avoiding deterioration of _____? (CO-8)
- Q.20 The main reasons for the failure of hand pumps are falling the _____? (CO-9)

SECTION-C**Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions.

12x5 = 60

- Q.21 Define appropriate technology. How the appropriate technology is applied in civil engineering projects? (CO-1)
- Q.22 What is the importance of locally available material in context of rural housing construction projects. (CO-2)
- Q.23 Describe the suitability of adopting the construction of mud houses. (CO-3)

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No. of Printed Pages : 4

Roll No.

170754/120754/30743

5th SEM /Civil Engineering
Subject : Soil Mechanics and Foundation
Engineering /Soil & Foundation Engg.

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

- Q.1 Which of the following is cohesive soil? (CO-1)
a) kankar b) black cotton soil
c) loose coarse sand d) sand with clay
- Q.2 The representation of the constituents of soil i.e., solid, water and air by the three spaces of a diagram is called. (CO-1)
a) bi-phase diagram b) one phase diagram
c) three phase diagram d) two phase diagram
- Q.3 soils are basically (CO-1)
a) Organic Materials b) Inorganic Materials
c) Minerals Materials
d) Organic and Inorganic Materials
- Q.4 water content is given by: (CO-2)
(M_w = mass of water, M_s = mass of solids, V_s = volume of solids, V_w = volume of water)
a) M_s/M_w b) M_w/M_s
c) V_w/V_s d) V_s/V_w

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- Q.5 The minimum water content at which soil just begins to crumble when rolled into 3mm dia thread is (CO-3)
a) permeability limit b) shrinkage limit
c) plastic limit d) consistency limit
- Q.6 The value of k in constant head permeability test is
a) QA/Lht b) Qh/Alt (CO-4)
c) QL/Aht d) Qt/AhL
- Q.7 The hydraulic gradient (i) is given by (CO-4)
a) $h \times L$ b) L/h
c) h/L d) None of these
- Q.8 The process of gradual reduction in the volume of soil mass under static loading is (CO-8)
a) Compaction b) Consolidation
c) Compression d) None of these
- Q.9 Neutral stress refers to (CO-5)
a) submerged weight of soil
b) pore water pressure
c) saturated weight of soil
d) minor principle stress
- Q.10 The continuous soil deformation in highly plastic soils due to constant shearing stress is (CO-6)
a) Creep b) swelling
c) Heaving d) plastic flow

SECTION-B

- Note:** Objective type questions. All questions are compulsory. (10x1 = 10)
- Q.11 Silt is _____ grained soil (CO-1)
- Q.12 when the flowing water carries soils to lakes in laminated varved layers, deposits are known as _____ (CO-1)
- Q.13 peat is an example of _____ soil (CO-1)

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- Q.14 Porosity is also known as _____ (CO-2)
 Q.15 Particle size analysis is also known as _____ (CO-3)
 Q.16 Darcy's law is valid for _____ Type of flow. (CO-4)
 Q.17 when the sand particles start boiling by the upward flow of water the condition is termed as _____ (CO-5)
 Q.18 Define Effective stress (CO-5)
 Q.19 Clay is highly compressible soil True/False (CO-6)
 Q.20 Define O.M.C. (CO-8)

SECTION-C

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

- Q.21 a) If void ratio is 0.67, water content is 0.188, specific gravity is 2.68, calculate the degree of saturation of soil, (CO-2)
 b) what are the important constituents of soil? draw and define phase diagram.
 Q.22 a) Define soil classification. what is its importance?
 b) Define Relative Density, Index properties? (CO-3)
 Q.23 A Constant head permeability test was carried out on a cylindrical sample of sand 10cm diameter and 15cm height. 160cm³ of water was collected in 1.75 minutes under a head of 30cm. Compute the coefficient of permeability and the velocity of flow. (CO-4)
 Q.24 State Principal of effective stresses. (CO-5)
 Q.25 Define Settlement and its types. Also explain different causes of settlement (CO-6)
 Q.26 Define Colomb's Law showing diagrammatic representation for (CO-7)
 a) c-soil b) ϕ -soil
 b) c- ϕ soil

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- Q.27 a) Define shear strength. Give its importance (CO-7, CO-11)
 b) Define Foundation. Explain Spread footing
 Q.28 Define Compaction and concept of Compaction. Give its necessity (CO-8)
 Q.29 Explain thin wall sampler and piston with sketches (CO-9)
 Q.30 Explain handling of soil samples & presentation of soil investigation results (CO-10)
 Q.31 Define Isobar & Pressure bulb and its significance (CO-10)
 Q.32 Explain Methods of improving bearing capacity of soil. (CO-10)
 Q.33 Explain concept of Vertical Stress Distribution in soils due to foundation Loads. (CO-10)
 Q.34 What is shallow foundation and explain its types with diagram. (CO-11)
 Q.35 what is Pile Foundation, write necessity of pile foundation. (CO-11)

SECTION-D

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

- Q.36 Explain Direct shear test for determining the shear strength of cohesive soils in the laboratory (CO-7)
 Q.37 a) Explain types of soil samples and its types (CO-9)
 b) Define Area ratio and Recover ratio
 Q.38 Explain Well foundation, draw section of well foundation showing its components and also explain components (CO-11)

Notes: Course Outcome (CO) mentioned in the question paper is for official purpose only.

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No. of Printed Pages : 4

Roll No.

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5th Sem./ Civil Engg.

Subject : Quantity Surveying

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

- Q.1 The unit of measurement for A.C sheet roofing is in.....
a) Cubic meter b) Sqm
c) Meter d) Quintal
- Q.2 The useful part of livable area of a building is also known as _____
a) Carpet area b) Plot area
c) Plinth area d) Circulation area
- Q.3 One cubic meter of steel has a weight of about.....
a) 3625 kg. b) 7850 kg
c) 1000kg d) 12560 kg.
- Q.4 The unit of measurement of brick masonry partition wall is
a) Cum b) Square meter
c) Running meter d) Numbers
- Q.5 The least accurate estimate is _____
a) Supplementary estimate
b) Plinth area estimate
c) Detailed estimate
d) Revised estimate

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- Q.6 The center line method is adopted mainly for estimating
a) circular building b) Hexagonal building
c) Octagonal building d) All of the above
- Q.7 Carpet area does not include the area of.....
a) Walls b) Bathrooms
c) Kitchen d) None of the above
- Q.8 The unit of measurement of reinforced Cement concrete in foundation is _____
a) Sqm b) cum
c) Quintal d) meter
- Q.9 How many modular bricks are required for 1 cum brick masonry?
a) 470 b) 500
c) 600 d) 550
- Q.10 Providing & fixing of Wash basin basin are measured in _____
a) Sqm b) Nos
c) Kg. d) Cum

SECTION-B

- Note:** Objective type questions. All questions are compulsory. (10x1=10)
- Q.11 Quantity surveying is defined as _____
- Q.12 Estimate is defined as _____
- Q.13 What is the meaning of Lined channel?
- Q.14 Define Lead.
- Q.15 Define overheads.
- Q.16 DPC is provided at the plinth level to _____
- Q.17 Define Culvert.
- Q.18 Define Mumty.

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Q.19 What is the meaning of schedule of rates?

Q.20 Define contingencies.

SECTION-C

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

Q.21 What is the differences between plinth area and cubic content estimate?

Q.22 Write duties of a quantity Surveyor.

Q.23 Draw details of measurement form.

Q.24 Calculate the dry material required for 100 Sqm cement sand plaster 12mm thick and ratio of cement : sand is 1:5.

Q.25 Write the difference between single and two cover bids.

Q.26 What is the difference between contract and agreement?

Q.27 Calculate the quantity of cement required for a RCC slab of size 5 m x 4m x 0.15m the ratio of ingredients is 1:2:4

Q.28 What do you understand by Notice Inviting Tender?

Q.29 Calculate the quantity of dry materials for preparing 5 cum of cement concrete in the ratio of 1:1.5:3.

Q.30 Write the steps involved in the analysis of rates.

Q.31 What is the difference between General specifications and detailed specification.

Q.32 Write difference between Earnest money and Security Deposit.

Q.33 Write purpose of valuation.

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Q.34 Explain percentage rate contract.

Q.35 What do you understand by maintenance period?

SECTION-D

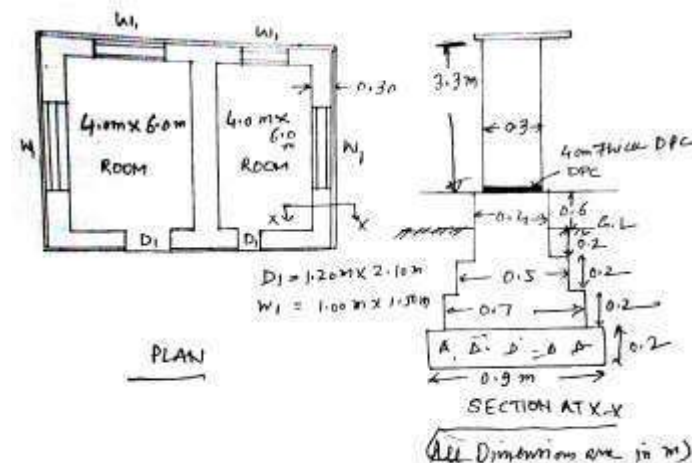
Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

Q.36 Explain the various steps involved in preparing tender documents for RCC work in a building.

Q.37 Perform analysis of rates for 5 Cum of Brick masonry in cement mortar 1:5 in foundation and plinth. Labour required for 3 Cum brick masonry is Mason =2, Mazdoor=4 and Bhishti =1, The rate of labour per day and rate of material may be suitably assumed.

Q.38 Calculate the quantities of the following items of work from the given drawing .

- Earthwork in excavation
- Brick masonry in foundation and plinth



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Roll No. 170761/120761/030753/743

6th SEM /Civil Engineering
Subject : Railways, Bridges and Tunnels

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

- Q.1 The formation width for a railway track depends on the i) type of gauge ii) number of tracks to be laid side by side (CO-3)
- a) Only (i) b) Only (ii)
c) Both (I) and (ii) d) None of these
- Q.2 The rail is designated by (CO-5)
- a) Weight b) Length
c) Weight per unit length
d) Cross-section
- Q.3 _____ are provided in the bridges to allow free movement of the girder without any difficulty. (CO-17)
- a) End supports b) Piers
c) Foundations d) Bearings
- Q.4 The intermediate supports of a bridge super structure in minimum is called (CO-16)
- a) Piers b) Abutments
c) Foundation d) None of these

- Q.5 The span for which, total cost of the bridge structure in minimum is called (CO-13)
- a) Clear span b) Clearance
c) Economic span d) All of these
- Q.6 Drift method of tunnelling is used to construct tunnels in (CO-19)
- a) Broken ground b) Rocks
c) Self supporting grounds
d) Soft grounds
- Q.7 Circular section of tunnel is not suitable for (CO-20)
- a) Carrying water b) Non-cohesive soils
c) Tunnels driven by shield method
d) Placements of concrete lining
- Q.8 The type of permanent drainage in a tunnel system, depends on (CO-22)
- a) Nature of tunnel b) Type of soil
c) Type of lining d) All of these
- Q.9 Which of the following tunneling method is used for laying under-ground sewer? (CO-22)
- a) Army method b) Needle beam method
c) Italian method d) German method
- Q.10 A minimum illumination of _____ should be provided at the tunnel and shaft heading during drilling, mucking and sealing. (CO-23)
- a) 50 lux b) 75 lux
c) 100 lux d) 125 lux

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SECTION-B

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

- Q.11 Define railway engineering. (CO-1)
Q.12 Define rails. (CO-5)
Q.13 Define heel of crossing (CO-9)
Q.14 Define grip length. (CO-15)
Q.15 Define routine maintenance of bridges. (CO-18)
Q.16 Define tunnel engineering. (CO-19)
Q.17 Define muckin. (CO-20)
Q.18 Define shaft. (CO-20)
Q.19 Define drainage in tunnels. (CO-22)
Q.20 Define lighting in tunnels. (CO-23)

SECTION-C

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

- Q.21 What are the factors which affect the rail route? (CO-2)
Q.22 Name the differently types of rail gauges used in our country, Explain any one of them. (CO-4)
Q.23 Write down the function of rail fastenings. (CO-6)
Q.24 What are the functions (any five) of ballast? (CO-8)
Q.25 What are the requirements of good crossings? (CO-10)
Q.26 Write the various advantages of maintenance of railway track. (CO-11)
Q.27 Write a short note on "Width of Formation" for a railway track. (CO-13)

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- Q.28 What is the difference between bridge and culvert? (CO-14)
Q.29 What is the advantages of ROB. (CO-14)
Q.30 Enlist the various criterions used for the classification of bridges. (CO-15)
Q.31 Explain the factors affecting the selection of bridge foundation. (CO-16)
Q.32 Write down the functions of abutments's provided in a bridge. (CO-17)
Q.33 Explain the working of elastomeric bearing provided in bridges. (CO-21)
Q.34 Write a short note on "Inspection of Bridges" required for their maintenance. (CO-18)
Q.35 Write a short note on ventilation by blowing. (CO-21)

SECTION-D

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

- Q.36 Explain with the help of a diagram the working of RCC sleepers and also write their advantages and disadvantages. (CO-7)
Q.37 What are the factors which affect the site selection of a bridge? Explain any two of them in detail.
Q.38 a) Write down the purpose of providing the yards in railway stations
b) Write down the functions of pier's provided in a bridge. (CO-16)

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- Q.29 How will you calculate the net sectional area of tension member using two angles placed back to back on the same side of a gusset plate? (CO5)
- Q.30 What is tacking rivets? Why tacking rivets are provided? (CO5)
- Q.31 Define the following terms: (CO6)
a) Strut b) Column
c) Radius of gyration
- Q.32 Explain the functions of column bases in steel structure. (CO8)
- Q.33 What is plate girder? When they are used? (CO9)
- Q.34 Write the steps involved in calculating the load carrying capacity of a beam. (CO9)
- Q.35 Which are the different types of stiffeners used in plate girder? (CO9)

SECTION-D

- Note:** Long answer type questions. Attempt any two questions out of three questions. 2x10=20
- Q.36 Calculate the value of a 20mm diameter PDFR rivet used in double cover butt joint. The thickness of main plate is 16 mm and that of cover plates is 10 mm. (CO2)
- Q.37 Calculate the tensile strength of an ISA 100 x 65 x 8mm when its longer leg is connected to a gusset plate by 20 mm dia rivet. Take permissible tensile stress as 150N/mm². (CO5)
- Q.38 Calculate the moment of resistance of a rolled steel beam ISHB400 @ 806.4N/m. Take permissible bending stress as 165N/mm². (CO9)

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Roll No.

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6th Sem. / Civil Engg.
Subject : Steel Structure Design

Time : 3 Hrs.

M.M. : 100

SECTION-A

- Note:** Multiple choice questions. All questions are compulsory (10x1=10)
- Q.1 Rolled steel angles are designated by prefix (CO1)
a) ISA b) ISMB
c) ISLC d) None of these
- Q.2 For PDFR, the value of permissible shearing stress in N/mm² (CO2)
a) 80 b) 90
c) 100 d) 110
- Q.3 The most commonly used rivet head is (CO2)
a) snap b) pan
c) flat d) round
- Q.4 The cross section of a standard fillet weld is a triangle with base angles of (in degree) (CO4)
a) 40 and 50 b) 45 and 45
c) 30 and 60 d) 35 and 55
- Q.5 For weld size of 6mm, the effective throat thickness is equal to (CO4)
a) 4.0 mm b) 4.2 mm
c) 4.6 mm d) 5.6 mm

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- Q.6 The permissible stress in an axial compression member depends upon (CO6)
- a) Effective length b) Radius of gyration
c) Slenderness ratio d) Net sectional area
- Q.7 Roof truss is economical for span (CO7)
- a) >3m b) >6m
c) >9m d) >12m
- Q.8 Load carrying capacity is more in (CO8)
- a) Short column b) Medium column
c) Long column d) All of these
- Q.9 Section modulus of a rectangular beam is (CO9)
- a) $bd/6$ b) $bd^2/6$
c) $bd^3/6$ d) $bd^3/12$
- Q.10 For $F_y = 250 \text{ N/mm}^2$, the value of s_{bc} (CO9)
- a) 145 N/mm^2 b) 155 N/mm^2
c) 165 N/mm^2 d) 175 N/mm^2

SECTION-B

- Note:** Objective type questions. All questions are compulsory. 10x1=10
- Q.11 Steel is an alloy of _____ and _____. (CO1)
- Q.12 The main types of riveted joints are _____ and _____. (CO2)
- Q.13 Rivets in double cover butt joints are in _____ shear. (CO2)
- Q.14 In welded joints, effective throat thickness = _____ x _____. (CO4)
- Q.15 Members subjected to direct tension are called _____. (CO5)

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- Q.16 An equal ISA section offers more effective area when connected by _____ leg to the gusset plate. (CO5)
- Q.17 In compression member, radius of gyration = _____. (CO6)
- Q.18 The member of a crane in compression is known as _____. (CO8)
- Q.19 The safe load carrying capacity of a beam = _____ x _____. (CO9)
- Q.20 Plate girders are economical for spans over..... (CO9)

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions.

12x5=60

- Q.21 What are the different types of loads over the structures? (CO1)
- Q.22 Define nominal dia and gross dia of a rivet. What is the relation between these? (CO2)
- Q.23 Define the following terms:- (CO2)
- a) Pitch b) Diagonal pitch
c) Staggered pitch
- Q.24 Define the strength of a riveted joint. How it is calculated? (CO2)
- Q.25 Calculate the strength of a 20 mm dia rivet in double shear. (CO2)
- Q.26 Write the types of bolts used in bolted connections. (CO3)
- Q.27 Define plug and slot weld. Where these are provided? (CO4)
- Q.28 Write the advantages of welded joints. (CO4)

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No. of Printed Pages : 2

Roll No.

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6th Sem. / Civil Engg.

Subject : Steel Structure Drawing

Time : 3 Hrs.

M.M. : 100

SECTION-A

Note: Attempt any Four Questions. (4x25=100)

Q.1 Draw the front and side elevation of an equal column splicing arrangement from the following data:

Columns=ISHB300@618 N/m
Cover plates=300 mmx250 mmx10mm
Diameter of rivets = 20 mm

Q.2 Draw the plan, front elevation and side elevation of column base from the following data:

Column=ISHB 350@661.2 N/m
Cover plates = 250 mm x 10 mm
Base plate = 600 mm x 600 mm x 20 mm
Flange cleat angle = ISA 100 x 100 x 10 mm
Web cleat angle = ISA 100 x 100 x 10 mm
Nominal diameter of rivets = 16 mm
Holdings bolts = 16 mm dia 200 mm long 4 Nos.
Rag bolts
R.C.C base slab = 1000mm x 900 mm x 500 mm

Q.3 Draw front and side elevation of a framed beam to beam connection from the following data:

Main beam = ISWB 500 @ 933.9 N/m
Secondary beam= ISMB 250 @ 365.9 N/m
Web cleat angles = 100 x100x10 mm
Nominal diameter of rivets = 20 mm

Q.4 Draw to a suitable scale front view and side view of a framed connections of a beam with that of a flange of a column with the following data:

Column = ISHB 400@ 806.4 N/m
Beam = ISLB @ 369.8 N/m
Cleat angles = 2 ISA 60x60x8 mm
Nominal diameter of rivets = 20 mm

Q.5 Draw to a suitable scale the sectional plan, front elevation and cross section of a simple plate girder from the following given data:

Clear span = 18 m
Web plate = 1000 mm x 12mm thick
Top and bottom flange cover plates = 300 mm x 12 mm thick
Flange angles = 4 ISA 90 x90x10mm
Bearing plate= 200mmx300mmx20mm
Concrete block=300mmx300mmx200 mm
Diameter of rivets = 20 mm

- Q.30 Define drop manhole and write the functions of a drop manhole. (CO4)
- Q.31 Write a short note on Bracket type wash basin. (CO5)
- Q.32 Write a short note on Bath Tub. (CO5)
- Q.33 Write the working of combi-boiler heating system. (CO6)
- Q.34 Explain the conduction process of heat transfer in solids. (CO6)
- Q.35 Write a short note on "Water Heater". (CO6)

SECTION-D

- Note:** Long answer type questions. Attempt any two questions out of three questions. 2x10=20
- Q.36 Enlist the different types of the water distribution system and explain any two of them in detail. (CO3)
- Q.37 Explain the construction and working of Septic tank with the help of diagram. (CO4)
- Q.38 Write a short note on the following: (CO5)
- Floor Traps
 - Popup Waste

No. of Printed Pages : 4
Roll No.

170765

6th Sem. / Civil Engineering Subject : Plumbing Services

Time : 3 Hrs.

M.M. : 100

SECTION-A

- Note:** Multiple choice questions. All questions are compulsory (10x1=10)
- Q.1 Hacksaw is a _____ tool. (CO1)
- Holding tool
 - Fitting tool
 - Cutting tool
 - None of these
- Q.2 The piece of pipe having thread at both sides and could be used for short extension of plumbing lines. (CO2)
- Trap
 - Nipple
 - Offset
 - Union
- Q.3 The equipment used producing uniform threads on pipe is known as. (CO2)
- Wrench
 - Die stock
 - Hacksaw
 - Pie cutter
- Q.4 The pipe which leads the liquid from the pump outlet to the required height is known as _____ (CO3)
- Delivery pipe
 - Suction Pipe
 - Casing
 - Impeller

- Q.5 The cost of laying water pipes is _____ in grid method. (CO3)
 a) Less b) More
- Q.6 The trap which is used to receive waste water from sinks, baths, wash basins and rain water is called a _____. (CO4)
 a) Floor trap b) Intercepting trap
 c) Gully trap d) None of these
- Q.7 The minimum trap size for residential sink is (CO4)
 a) 20mm b) 25mm
 c) 32mm d) 38mm
- Q.8 In a maxing tap, hot water connection is given to _____ of user. (CO5)
 a) Left side b) Right side
- Q.9 _____ may be defined as a water flushed plumbing fitting designed to receive human excreta directly from the user. (CO5)
 a) Urinals b) Popup waste
 c) Water closet d) None of these
- Q.10 _____ is the most efficient way of heat transfer in liquids and gases. (CO6)
 a) Conduction b) Radiation
 c) Convection d) None of these

SECTION-B

- Note:** Objective type questions. All questions are compulsory. 10x1=10
- Q.11 Write the principles of plumbing. (CO1)

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- Q.12 Define pipe threading. (CO2)
- Q.13 Define die stock. (CO2)
- Q.14 Define catchment area. (CO3)
- Q.15 Define air relief valve. (CO3)
- Q.16 Define a trap. (CO4)
- Q.17 Define one pipe drainage system. (CO4)
- Q.18 Define mixing taps. (CO5)
- Q.19 Define sink. (CO5)
- Q.20 Define geyser. (CO6)

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions.

12x5=60

- Q.21 Write the skills required for a plumber to be a good plumber. (CO1)
- Q.22 Write the rules to be followed for the installation of a plumbing system. (CO1)
- Q.23 Write the points to be followed for the selection of the material used for pipe. (CO2)
- Q.24 How will check the alignment of pipes? (CO2)
- Q.25 Write a short note on "Collar Joint". (CO2)
- Q.26 Write any five advantages of steel pipes. (CO2)
- Q.27 Write the essential requirements for a fire hydrant to be a good fire hydrant. (CO3)
- Q.28 Explain the significance of rain water harvesting system of ground recharge. (CO3)
- Q.29 Explain the "Air Test" to check the leakage in sewer lines. (CO4)

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6th SEM / Civil Engineering

Subject : Repair And Maintenance of Buildings

Time : 3 Hrs.

M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory

(10x1 = 10)

- Q.1 The building maintenance is the act of maintaining the building in its (CO-1)
- a) Unserviceable condition
 - b) Deteriorated condition
 - c) Serviceable condition
 - d) None of these
- Q.2 The deposition of mineral scale in vessels and pipes which lime and magnesium bearing water is heated or conveyed is called (CO-2)
- a) Sludging
 - b) Furring
 - c) Efflorescence
 - d) Scaling
- Q.3 Rebound hammer is used to test the (CO-3)
- a) Tensile strength of concrete
 - b) Workability of concrete
 - c) Turbidity of water
 - d) Compressive Strength of concrete
- Q.4 Freezing and thawing results in (CO-4)
- a) Increase in bearing capacity of soil
 - b) Disintegration of foundation
 - c) Carbonation
 - d) None of these

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- Q.5 _____ ton of steel is lost every 14 seconds due to corrosion alone in RCC in India. (CO-5)
- a) 0.25
 - b) 0.50
 - c) 1.00
 - d) 1.25
- Q.6 The property of a structure to given a satisfactory performance and service for the design life with minimum maintenance is called (CO-5)
- a) Durability of structure
 - b) Deterioration of structure
 - c) Collapse of building
 - d) None of these
- Q.7 Joints which are used to permit shrinkage contraction in concrete slab without causing random cracks. (CO-6)
- a) Expansion joint
 - b) Construction joint
 - c) Isolation joint
 - d) Contraction joint
- Q.8 The _____ length of the dowel is fixed to the concrete by using a bonding matrix (CO-6)
- a) 1/4th
 - b) 1/2
 - c) 3/4th
 - d) Full of Entire
- Q.9 The air bubbles trapped at the surface of cast-in-situ form concrete during placement and consolidation. (CO-6)
- a) Bug holes
 - b) Bleeding
 - c) Segregation
 - d) None of these
- Q.10 The final hole diameter should be _____ larger than the dowel diameter if epoxy bonding agents are used. (CO-6)
- a) 1mm to 1.5 mm
 - b) 2mm to 2.5mm
 - c) 3mm to 6mm
 - d) 6.5mm to 7mm

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SECTION-B

Note: Objective type questions. All questions are compulsory.

10x1 = 10

- Q.11 Define the physical life of a building (CO-1)
Q.12 Write any one use of paint. (CO-2)
Q.13 Expand the term NDT (CO-3)
Q.14 Define intruding water (CO-4)
Q.15 Define gunite (CO-5)
Q.16 Write any one function of sealant. (CO-5)
Q.17 Define fillet joint in pipes. (CO-6)
Q.18 Expand EPDM in terms of elastomeric category (CO-6)
Q.19 Define silica fume concrete (CO-6)
Q.20 Define dampness in building (CO-6)

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions.

12x5 = 60

- Q.21 Write the importance of repair and maintenance of buildings. (CO-1)
Q.22 Compare the corrective maintenance of building with preventive maintenance. (CO-1)
Q.23 Write the factors affecting the maintenance of buildings and describe any one of them. (CO-1)
Q.24 Write a short note on "Cause of Deterioration on Natural stones". (CO-2)
Q.25 Explain the effect of various deterioration agencies on brick masonry. (CO-2)
Q.26 Write the importance of visual examination for diagnosis of building defects. (CO-3)

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- Q.27 Write the purposes of investigations for building defects. (CO-3)
Q.28 Write a short note on "Defects in water services in buildings". (CO-4)
Q.29 Write the main cause of defects in building elements and describe any one of them. (CO-4)
Q.30 How the "physical movement due to forces" in building element is responsible for defects in buildings. (CO-5)
Q.31 Describe the factors affecting durability of repaired elements. (CO-5)
Q.32 Write the process of application of protective coating as a repair material. (CO-6)
Q.33 Write a short note on "open Top Placement of Concrete Repairs". (CO-6)
Q.34 Write the various steps necessary for the repair and treatment for sealing of joints in buildings. (CO-6)
Q.35 List the various types of problems to which the underground water tank suffers. (CO-6)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions.

2x10 = 20

- Q.36 a) Explain the chemical factors Causing the deterioration in buildings. (CO-2)
b) How the strength of concrete can be analyzed using rebound hammer test. (CO-3)
Q.37 Write the short note on the following processes of repair of surface defects: a) Form Tie Holes (CO-6)
b) Bug Holes (CO-6)
Q.38 Explain with the help of a diagram the chemical process of repair of DPC against rising dampness.

Note: Course Outcome (CO) mentioned in the question paper is for official purpose only.

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No. of Printed Pages : 4

Roll No.

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6th Sem. / Civil Engineering

Subject : Pre-Stressed Concrete

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

- Q.1 Post-tensioning method is best suitable for production of (CO1)
a) Railway sleeper b) Electric pole
c) Bridges d) All of these
- Q.2 Pre-stressed concrete helps in avoiding (CO1)
a) Crack formation
b) Excessive deflection
c) Diagonal tension
d) all of these
- Q.3 Losses of pre-stress is maximum due to (CO1)
a) Creep of concrete
b) Shrinkage of concrete
c) Friction
d) Relaxation of steel
- Q.4 Minimum grade of concrete for post-tensioned work is (CO1)
a) M40 b) M30
c) M20 d) M50

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- Q.5 Total amount of losses in pre-tensioning method are approximately (CO1)
a) 25-30% b) 20-25%
c) 18-20% d) 10-18%
- Q.6 In pre-stressed concrete, it is recommended to use (CO1)
a) High strength concrete and high strength steel
b) High strength concrete and low strength steel
c) Low strength concrete only
d) All of these
- Q.7 Pile foundation are suitable for (CO2)
a) Small loads
b) Load bearing wall
c) Transferring load to firm strata
d) Transferring load in clay
- Q.8 Based on the function, piles can be classified into _____ types. (CO2)
a) Four b) Eight
c) Six d) Three
- Q.9 Which of the following piles is used to compact loose granular soil? (CO2)
a) Friction piles b) End bearing piles
c) Compaction piles d) Tension piles
- Q.10 Which of the following piles are mostly used in India. (CO2)
a) Bored piles b) Driven piles
c) Screwed piles
d) Driven & Cast-in-situ piles

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SECTION-B

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

- Q.11 Pre-stressing stressing result in elimination or reduction of _____ stress. (CO1)
- Q.12 The steel used in pre-stressed concrete is called _____? (CO1)
- Q.13 The minimum grade of concrete of pre-tensioning is _____? (CO1)
- Q.14 _____ reduces the deflection of the structure. (CO1)
- Q.15 Pre-stressed concrete member are deflects _____ than R.C.C member. (CO1)
- Q.16 Loss of pre-stress is _____ in pre-tensioning system. (CO1)
- Q.17 _____ size members are commonly pre-tensioned. (CO1)
- Q.18 Pile is generally driven in groups to provide _____? (CO2)
- Q.19 Cast-in-situ piles may be classified in to _____? (CO2)
- Q.20 Piles are commonly driven in to ground by means of Special device called _____? (CO2)

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions.

12x5=60

- Q.21 Discuss the basic concept of pre-stressed concrete. (CO1)
- Q.22 Enlist any five advantages of pre-stressed concrete over R.C.C. (CO1)

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- Q.23 Describe IS specifications for materials used in pre-stressed concrete. (CO1)
- Q.24 Describe principle of pre-stressing analysis by Stress Concept. (CO1)
- Q.25 Define different methods of pre-stressing. (CO1)
- Q.26 Explain any five difference between pre-tensioning & post-tensioning. (CO1)
- Q.27 What are the disadvantages of pre-tensioning system. (CO1)
- Q.28 Enlist various application of prestressed to various building elements. (CO1)
- Q.29 Why necessity of high grade of concrete & steel in prestressed system. (CO1)
- Q.30 Describe loss due to creep of concrete. (CO1)
- Q.31 Explain types of pre-stressing. (CO1)
- Q.32 Enlist any five necessity of piles. (CO1)
- Q.33 Describe the concept of non-displacement piles. (CO1)
- Q.34 Enlist various methods of pile driving. (CO1)
- Q.35 Explain the concept of pile load test. (CO1)

SECTION-D

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

- Q.36 Explain freyssinet system and Magnel blaton system of pre-stressing with their advantages.
- Q.37 Describe briefly the losses pre-stressed concrete.
- Q.38 Explain the classification of piles according to function or use.

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