Q.24 a) Explain the toothing method of bonding new brickwork with the old one.

b) Describe the procedure of construction of load bearing one brick thick wall in Flemish Bond with the help of diagram.

Q.25 a) Explain the process of installation of sliding door.

b) Explain the process of preparation of floors for wooden flooring.

No. of Printed Pages : 4
Roll No. .....

01/01/25(M) 220734

3rd Sem / Civil

Subject : Building Construction

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 The minimum depth of foundation for building on clay is_____

a) 0.4 to 0.6 m b) 0.6 to 0.9 m
c) 0.2 to 0.4 m d) 0.9 to 1.6 m

Q.2 A partition wall is designed as a load bearing wall.

a) True b) False

Q.3 The portion of the brick without a triangular corner equal to half the width and half length, is called.____

a) Closer b) King closer
c) Queen closer d) Squint brick

Q.4 The projection which help in securing the head of a door frame to the masonry, are called_____

a) Stops b) Styles
c) Reveals d) Horns

Q.5 The moisture from ground rises through_____ and affects the materials within the building.

a) capillary action b) pores

c) gravitational effect d) intermediate space

Q.6 When the span exceeds 4.8 M and when there is no inside supporting walls for Purlins, the frame structures adopted, known as the_____

a) Single roofs b) Double roofs

c) Purlin roofs d) Trussed roofs

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 The part of the building constructed below the ground level is referred as _____ (Foundation or sub-structure / Super-structure)

Q.8 The brick laid with its length perpendicular to the face of the wall is called a_____ (Strecher / Header)

Q.9 The highest point on the extrados is called_____ (Style / Crown)

Q.10 In_____ system, the use is made of doors, windows, ventilators and skylights to make the room properly ventilated. (De-ventilated / Natural Ventilation)

Q.11 _____ is known as the lower edge of an inclined roof surface. (Eaves / Style)

Q.12 Pitch is expressed as a ratio of_____ to span. (Ridge / Rise)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Write a short note on dado tile works

Q.14 Describe the procedure of layout of half turn stairs.

Q.15 Write a short note on "PVC False Ceiling".

Q.16 Write a short note on "Level and Slope in kitchen".

Q.17 Describe the ill-effects of dampness in a building.

Q.18 Write and discuss the different types of fixtures and fastness used for window frames.

Q.19 Write the various functions of an arch.

Q.20 Describe the process of construction of brick masonry retaining walls.

Q.21 Write a short note on "Wooden Partition Wall".

Q.22 Write any eight requirements for a building to be a good building.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 a) Explain the process of preparation of plastered surface for stone cladding.

b) Describe the specifications to be taken into consideration for the excavation and construction of escalators pits

Q.35 Differentiate between prismatic compass & surveyor's compass. (CO3)

SECTION-D

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

Q.36 The staff reading recorded for a survey work are as follows. First reading was taken on a B.M Whose R.L is 160.150. Find out the R.L's of all stations by Rise and Fall method. (CO4)

Station	B.S	I.S	F.S
1	1.680		
2		1.415	
3		1.735	
4	0.970		1.325
5		1.560	
6		1.785	
7			1.270

Q.37 Explain three point problem? Discuss the trial & error method of solution of problem. (CO5)

Q.38 The following bearings were observed while traversing with a compass. (CO3)

Line	FB	BB
AB	80°45'	260°00'
BC	130°30'	311°35'
CD	240°15'	60°15'
DA	290°30'	110°10'

Mention which stations were affected by local attraction and determine the corrected bearings.

3rd Sem / Civil, Brick Tech, Constr, Mgmt, Highway Engg.

Subject:- Surveying - I

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 A metallic tape is made of (CO1)
a) Linen b) Cloth and Wires
c) Invar d) Steel

Q.2 The maximum tolerance in a 30m chain is (CO2)
a) ±2mm b) ±6mm
c) ±5mm d) ±8mm

Q.3 The rise and fall method of reduction of levels, provides a check on (CO4)
a) Back sights b) Fore sights
c) Intermediate sights d) All of the above

Q.4 Survey used for infrastructure projects (CO1)
a) Military survey b) Mine survey
c) geological survey d) Engineering survey

Q.5 Length of Engineering chain is (CO2)
a) 20 m b) 30 m
c) 66 ft d) 100 ft

Q.6 In geodetic survey higher accuracy is achieved, if (CO1)
a) Curvature of earth is ignored
b) Curvature of earth is taken in account
c) Angles between the curved lines are treatedas plane angles
d) None of the above

Q.7 Sensitiveness of a level tube is designated by (CO4)
a) Radius of level tube
b) Length of level tube
c) Length of bubble of level tube
d) None of these

Q.8 The line on which the framework of the survey is built is known as (CO2)
a) Check line b) Base line
c) Tie line d) None of the above

Q.9 The type of surveying which requires last office work is (CO5)
a) Trigonometrically levelling
b) Techeometry
c) Theodolite surveying
d) Plane table surveying

Q.10 If the whole circle bearing of a line is 180°, its reduced bearing is (Co3)
a) S 0°E b) S 0°W
c) S d) N

SECTION-B

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

Q.11 Define magnetic declination (CO3)
Q.12 Differential Levelling is also called. (CO4)
Q.13 Define oblique offset. (CO2)
Q.14 Define Dip. (CO3)
Q.15 Define Centering. (CO5)
Q.16 Define line of collimation. (CO4)
Q.17 Define bearing of a line. (CO3)
Q.18 Define linear measurement. (CO1)
Q.19 Define axis of bubble tube. (CO4)

Q.20 Write the use of U-fork in plane table surveying. (CO5)

SECTION-C

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

Q.21 What do you understand by working from whole to part. (CO1)
Q.22 Explain the orientation by back sighting method. (CO5)
Q.23 What are the advantages and disadvantages of plane table surveying? (CO5)
Q.24 What are the classification of levelling. (CO4)
Q.25 What is Bench Mark. Give their classification. (CO4)
Q.26 The magnetic bearing of line AB is S 38° 30' W. What its true bearing if declination is 4° 15' towards west. (CO3)
Q.27 What are the source of error in chain surveying? (CO2)
Q.28 Define levelling staff and how they are classified? (CO4)
Q.29 Differentiate between Height of instrument method and Rise and Fall method of reduction of level (CO4)
Q.30 Explain the process of temporary adjustment of a dumpy level. (CO4)
Q.31 Name the different equipment used for plane table surveying. (CO5)
Q.32 Name the different equipments used in chain surveying. (CO2)
Q.33 Explain Intersection method of plane table surveying. (CO5)
Q.34 What is local attraction? How is it eliminated? (CO3)

Q.30 Describe the two peg method of permanent adjustment of a dumpy level.

Q.31 Name the various accessories of the plane table. What are their functions? Explain in brief.

Q.32 What are the various method of plane table? Explain any two in details.

Q.33 Write any five advantages of plane table surveying.

Q.34 Write the purpose of leveling.

Q.35 Write a short note on check leveling'.

SECTION-D

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

Q.36 The following bearings were observed in running a close traverse. Which stations are affected by local attraction?

Determine the correct bearings.

Line	F.B.	B.B.
AB	78°15'	257°30'
BC	118°30'	299°30'
CD	168°30'	348°30'
DA	227°45'	47°15'

Q.37 The following staff readings were observed successively with a level, the instrument have been moved after 3, 6, and 8 reading: 2.228, 1.606, 0.988, 2.090, 2.864, 1.262, 0.602, 1.982, 1.044, 2.684 fill the above readings in a page of level book and calculate the RL of points using height of instrument method, if the first reading was taken with a staff held on a bench mark of 432:384m.

Q.38 Explain in detail about "Two point problem" and How it is performed?

LID - 02/7/24(D

No. of Printed Pages : 4 180733/170733/
Roll No. 120733/030733

3rd Sem. / Civil, Brick Tech, Tech, Const Mgmt., Highway Engg.

Subject : Surveying - I

Time : 3 Hrs. M.M. : 100

SECTION-A

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

Q.1 Abuilding is an obstacle to
- a) Chaining but not rainging
- b) Ranging but not chaining
- c) Neither chaining hor rainging
- d) Both chaining and ranging

Q.2 Maximum tolerance of a 20m chain is
- a) ±2mm b) ±3mm
- c) ±4 mm d) ±5mm

Q.3 For a line AB
- a) The fore bearing of AB and back bearing of BA differ by 18°
- b) The fore bearing of AB and back bearing of BA differ by 18°
- c) Both (a) and (b) are correct
- d) None of the above

Q.4 The horizontal angle between the true meridian and magnetic meridian at a place is called:
- a) Declination b) Azimuth
- c) Local attraction d) Magnetic bearing

Q.5 Which of the following is an obstacle to chaining not to ranging
a) Building b) River
c) Hillock d) None of these

Q.6 Planimeter is used for measuring.
a) Volume b) Area
c) Slope angle d) Contour gradient

Q.7 Plotting of inaccessible paint on a plane table, is done by
a) Intersection b) Traversing
c) Radiation d) None of the above

Q.8 Which of the following instrument is used to setup right angles?
a) Cross staff b) Site square
c) Optical staff d) Prism square

Q.9 Which is the method of plane tabling?
a) Ranging b) Traversing
c) Both A & B d) None of the above

Q.10 Instrument used for sighting the objects and drawing the rays in plane table surveying
a) Alidade b) Through compass
c) U-for K d) None of the above

SECTION-B

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

Q.11 Geodetic survey of India was done using _____ triangulation system.

Q.12 In surveying when work is done from part to whole, the smaller errors are_____

Q.13 Length of an Engineer chain is _____.

Q.14 Quadrantal bearings are measured with _____ compass.

Q.15 Reduced bearing of a Line whose WCB is 312° is _____.

Q.16 The datum adopted for India is mean sea level at _____.

Q.17 The fiducial edge of alidade should be_____.

Q.18 LIne ranger is used for _____.

Q.19 The plane table surveying's suitable for _____ scale mapping.

Q.20 _____ line is the line drawn through points of the same declination.

SECTION-C

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

Q.21 What are the principles of Surveying? Explain.

Q.22 Give the classification fo Surveying on the basis of instrument used.

Q.23 What are the obstacles in chain surveying? Explain

Q.24 What are the different kinds of chains used in surveying?

Q.25 Differentiate between chain survey and compass survey.

Q.26 What is local attraction? How is it detected and eliminated?

Q.27 Describe temporary adjustment of prismatic compass.

Q.28 Define leveling, What is the principle of leveling? Explain.

Q.29 What is bench mark? Give their classification.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 The following bearings were observed while traversing with a compass:

Line	FB	BB
AB	74°15'	256°00'
BC	107°15'	286°15'
CD	224°45'	44°45'
DA	307°45'	127°00'

Mention which stations were affected by local attraction and determine the corrected bearings.

Q.24 The following staff readings were observed successively with a level, the instrument having been moved after 3rd, 6th and 8th reading: 2:230, 1.605, 0.990, 2.090, 2.865, 1.265, 0.600, 1.980, 1.045, 2.685 meters. Entre the above readings in a page of a level book and calculate the RL of points using rise and fall method, if the first reading was taken with a staff held on a bench mark of 432.385 m.

Q.25 Explain the radiation method of plane table surveying with the help of diagram.

No. of Printed Pages : 4
Roll No. .....

220733

3rd Sem / Civil

Subject : Surveying - I

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 For a well conditioned triangle, no angle should be less than_____

a) 20° b) 45°
c) 30° d) 60°

Q.2 An invar tape is made of an alloy of_____

a) Brass and Nickel b) Brass and Steel
c) Nickel and Steel d) Copper and Steel

Q.3 A negative declination shows that the magnetic meridian is to the_____ (CO3)

a) Western side of the true meridian
b) Southern side of the true meridian
c) Eastern side of the true meridian
d) None of these

Q.4 The following sights are taken on a "Turning Point"

a) Backsight only
b) Foresight only
c) Foresight and Backsight
d) Foresight and Intermediate sight

Q.5 Steep ground is represented by_____

a) Widely separated contour line
b) Closely packed contour line
c) Parallel running contour line
d) None of the above

Q.6 The horizontal distance between two consecutive contour line is_____

a) Contour interval
b) Contour length
c) Contour distance
d) Horizontal equivalent

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Define the term linear measurement.

Q.8 Define the term magnetic dip.

Q.9 Define the term Bench mark.

Q.10 Define the term contour interval.

Q.11 The instrument used for accurate centering in plane table survey is_____(U-fork / Alidade)

Q.12 A metallic tape is made of_____(Cloth & Wire / Linen)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Describe the principles of surveying.

Q.14 Convert the following WCB to QB:

a) 142°15' b) 223°45'
c) 63°10' d) 285°30'

Q.15 Write the various uses of prismatic compass.

Q.16 Enlist the natural errors in levelling and describe any one of them.

Q.17 Describe the process of temporary adjustment of an Auto Level.

Q.18 Write the various advantages of plane table surveying.

Q.19 Describe the procedure of orientation of plane table by trough compass.

Q.20 Describe the various characteristics of contours.

Q.21 Write a short note on "Interpolation of contour".

Q.22 Describe the use of contours for the marking of alignment of a national highway.

Q.31 Write the purposes of leveling. (CO-4)

Q.32 Name the different equipments used for plane table surveying. (CO-5)

Q.33 Write a short note on "Orientation of plane table by back sight". (CO-5)

Q.34 Explain the concept of two-point problem in plane table surveying. (CO-5)

Q.35 Write any five disadvantages of plane table surveying. (CO-5)

SECTION-D

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

Q.36 The following bearings were observed while traversing with a compass: (CO-3)

Line	FB	BB
AB	45°45'	226°10'
BC	96°55'	277°5'
CD	29°45'	209°10'
DE	324°48'	144°48'

Mention which stations were affected by local attraction and determine the corrected bearings.

Q.37 The followings staff readings were observed successively with a level, the instrument having been moved after 3rd, 6th and 8th reading: 2.228, 1.606, 0.988, 2.090, 2.864, 1.262, 0.602, 1.982, 1.044, 2.684 meters. Entre the above reading in a page of a level book and calculate te RL of points using height of instrument method, if the first reading was taken with a staff held on a bench mark of 432.384 m. (CO-4)

Q.38 Explain the "Intersection method of plane table surveying" in detail. (CO-5)

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

LIB-24/2/22(M)

No. of Printed Pages : 4

Roll No. .....

180733/170733/
120733/030733

3rd Sem. / Civil Engineering

Subject : Surveying- 1

Time : 3 Hrs. M.M. : 100

SECTION-A

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

Q.1 A metallic tape is made of (CO-1)
a) Steel b) Invar
c) Linen d) Cloth and Wires

Q.2 Which of the following is an obstacle to chaining but not to ranging ? (CO-2)
a) Building b) River
c) Hillock d) None of these

Q.3 The correction for sag is (CO-2)
a) Always Zero b) Always Additive
c) Always Subtractive
d) Sometimes additive and sometimes Subtractive

Q.4 Local attraction in compass surveying may exist due to (CO-3)
a) Presence of magnetic substance near the instrument.
b) Loss of magnetism of the needle
c) Incorrect leveling of the magnetic needle
d) Friction of needle at the pivot

Q.5 If the forbearing of a line AB is 285°, then the backbearing will be (CO-3)
a) 75° b) 95°
c) 105° d) 115°

Q.6 For a line AB (CO-3)
a) The forebearing of AB and backbearing of BA differ by 180°
b) The forebearing of AB and backbearing of AB differ by 18°
c) Both (a) and (b) are correct
d) None is correct

Q.7 Sensitiveness of a level tube is designated by (CO-4)
a) Radius of level tube
b) Length of level tube
c) Length of bubble of level tube
d) None of the above

Q.8 The following sights are taken on a "Turning point" (CO-4)
a) Backsight only b) Foresight only
c) Foresight and Backsight
d) Foresight and Intermediate sight

Q.9 The type of surveying which requires last office work is (CO-5)
a) Trignometrical leveling
b) Techeometry
c) Theodolite surveying
d) Plane table suveying

Q.10 The instrument used for accurate centering in plane table survey is (CO-5)
a) Spirit level b) Plumbing fork (U-fork)
c) Alidade d) Trough compass

SECTION-B

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

Q.11 Define angular measurement. (CO-1)
Q.12 Define offsetting. (CO-2)
Q.13 Define principle of chain surveying. (CO-2)

Q.14 Define magnetic declination (CO-3)
Q.15 Define true meridian. (CO-3)
Q.16 Define reduced level. (CO-4)
Q.17 Define axis of bubble tube. (CO-4)
Q.18 Define Diaphragm. (CO-4)
Q.19 Write the use of U-fork in plane table surveying. (CO-5)
Q.20 Define radiation method of plane table surveying. (CO-5)

SECTION-C

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

Q.21 Name the different classifications of surveying based on nature of field survey and describe any one of them. (CO-1)
Q.22 Explain in brief the principles of surveying. (CO-1)
Q.23 What are the obstacles in chain surveying? (CO-2)
Q.24 Write any five disadvantages of chain surveying. (CO-2)
Q.25 Convert the following QB to WCB : (CO-3)
(a) N22°30'E (b) S9°48'E
(c) S31°54'W (d) N32°36'W (e)N5°42'W
Q.26 Write the use of prismatic compass. (CO-3)
Q.27 Find the correction for curvature and refraction for distance of (CO-4)
a) 2933 meters b) 7 Km
Q.28 Enlist the instrumental errors in leveling and explain any one of them. (CO-4)
Q.29 Write a short note on check leveling. (CO-4)
Q.30 Explain the process of temporary adjustment of a dumpy level. (CO-4)

Q.28 What do you understand by current meter. (CO8)

Q.29 Distinguish between hydraulic gradient line and total energy line (CO7)

Q.30 Define an economical section hydraulic mean depth and wetted perimeter. (CO8)

Q.31 What are the common defects in centrifugal pump and how are they rectified? (CO9)

Q.32 What is meant by knocking in pipes. (CO7)

Q.33 Explain minor head losses and various minor head losses. (CO7)

Q.34 Write short note on dead weight pressure guage. (CO4)

Q.35 The barometric pressure at sea level is 760 mm of mercury and that on mountain is 735 mm of mercury if the specific weight of air is assumed constant as 12 n/m^3, what is the elevation of the mountain top? (CO4)

SECTION-D

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

Q.36 A horizontal venturimeter with inlet and throat diameters 300 mm and 150 mm respectively is used to measure the flow of water. The reading of differential manometer connected to inlet and throat is 200 mm of mercury Determine the rate of flow Take Cd=0.98. (CO6)

Q.37 Explain surge tank and syphon. (CO8)

Q.38 Water is flowing though a non-uniform pipe gradually tapering from 0.15 metre diameter to 0.08 meter diameter. If the average velocity of water at section 0.15 metre diameter is found to be equal to 1.5 m/s. Find out the discharge in litre per second and also the velocity of flow at 0.08 metre diameter section. (CO5)

18/7/24

No. of Printed Pages : 4

Roll No. .....

3rd Sem / Civil, Brick Tech, Const mgmt, Highway Engg

Subject:- Fluid Mechanics

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 Fluid is a substance, which offers no resistance to.(CO1)
a) Pressure b) Shape
c) Temperature d) All the above

Q.2 Which of the following is dimension less? (CO2)
a) Specific weight b) Specific volume
c) surface tension force d) specific gravity

Q.3 The centre of pressure acts _____ are centre of gravity of the immersed surface. (CO3)
a) at b) below
c) above d) can't say

Q.4 A u-tube differential manometer measures. (CO4)
a) absolute pressure at a point
b) Local atmospheric pressure
c) Difference in total energy between two points
d) Difference in pressure between two points

Q.5 The path followed by a fluid particle mm, te is called a (CO5)
a) Stream line b) Path line
c) Streak line d) None of these

Q.6 The function of an orifice is (CO6)
a) To measure discharge through a pipeline
b) To measure discharge through a canal
c) To measure discharge from a tank
d) To measure velocity of flow.

Q.7 An opening provided in the side of a tank or vessel such that the liquid surface in the tank is below the top edge of the opening is known as (CO6)

a) Weir b) Notch
c) Orifice d) None of these

Q.8 Head lost in friction is governed by (CO7)

a) Froude,s law b) Darcy's law
c) Chezy's law d) None of these

Q.9 Hydraulic mean depth of a Trapezoidal channel of most economical cross-section is given by

a) d/2 b) 2/d
c) 3d/2 d) None of these

Q.10 A pump is a device which converts (CO9)

a) Mechanical energy into Hydraulic energy.
b) Hydraulic energy into mechanical energy
c) Electrical energy into mechanical energy
d) All of the above

SECTION-B

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

Q.11 Ideal fluids are also known as _____. (CO1)

Q.12 Hydraulic press is the practical application of the _____law (CO3)

Q.13 A piezometer tube is not suitable for measuring _____pressure. (CO4)

Q.14 Continuity equation of flow is based on the principle of _____. (CO5)

Q.15 The point where maximum _____ of jet leaving an orifice take place is known as _____. (CO6)

Q.16 Pitot tube is used for measurement of_____. (CO6)

Q.17 In pipe flow , maximum velocity occurs at the _____ of pipe section . (CO7)

Q.18 Chezy's formula is given by _____. (CO8)

Q.19 The rotating part of a centrifugal pump is called _____. (CO9)

Q.20 Air compressor is machine used to compress air and to raise its _____. (CO9)

SECTION-C

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

Q.21 Explain co-efficient of viscosity and give its units . Discuss the effect of temperature and pressure on viscosity. (CO1)

Q.22 A circular plate 5mx5m hangs in water from one of its corners. The centre of gravity of the plate is at a depth of 10m from the water surface. find the total pressure and depth of centre of pressure. (CO3)

Q.23 Explain bramah's hydraulic press. Derive its mechanical advantage. (CO3)

Q.24 One limb of a u-tube containing mercury is attached to a pipe carrying water under pressure of 1.7 bar . if the mercury level rise up in the free limb by y meter above its level in the other limb, find out the value of y if the center line of the pipe is 1.5 meter above top level of mercury in the free limb (CO4)

Q.25 State Bernoullis theorem for flow Liquids and name some practical application of Bernoulli theorem. (CO5)

Q.26 Define venacontracta . Why it has got the smallest section of the jet. (CO7)

Q.27 A weir 300 meter long is discharging water under head of 1.25 meter , calaclate the discharge over the weir by using (CO6)

a) Bazin's formula b) Francis formula

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Write differences between reciprocating pump and centrifugal pump. (CO5)

Q.24 A rectangular plate of size 3m x 4m is immersed in water in such a way that its 3m side is parallel to the free surface and its upper edge is 1m below the free surface. Find total pressure on the plate and position of centre of pressure. (CO1)

Q.25 A tapering pipe has 200 mm and 100 mm diameter at its ends. If velocity at larger end is 2m/s, find the discharge and velocity at smaller end. (CO4)

Lib 24/01/24 (M)

3rd Sem / Branch : Civil
Sub.: Fluid Mechanics

Time : 3Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 An ideal fluid is (CO1)

a) Compressible
b) Incompressible
c) Incompressible and viscous
d) None of the above

Q.2 Newton's law of viscosity states that (CO2)

a) Shear stress is directly proportional to shear strain
b) Shear stress is directly proportional to velocity gradient
c) Shear stress is directly proportional to velocity
d) None of the above

Q.3 The density of water is maximum at (CO1)

a) O°C b) 4°C
c) 273K d) 300K

Q.4 Absolute pressure is equal to (CO1)

a) Gauge pressure + Vacuum pressure

b) Gauge pressure + Atmospheric pressure

c) Gauge pressure - Atmospheric pressure

d) Atmospheric pressure - Gauge pressure

Q.5 Equation of continuity is (CO2)

a) A/V = constant b) A^2/V = constant

c) A x V = constant d) V/A Constant

Q.6 Venturimeter is used to measure (CO3)

a) Viscosity b) Surface tension

c) Discharge d) Velocity

SECTION-B

Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)

Q.7 When the fluid is at rest, shear stress is _____. (CO1)

Q.8 Surface tension is caused due to _____. (Cohesion/ Adhesion) (CO1)

Q.9 The S.I. Unit of discharge is _____. (CO2)

Q.10 In laminar flow through pipes, Reynolds number is less than_____. (CO4)

Q.11 Reynolds number is the ratio of inertia force to _____. (CO4)

Q.12 The unit of pressure is N/m^2 also called___. (CO2)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 What is fluid and write its types. (CO1)

Q.14 Define viscosity and its variation with temperature. (Co1)

Q.15 What is Reynolds number and write its significances. (CO2)

Q.16 Differentiate between notch and weir. (CO3)

Q.17 Define laminar and turbulent flow. (CO6)

Q.18 What is venturimeter and write names of its three major parts. (CO3)

Q.19 What do you understand by most economical channel section? (CO6)

Q.20 Find discharge through a rectangular channel of 6m width and of 3m depth when running full. Take slope as 1 in 2000 and Chezy's constant C=55. (CO2)

Q.21 Define centrifugal pump and write its main components. (CO5)

Q.22 What do you understand by meta centre and buoyancy. (CO1)

Q.24 A rectangular plate of size 2m X 3m is immersed in liquid of specific gravity 0.8 in such a way that its 2m side is parallel to the free surface and its upper edge is 1.5m below the free surface. Find total pressure on the plate and position of centre of pressure. (CO1)

Q.25 The diameter of a pipe at section A and B are 300mm and 500mm respectively. If velocity of flow at section A is 4m/s, Find discharge through pipe and velocity at section B. (CO4)

(Note: Course outcome/CO is for office use only)

No. of Printed Pages : 4 CIB
Roll No. ..... 3/7/24 (E)

220735

3rd Sem. / Civil

Subject : Fluid Mechanics

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 A Newtonian fluid is (CO1)

a) Non viscous
b) Compressible
c) Obeys Newton's law of viscosity
d) None of the above

Q.2 Stoke is the unit of (CO2)

a) Kinematic viscosity b) Dynamic viscosity
c) Shear stress d) Surface tension

Q.3 The specific weight of water is (CO2)

a) 1000 N/m^3 b) 9810 N/m^3
c) 9.81 N/m^3 d) 1000 Kg/m^3

Q.4 The standard value of atmospheric pressure is (CO3)

a) 760mm of Hg b) 10.34m of water
c) 1.01 bar d) All of the above

Q.5 Piezometer measures
a) Vacuum pressure b) Gauge pressure
c) Absolute pressure d) None of the above (CO3)

Q.6 Venturimeter may be
a) Horizontal b) Vertical
c) Inclined d) All of the above

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 As the temperature of a liquid rises, its viscosity _____ (CO1)

Q.8 The SI unit of viscosity is _____ (CO2)

Q.9 1 Ns/m^2 = _____ poise (CO2)

Q.10 Continuity equation of flow is based on the principle of_____ (CO4)

Q.11 The relationship between C_d, C_v, C_c is _____ (CO3)

Q.12 Water in canals runs under _____ pressure. (Atmospheric/gauge/high) (CO6)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Define ideal and real fluids. (CO1)

Q.14 Define adhesion and cohesion. (CO1)

Q.15 Explain the phenomenon of capillarity. (CO1)

Q.16 State the Passcal's law of pressure. (CO4)

Q.17 Define total pressure and centre of pressur. (CO1)

Q.18 Write expression for discharge over a rectangular weir and explain the variables used in it. (CO2)

Q.19 What is hydraulic gradient line? (CO6)

Q.20 Write the conditions for a channel to be most economical in case of rectangular section with a suitable diagram. (CO6)

Q.21 Explain the working of centrifugal pump. (CO5)

Q.22 A rectangular channel water at discharge of 550 L/s when its bed slope is 1 in 2500. Find dimensions of channel if width to depth ratio be 2:1 and Chezy's constant C=60. (CO2)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 State Bernoulli's theorem, write the expression and its assumptions. (CO3)

flow assuming the co-efficient of tube as 0.98. (CO6)

Q.30 Write the functions of a venturimeter. (CO6)

Q.31 Define Reynold's number and write its significance. (CO7)

Q.32 Find the loss of head due to friction in a pipe of 400 mm diameter and having 1 Km length. The velocity of water of the pipe 1.5m/sec. Take f= 0.010. (CO7)

Q.33 Define the most economical channel section in an open channel flow. (CO8)

Q.34 A rectangular channel 6m wide is having a bed slope of 1:1000. if the depth of water is 2m, find the mean velocity of flow and the discharge. Assuming Chezy's constant C=60. (CO8)

Q.35 Differentiate between centrifugal and reciprocating pump. (CO9)

SECTION-D

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

Q.36 Prove that the centre of pressure is always below its centre of gravity for an immersed plane surface. (CO3)

Q.37 The difference in water surface levels in two reservoirs is 12.5m, which are connected by three pipes in series of lengths 300m, 170 and 210m and of diameters 300m, 200mm and 400mm, respectively. Determine the rate of flow of water(neglecting the minor losses), if co-efficient of friction are 0.005, 0.0052 and 0.0048, respectively. (CO7)

Q.38 A trapezoidal channel 4m wide at bottom and side slope 1:1.5 has a bed slope of 1 in 500. Find the discharge through the channel if water flows 1m deep. Take N=0.035. (Co8)

3rd Sem / Civil, Brick Tech, Const Mgmt, Highway Engg.
Subject:- Fluid Mechanics

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 The study of liquids at rest is called (CO1)
a) Hydrostatics b) Hydrokinematics
c) Hydrodynamics d) None of the above

Q.2 When the pressure of the fluid is below atmospheric pressure, then it is called (CO4)
a) Absolute Pressure
b) Negative Gauge Pressure
c) Gauge Pressure
d) None of the above

Q.3 Bernoulli's tehorem deal with the law of conservation (CO5)
a) Energy b) Mass
c) Momentum d) None of these

Q.4 The S.I. unit of discharge is (CO5)
a) m/s b) m^2/s
c) m^3/s d) m^4/s

Q.5 At vena-contracta, the area of jet of liquid is (CO6)
a) Maximum b) Minimum
c) Equal d) None of the above

Q.6 The relation between C_c, C_v and C_d is (CO6)
a) $C_d = C_c \times C_v$ b) $C_c = C_d \times C_v$
c) $C_v = C_c \times C_d$ d) $C_d \times C_c \times C_v = 1$

Q.7 A current meter is used to measure (CO6)
a) Pressure b) Velocity
c) Viscosity d) Electric current

Q.8 Laminar flow occurs in pipes when Reynold's Number is (CO7)
a) Less than 2000
b) Lies between 2000 to 3000
c) Lies between 3000 to 4000
d) More than 4000

Q.9 If the Froude number in open channel flow is more than 1.0, the flow is called (CO8)
a) Streaming flow b) Shooting flow
c) Critical flow d) None of the above

Q.10 The discharge through a trapezoidal channel is maximum when (CO8)
a) Top width = half of sloping side
b) Top width = 1.5 x sloping side
c) Half of top width = Sloping side
d) None of these

SECTION-B

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

Q.11 Define surface tension. (CO2)

Q.12 A piezometer tube is not suitable for measuring _____ pressure. (CO4)

Q.13 A notch can measure_____ discharge than that of orifice. (CO6)

Q.14 What is an Orifice Meter? (CO6)

Q.15 Pitot tube is used for the measurement of_____. (CO6)

Q.16 Loss of head due to sudden enlargement in a pipe =_____. (CO7)

Q.17 Define upper critical velocity. (CO7)

Q.18 Give some examples of open channel. (CO8)

Q.19 Define wetted perimeter in an open channel. (CO8)

Q.20 Define non-uniform flow in an open channel. (CO8)

SECTION-C

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

Q.21 What is capillarity? Derive expression for height of capillary rise. (CO2)

Q.22 Find the depth of alcohol of specific gravity 0.784 which produces an intensity of pressure equal to 2.05 KN/m^2. Also find the pressure head in terms of water and mercury. (CO3)

Q.23 Define pressure of a liquid and write its expression along with diagram. (CO3)

Q.24 A simply U-tube manometer containing mercury is connected to a pipe in which a fluid of Sp. Gravity 0.8 and having vacuum pressure is flowing. The other end of the manometer is open to atmosphere. find the vacuum pressure in pipe, if the difference of mercury level in the two limbs is 40 cm and the height of fluid in the left from the centre of pipe is 15 cm below. (CO4)

Q.25 Write a short note on "Bourden Tube pressure Gauge". (CO4)

Q.26 Explain the continuity equation of flow. (CO5)

Q.27 Differentiate between compressible and incompressible flows. (CO5)

Q.28 In a pipe of 100 mm diameter, water is flowing with a mean velocity of 3m/s and a gauge pressure of 300 kN/m^2. Determine the total head, if the pipe is 10 m above the datum line. Neglect friction. (CO5)

Q.29 A pitot-static tube is used to measure the velocity of water in a pipe. The stagnation pressure head is 6m and static pressure head is 4.5m. Calculate the velocity of

Q.22 A mild steel tube 25 mm external diameter, 3 mm thick and 3.5 m long is used as a strut. Determine the safe compressive load which this strut can carry when both of its ends are hinged. Take $E = 2 \times 10^5$ N/mm^2 and F.O.S. = 3

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Draw the SFD and BMD for a simply supported beam of span 5 m carries a UDL of 2.25 kN/m for a length of 2m starting from a point at a distance of 1.5 m from the left hand support.

Q.24 a) Find the moment of inertia about the centroidal Y-Y axis of an inverted L-section 15 cm x 10 cm x 2.5 cm.

b) Describe the terms slope and deflection in a simply supported beam having length = L m and uniformly distributed load = P kN/m, over the whole span

Q.25 A truss ABC has a span of BC = 5 m, $\angle ABC = 60°$ and $\angle ACB = 30°$. It carries a load of 9.5 KN at its apex. Find the forces in the members AB, AC and BC.

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L1D
23/12/24(M)

220732

3rd Sem / Civil Engineering

Subject : Structural Mechanics

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 The ability of a material to deform without breaking is called_____.

a) Plasticity b) Elasticity
c) Creep d) None of these

Q.2 At the point of contra-flexure _____.

a) B.M is minimum
b) B.M is maximum
c) B.M is either zero or changes sign
d) None of these

Q.3 The unit of moment of inertia is_____.

a) L b) L2
c) L3 d) L4

Q.4 Bending stresses are also known as _____.

a) Shear stress
b) Temperature stresses
c) Longitudinal stresses
d) Hoop stresses

Q.5 The Euler's formula holds good only for_____.
a) Long column b) Short column
c) Medium column d) Weak column

Q.6 If n >(2j-3), then the frame will be_____.
a) Perfect frame b) Deficient frame
c) Redundant frame d) None of these

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Point of contra-flexure is also known as point of_____(Moment/Inflexion)

Q.8 If a section is symmetrical about X-X or Y-Y axis, then the centroid of the section will lie on _____ (Axis of symmetry/ Edge of plane)

Q.9 The shear stress at the_____ is maximum. (Top axis / Neutral axis)

Q.10 In a cantilever beam, the maximum deflection occurs at_____.

Q.11 _____ is the ratio between the equivalent length of the column to the minimum radius of gyration. (Buckling factor/ factor of safety)

Q.12 The basic perfect frame is a _____ (Rectangle / Triangle)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Write the various classifications of materials and describe any one of them in detail.

Q.14 Draw and describe the main features of stress-strain diagram for HYSD steel.

Q.15 A bar 300 mm long is 50 mm X 50 mm in section for 125 mm of its length, 25 m diameter for 75 mm length and 40 mm diameter for the remaining length. If the tensile force of 80 KN is applied to the bar, calculate the stresses induced in the different sections and total elongations of the bar. Take E=2 x 10^5 N/mm^2

Q.16 Describe the following terms:
a) Modulus of elasticity b) Shear force

Q.17 Describe the various types of supports used for transfer of load from the beams to the vertical structural members with the help of diagram.

Q.18 Fine the moment of inertia of a rectangular section 60 mm wide and 40 mm deep about its centre of gravity

Q.19 Find the moment of inertia of T-section having the flange size 15 cm x 5 cm and web size 5 cm x 20 cm, about X-X axis and Y-Y axis passing through the centroid of the section.

Q.20 Write the assumptions made in the theory of simple banding.

Q.21 A simply supported beam of length 4 m carries a uniformly distributed load of 8KN/m over the entire span. Calculate the maximum slope and deflection of the beam. Assume EI-80 X 10^9 Nmm^2 for the beam.

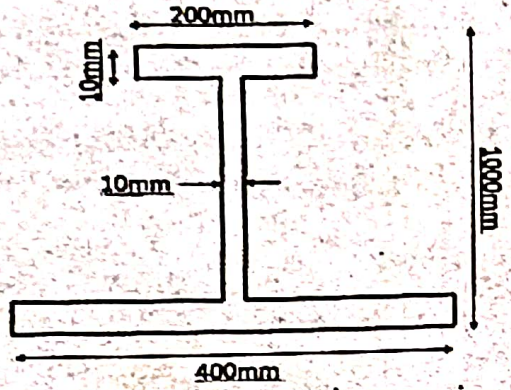
Q.34 Draw the detailed shear stress distribution diagram for a rectangular section. (CO-6)

Q.35 What is relationship between stress, strain and young's modulus of elasticity. (CO-2)

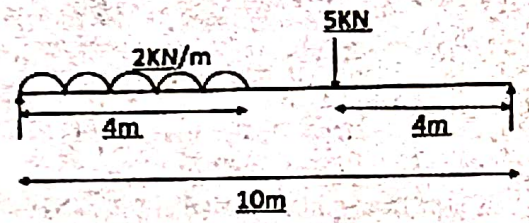
SECTION-D

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

Q.36 Determine moment of Inertia of the given I-section about Horizontal and vertical axis passing through the C.G. of section. (CO-4)



Q.37 A simple supported beam is carrying a U.D.I. of 2KN/m over a length of 4m from the left end and a point load of 5KN at 4m from the right end. The length of beam is 10m. Draw S.F.D. and B.M.D. and also calculate max. Bending moment at section. (CO-3)



Q.38 Explain mechanical properties of materials. (CO-1)

4/B
23/7/24(E)

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Roll No. .....

3rd Sem. / Civil Highway Engg.

Subject : Structural Mechanics

Time : 3 Hrs. M.M. : 100

SECTION-A

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

Q.1 The point of contra flexure occurs at a point where. (CO-3)

a) Bending moment changes sign
b) Shear force changes zero
c) Loading becomes zero
d) Bending moment and shear force both are zero

Q.2 The ability of a material to deform without breaking is called. (CO-1)

a) Elasticity b) Plasticity
c) Creep d) None of these

Q.3 When shear force at a point is zero, the bending moments at that point will be. (CO-3)

a) Zero b) Minimum
c) Maximum d) Infinity

Q.4 Moment of inertia of a triangle about its vertex is given by: (CO-4)

a) $bh^3/36$ b) $bh^3/12$
c) $bh^3/4$ d) None of these

Q.5 The steel bars in a concrete beam are embedded. (CO-5)

a) Near top section b) Near bottom section
c) In the Centre d) None of these

Q.6 At the neutral axis of a beam, the shear stress is (CO-6)

a) Zero b) Minimum
c) Maximum d) None of these

Q.7 IN a cantilever beam maximum deflection occurs at (CO-7)

a) Fixed end
b) Free end
c) Middle of the beam
d) Depends upon loading pattern

Q.8 A Column of length 'l' is hinged at both ends; its equivalent length will be equal of (CO-8)

a) 2L b) L
c) L/2 d) 0.707L

Q.9 If n >2j-3 then the frame is named as (CO-9)

a) Perfect frame b) Deficient frame
c) Redundant frame d) None of these

Q.10 The Euler's formula holds good only for (CO-8)

a) Long column b) Short column
c) Medium column d) Weak column

SECTION-B

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

Q.11 Fatigue of metal is caused by _____. (CO-1)

Q.12 What is Pure Bending Equation _____? (CO-5)

Q.13 What is B.M.D.? (CO-3)

Q.14 the ratio of lateral strain to linear strain is known as _____. (CO-2)

Q.15 Radius of gyration is represented by ____. (CO-4)

Q.16 Neutral axis of a section always passes through its _____. (CO-5)

Q.17 The shear stress at the top of rectangular section is _____. (CO-6)

Q.18 What is permissible value of deflection for the simply supported beam. (CO-7)

Q.19 What is column? (CO-8)

Q.20 The stress caused by the shearing force at a section of a beam is gap called_____. (CO-6)

SECTION-C

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

Q.21 A steel bar 2m long and 30mm diameter is subjected to an axial pull of 30 KN. If the young's modulus of elasticity of material is $2 \times 10^5 N/mm^2$.
Find (CO-2)
i) Stress ii) Strain iii) Elongation of the bar

Q.22 Define mechanical properties of materials. (CO-1)

Q.23 Define theorem of perpendicular axis. (CO-4)

Q.24 Define theorem of parallel axis. (CO-4)

Q.25 Write the assumptions made in the theory of simple bending. (CO-5)

Q.26 What do you mean by slope and deflection of a beam? (CO-7)

Q.27 Write the classification of columns. (CO-8)

Q.28 What is Euler's formula? Write its limitations. (CO-8)

Q.29 Calculate the bucking load by using Euler's formula for a circular column of 16mm diameter and 8m length. When young's modulus, $E=2x10^5 N/mm^2$. (CO-8)

Q.30 Describe the types of frames. (CO-9)

Q.31 Calculate the BM and draw BMD for a cantilever beam carrying a point load at the free end. (CO-3)

Q.32 What do you mean by a composite section? (CO-2)

Q.33 What is difference between long column and short column. (CO-8)

Q.27 What is batching? Explain methods of batching. (CO8)

Q.28 Differentiate between lean and rich mix. (CO4)

Q.29 What are the various objectives of mix design? (CO5)

Q.30 Write short note on ultra sonic pulse velocity Test. (CO9)

Q.31 Why does workability decreases with time? (CO4)

Q.32 What do you understand by bulking of sand? (CO2)

Q.33 What do you mean by formwork? (CO8)

Q.34 Write short note on Portland Pozzalana cement. (CO2)

Q.35 Write about hot weather concreting and precaution under which it is used. (CO7)

SECTION-D

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

Q.36 Explain the properties of concrete in plastic stage. (CO4)

Q.37 What is compaction? Explain methods of Compaction. (CO8)

Q.38 Why is field adjustment important? Explain various adjustment required for normal mix. (CO5)

Roll No. ..... 611 16/11/24 (E) /030741

3rd Sem / Civil, Brick Tech, Constr. Mgmt., Highway Engg.

Subject:- Concrete Technology

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 Reinforcement provided in concrete make it (CO1)
a) Strong in tension b) Weak in tension
c) weak in strength d) none of above

Q.2 Initial setting time of rapid-hardening Portland cement is nearly (CO2)
a) half a minute b) 5 minutes
c) 30 minutes d) 45 minutes

Q.3 Segregation can be prevented by (CO3)
a) Increasing continuous
b) High water content
c) Reducing height
d) Using heavy aggregate

Q.4 High temperatures (CO4)
a) increase the strength of concrete
b) decrease the strength of concrete
c) has no effect on strength of concrete
d) first increases and then decreases the strength of concrete

Q.5 1 bag of cement is taken as equal to (CO6)
a) 15 litres b) 25 litres
c) 35 litres d) 45 litres

Q6 The workability of concrete can be improved by adding (CO5)

a) fly ash b) Calcium chloride
c) Plasticizers d) Copper sulphate

Q.7 Addition of retarder to concrete decreases all of the following except (CO7)

a) rate of hydration
b) water-cement ratio
c) workability and compressive strength
d) rate of development of strength

Q8 Which type of concrete is used for construction of hydraulic structures (CO8)

a) light weight concrete
b) fibre reinforced concrete
c) ready mix concrete
d) all of above

Q.9 The final operation of finishing is called_____ (CO9)

a) Screeding b) Floating
c) Trowelling d) none of above

Q.10 The formation of cement paste on surface of concrete is called (CO4)

a) Creep b) Freezing
c) Laitance d) flow

SECTION-B

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

Q.11 The process of accurate measurement of all concrete material to ensure uniformity of proportions is called _____ (CO8)

Q.12 The standard size of concrete mould is_____ (CO9)

Q.13 Plasticizers are of great use where high degree of _____ is required (CO6)

Q.14 The nominal mix corresponding to M15 is _____. (CO5)

Q.15 Compaction factor test is_____ than slump test. (more accurate / less accurate) (CO4)

Q.16 Water cement ratio is weight of _____ to weight of_____. (CO3)

Q.17 For OPC, the initial setting time should not be less than _____minutes. (CO2)

Q.18 The mixture of cement, sand and water is called as _____. (CO1)

Q.19 Slump test is not suitable for concrete mix of_____ workability (CO4)

Q.20 Maximum water cement ratio allowed in structural concrete is_____ (CO3)

SECTION-C

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

Q.21 Why excessive compaction is not good for concrete? (CO8)

Q.22 Write the precautions while using hot weather concreting. (CO7)

Q.23 Out of concrete with 0.7 w/c ratio or 0.5 w/c ratio which is stronger? Why? (CO3)

Q.24 Write the uses of concrete in comparison to other Building materials. (CO1)

Q.25 What is the difference between shrinkage and creep? (CO4)

Q.26 Write short note on admixtures. (CO6)

Q.27 Explain the properties of concrete in plastic stage?

Q.28 Write the objectives of mix design?

Q.29 What are the function of admixtures? Explain.

Q.30 Write a short note on water reducing admixtures.

Q.31 Write a short note on ready mix concrete.

Q.32 What is stripping and stripping time? Explain.

Q.33 What is curing of concrete and its objective? Explain.

Q.34 What is batching? Explain two ways of batching.

Q.35 Explain the Rebound hammer test.

Section-D

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

Q.36 a) What are the various test for determining the workability of concrete? Explain. the slump test its suitability, advantages and disadvantages.

b) What is workability? Explain factors affecting workability of concrete.

Q.37 What are the main objective of proportioning of normal concrete? Differentiate between nominal and controlled concrete mix.

Q.38 a) What do you mean by form work? Explain the requirements of a good formwork.

b) Write the method of curing and their suitability.

LIB / 23/12/24 CE

No. of Printed Pages : 4

Roll No. .....

3rd/4th Sem./ Civil, Brick Tech., Constr. Mgmt., Highway Engg.

Sub : Concrete Technology

Time : 3 Hrs. M.M. : 100

SECTION-A

Note: Multiple type Questions. All Questions are compulsory. (10x1=10)

Q.1 In plastic stage concrete should be free form

a) Segregation b) Bleeding

c) Creep d) Both A & B

Q.2 The final setting time of OPC is _____.

a) 10 hrs b) 30 minutes

c) 1 hr d) 40 minutes

Q.3 More W/C ratio lead to

a) Softening b) Water-Cement reaction

c) Hydration of cement d) To porous concrete mix

Q.4 Air entraining agents help in reducing_____.

a) Segregation b) Bleeding

c) Creep d) Both A & B

Q.5 Shear strength of concrete is _____ of compressive strength

a) 10% to 12% b) 8% to 10%

c) 20% to 25% d) 15% to 20%

Q.6 Grade upto M20 are designated as

a) Ordinary work b) Pre tensioning work

c) Special work d) Post tensioning work

Q.7 Mix design must be performed for _____ loaded structures.

a) Heavily b) Small

c) Lightly d) Long

Q.8 In cold weathering concreting_____can be used.

a) Retarder b) Plasticizers

c) Accelerator d) Damp proofer

Q.9 The last and final operation of finishing is termed as _____.

a) Compaction b) Trowelling

c) Finishing d) Stripping

Q.10 If the pulse velocity is 4km/s-5km/s than the concrete is _____.

a) Good b) Durable

c) Bad d) None of these

Section-B

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

Q.11 UNit weight of RCC is _____.

Q.12 In pre stressed concrete the stresses are induced _____ actual use.

Q.13 The initial setting time of OPC is _____

Q.14 Chemical reaction between cement and water is knows as _____.

Q.15 Bleeding can be reduced by using admixtures like_____.

Q.16 Grade lower than _____ should not be used in pre tensioning works.

Q.17 The admixtures used in hot weather concreting are called_____.

Q.18 RMC is used for columns only. (True/False)

Q.19 Segregation can be prevented by properly storing aggregates. (True/False)

Q.20 Concrete is weak in _____ and strong in _____.

Section-C

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

Q.21 Explain the importance of concrete technology.

Q.22 Explain the importance of grading of concrete. What are the different type of grading?

Q.23 What are the various compounds of cement? Explain.

Q.24 a) Write a short note on initial setting time & final setting time

b) Write short note on water - cement ratio

Q25 Explain compacting factor test.

Q.26 What are the various factors that affect the durability of concrete.? Explain.

Q.20 Write the various precautions to be taken, before and during the concreting cold weather conditions.

Q.21 Write a short note on "Fly Ash Concrete".

Q.22 Describe the process of testing the strength of concrete using the rebound hammer test.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 a) Explain the procedure of grading of fine aggregate in detail. (4 marks)

b) Describe the effect of storage on strength of cement. (2 marks)

c) Write down the criteria for the removal of form work as per specification given in IS: 456-2007. (2 marks)

Q.24 Write down the stepwise procedure for design of normal concrete as prescribed by IS: 456-2007

Q.25 Enlist the various methods of transportation of concrete and explain any one of them in detail.

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L113

07/1/25(M)

220731

3rd Sem / Civil Engineering

Subject : Concrete Technology

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 What is Concrete Technology ?

a) Concrete Technology deals with the study of bricks

b) Concrete Technology is the study of building materials.

c) Concrete Technology deals with the study of properties of concrete.

d) None of the mentioned above

Q.2 The compound of cement abbreviated as C_2S represents.

a) Di-calcium Silicate

b) Tri-calcium Aluminate

c) Di-calcium Sulphate

d) Tetra- calcium Alumino Ferrite

Q.3 Dimensional change in concrete occur due to _____

a) Creep b) Shrinkage

c) Elasticity d) All of these

Q.4 The capacity of a concrete mixer is measured in term of _____.

a) Total volume of concrete produced per day
b) Total volume of concrete produced in 8 hours
c) Volume of concrete mix handled per batch
d) Total volume of concrete produced per hour

Q.5 Surface vibrator is effective only when the thickness of concrete member does not exceed.

a) 100 mm b) 125 mm
c) 150 mm d) 200 mm

Q.6 For under water construction _____ cement is used.

a) Portland pozolana Cement
b) Quick setting Cement
c) Ordinary Portland Cement
d) Expansive Cement

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Adding water increases _____ of the concrete.(Workability / Strength)

Q.8 _____ is the range of water in M -25 (21 L to 27 L / 34 L to 36 L)

Q.9 Admixtures that cause early setting and hardening of concrete are called _____(Retarders/ Accelerators)

Q.10 If fineness modulus of sand is 2.5, it is graded as _____(Fine sand / Coarse Sand)

Q.11 Compaction factor test is applicable when the size of coarse aggregate is up to _____(25 mm / 40 mm)

Q.12 Concrete is not recommended to be placed at a temperature above _____ ($40^{\circ}C$ / $50^{\circ}C$)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Write any four advantages and four disadvantages of concrete as a construction material.

Q.14 Write a short note on "Specific Gravity of Aggregates.

Q.15 Describe the effects of water-cement ratio on the strength of concrete.

Q.16 Write down the various causes of segregation in concrete.

Q.17 Write a short note on "Mineral admixtures".

Q.18 Write down a short on "maintenance and care of Mixes".

Q.19 Write down the objectives of curing of concrete.

Q.27 Differentiate between the following- (CO6)
i) Controlled and ordinary concrete
ii) Preliminary cube strength and works cubes strength

Q.28 State the factors to be considered while deciding upon the use of admixtures. (CO7)

Q.29 What are the various precautions to be observed before concreting in cold weather? Explain. (CO8)

Q.30 What are the methods of compaction of concrete? Explain. (CO9)

Q.31 Explain the method of repairing the old concrete work. (CO9)

Q.32 Give importance of non-destructive test. (CO10)

Q.33 What are the requirements of a good warehouse? Explain. (CO9)

Q.34 How will you determine the workability of a concrete using compaction factor test? (CO4)

Q.35 What is bulking of sand? Explain and write note on its importance. (CO2)

SECTION-D

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

Q.36 Explain the procedure to determine strength of aggregates using Impact Test. Daw the diagram impact testing machine. (CO2)

Q.37 What are the various methods used for transportation of concrete. Explain in details. (CO9)

Q.38 What are the various chemical constituents of ordinary Portland cement? Explain the function and effect of each chemical constituent. (CO2)

(**Note:** Course outcome/CO is for office use only)

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Roll No. .....

3rd Sem / Branch : Civil, Brick Tech, Constr. Mgmt, Highway Engg.

Subject:- Concrete Technology

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 Setting time of cement decreases by adding: (CO2)
a) gypsum b) hydrogen peroxide
c) calcium chloride d) sodium oxide

Q.2 For quality control of Portland cement the test essentially done for: (CO2)
a) setting time b) soundless
c) compressive strength d) all the above

Q.3 A concrete is said to be workable if: (CO4)
a) it shows sign of bleeding
b) it shows sign of segregation
c) it can be easily mixed, place and compacted
d) it is in the form of a paste

Q.4 Water cement ratio is generally expressed in volume of water required for: (CO3)
a) 20kg b) 30kg
c) 40kg d) 50kg

Q.5 Shrinkage in concrete can be reduced by using: (CO5)
a) low water cement ratio
b) low cement in the concrete
c) proper concrete mix
d) all the above

Q.6 The total number of grades of concrete stipulated in IS: 456-2000 are: (CO6)

a) 15 b) 10
c) 3 d) 5

Q.7 An accelerator shortens all of the following except: (CO7)

a) setting time
b) period of curing
c) period of removal of formwork
d) strength of concrete

Q.8 Sometime when the concrete is partially mixed at the central plant and mixing if completed enroute the concrete is known as: (CO8)

a) transit mix concrete b) ready mix concrete
c) shrink mix concrete d) none of these

Q.9 Curing of pavements, floors, roof and slab is done by: (CO9)

a) membrane method
b) ponding method
c) covering surface with bags
d) sprinkling water method

Q.10 The circulation of air in a cement warehouse should be: (CO9)

a) forced air circulation b) average
c) maximum d) minimum

SECTION-B

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

Q.11 The chemical reaction between cement and water is called _____ (CO9)

Q.12 _____ apparatus is used to determining initial and final setting time of cement. (CO2)

Q.13 Lesser the water-cement ratio _____ is the strength of concrete. (CO3)

Q.14 As the slump increases workability decreases. (True/False) (CO4)

Q.15 Tensile strength of concrete is about _____ percent of its compressive strength. (CO5)

Q.16 The admixtures used in hot weather concreting are called _____. (CO7)

Q.17 The curing in cold weather should be continued for 3 days only. (True/False) (CO8)

Q.18 The volume of one cement bag of cement is $0.05m^3$. (True/False) (CO9)

Q.19 Cement bags should be stored _____ centimeter away from the wall. (CO9)

Q.20 Magnetic methods are used to measure _____ of reinforcement in R.C.C. (CO10)

SECTION-C

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

Q.21 What are the requirements of a good concrete? Explain. (CO1)

Q.22 Give the classification of aggregates according to their size. (CO2)

Q.23 What do you understand by fineness of cement? Give the procedure to determine the fineness of cement. (CO2)

Q.24 What is water cement ratio? What is its importance in concrete strength? Explain. (CO3)

Q.25 State the difference between segregation and bleeding. (CO4)

Q.26 Explain the properties of concrete in green stage. (CO5)

c) Thickness at column face = 400mm
d) Thickness at ends = 250m
e) Base Concrete = 1:6"12 = 2.3m X 2.3m X 0.3m
f) Total depth of foundation = 1.0 m

Reinforcement

a) Main bar = 8 nos - 20 mm Φ bars
b) Anchor bars = 2nos 14 mm bars
c) Stirrups = 2 Legged 6mm Φ bar@ 150 c/c upto 1/7 and @ 300 c/c in the remaining part. (Where, *l* = Effective span)

Q.28 draw the X-section along the longer span and plan of reinforcement of a two-way RCC slab from the following data:

a) Size of room = 4.75 m X 6.25 m
b) Thickness of slab = 200 mm
c) Bearing of walls = 180 mm

Reinforcement parallel to shorter span (with alternate bars bent-up at 750 mm from edge of slab):

a) Middle strip-10mm dia @ 170 mm c/c
b) Edge stip = 10 mm dia @ 290 mm c/c

Reinforcement parallel to longer span (with alternate bars bent up at 960 mm from edge of slab):

a) Middle strip = 10 mm dia @ 190 mm c/c
b) Edge strip = 10 mm dia @ 360 mm c/c

Torsional reinforcement (both top and bottom: 1060m from edge of slab):

a) 10 mm dia bars @ 170 mm c/c parallel to shorter span
b) 10 mm dia bars @ 190 mm c/c parallel to longer span

Q.29 Draw the longitudinal section and two cross sections (one at mid span and other near the support) of a doubly reinforce RCC beam with the following data:

a) Size of beam = 300mm X 500 mm
b) Clear span = 5.0 m
c) Bearing on walls = 300 mm
d) Main tensile reinforcement = 5 bars of 20 mm dia in two tiers (3 bars in the lower tier and 2 bars in the upper tier)
e) The bars of the upper tier are bent up at L/7 centre of support
f) Spacer bars = 20 mm dia @ 1 m c/c
g) Compression reinforcement = 2 bars of 12 mm dia
h) Shear stirrups = 8 mm dia 2 legged @ 190 mm c/c

Roll No. .....

5th Sem./ Civil
Subject : RCC Design & Drawing

Time : 6 Hrs. M.M. : 120

SECTION-A

Note: Multiple Choice Questions. All Questions are compulsory. (6x1=6)

Q.1 When the slenderness ratio of column is less than 12, then it is termed as _____.
a) Short column b) Long column
c) Medium column d) None of these

Q.2 The maximum value of span / depth ratio (I/D) permissible in case of simply supported RCC beam is _____.
a) 5 b) 15
c) 10 d) 20

Q.3 For making a standard U-Shaped hook, the anchorage value prescribed is _____.
a) 4Φ b) 12Φ
c) 8Φ d) 16Φ

Q.4 Pre-stressed concrete helps in avoiding _____.
a) Diagonal tension b) Excessive deflection
c) Crack formation d) All of these

Q.5 The beam is doubly reinforced, when _____.
a) Mu = Mu(lim) b) Mu > Mu(lim)
c) Mu < Mu(lim) d) None of these

Q.6 Unit weight of R.C.C. in kN/m^3 is _____.
a) 23 b) 25
c) 24 d) 26

Section-B

Note: Objective type questions (Select the appropriate option). Al questions are compulsory. (6x1=6)

Q.7 _____ is the minimum number of longitudinal bars required fo circular column. (4 Nos./6 Nos.)

Q.8 Hooks of stirrups must be provided in _____ zon (Tensile/Compressive)

Q.9 _____ beams are provided when the dimension of beam restricted. (Singly reinforced / Doubly reinforced)

Q.10 The limit state corresponding to maximum load carrying capacity is known as limit state of _____ (Collapse / Serviceability)

Q.11 In singly reinforced beams _____ zone is below the neutral axis. (Compression / Tension)

Q.12 The minimum area of reinforcement in a slab is 0.12% of gross cross-sectional area in case of HYSD steel. (True/False)

Section-C

Note: Short answer type Question. Attempt any eight questions out of Ten Questions. (8x4=32)

Q.13 Write any four advantages and four disadvantages of pre-stressed concrete.

Q.14 An R.C.C. beam 250mm X 500 mm effective has a shear force of 300kN. If the tensile steel is 1% find the nominal shear stress in the beam and comment upon shear design. Use M-20 Grade of concrete and Fe-415 Grade of steel.

Q.15 Calculate the ultimate maximum bending moment in a slab simply supported over a room of size 5m X 7m as per IS Code Method. The edges of slab are not held down. Th live load on the slab is 3.10 kN/m^2. The slab has a bearing of 150mm on the supporting walls. Use M-20 Grade of concrete and Fe-415 Grade of steel.

Q.16 Describe the relationship between yield stress and percentage elongation of a steel bar.

Q.17 Describe the design stress-strain curve for concrete.

Q.18 A singly reinforced rectangular beam of width 250mm and 450mm effective depth is reinforced with 4 bars of 20mm diameter. Find out the depth of neutral axis and specify the type of beam. Use M-25 Grade of concrete and Fe-250 Grade of steel.

Q.19 Determine the development length, if a simply supported R.C.C. beam 300 mm X 500 mm (effective), has a clear span of 5m. The factored shear force at the centre of 300 mm wide support in 120 kN. The beam is reinforced with 4 bars of 20 mm diameter (out of 4 bars, 2 bars are bent up). Assume cover to reinforcement on all sides as 30mm. Use M-20 Grade of concrete and Fe-415 Grade of steel.

Q.20 Write a short note on characteristic strength of concrete.

Q.21 Calculate the areas of tensile steel for a simply supported and singly reinforced rectangular beam having clear span 4.25 m and superimposed load 6.25 kN/m. Use M-20 Grade of concrete and Fe-415 Grade of steel.

Q.22 Write the various differences between One-Way slab and Two-Way slab.

SECTION-D

Note: Long answer questions. Attempt any two question out of three Questions. (2x8=16)

Q.23 Design a short circular column to carry the service load 1100 kN using helical reinforcement. Use M-20 Grade of concrete and Fe-415 Grade of steel. Assume $e_{min} < 0.05D$. (CO2)

Q.24 An RCC beam 400mm X 600mm effective is subjected to a working bending moment of 400 kNm. Find the area of steel required for beam. Use M-20 Grade on concrete, Fe-415 Grade of steel and d' = 50 mm.

Q25 Design a simple supported RCC one way slab to carry a factored load of 15.75 kN/M^2 (including self weight) on an effective span of 3.25m. Bearing on wall = 300mm. Use M20 concrete and Fe-415 steel. (Assume any other missing data)

SECTION-E

Note: Attempt any three questions out of four Questions. (3x20=60)

Q.26 Draw the sectional plan and sectional elevation (assume suitable scale) for a circular column with isolated footing of uniform thickness with the following data:

a) Diameter of Column = 500 mm
b) Size of footing = 1200 mm X 1200mm
c) Thickness of footing = 400mm
d) Depth below ground level = 900 mm
e) Plinth level above ground level = 300mm
f) Height of ceiling above plinth level = 3300mm

Footing rein forcement:

a) Reinforcement both sides = 16mm θ250 mm c/c

Column rein forcement:

a) Main longitudinal bars in colum = 8-20 mm θ
b) Lateral ties in column = 10mm θ @ 250 mm c/c

Q27. Draw a detailed cross-section of column to beam connection over two floors with the following data:

a) 400mm X 400mm above ground level and 600mm X 600mm below ground level upto 300 mm depth
b) Footing = 2.0m X 2.0m

supporting walls around is 320mm, Live load on the slab is 1.5kN/m^2, weight of weathering course in 1.75 kN/m^2.

Q.37 Design a circular column to carry an axial load of 1200kN. The column has an effective length of 2.75 meter. Use M25 concrete and Fe415 steel.

Q.38 Determne the ultimate moment of resistance of a rectangular beam 250mmx500mm reinforced with 6 bars of 20mm diameter in tension zone and 4 bars of 18mm diameter in compression zone. Use M20 concrete and Fe415 steel. Take d' = 50mm.

Section-E

Note: Attempt any two question out of three Questions. (2x25=50)

Q.39 Draw the L-Section and two cross sections of a simply supported doubly reinforced rectangular RCC beam with the following data:
Clear span : 3.5 m
Beam size : 250 mm x 500 mm
Bearning on the wall : 150 mm
Tension Reinforcement : 6No's 16mmdia.bars out of which two bars are bent up at ℓ/7 from centre of support.
Compressing Reinforcement : 4 No's 12 mm dia bars out of which two bars are bent up at ℓ/7 from centre of support.
Stirrups 8mm dia @ 200mm C/c
Anchor bars : 2No's 12 mm dia bars

Q.40 Draw the sectional plan and elevation of a one way slab with the following data:
Room Size : 3m X 7m
Thickness of slab : 150 mm
Bearing of slab : 250 mm
Main reinforcement : 12 mm dia @ 150 mm C/c, alternate bar bent up.
Distribution reinforcement : 10mm dia @ 200 mm C/c

Q.41 Draw the sectional plan and elevation of a column with the following data:
Column size : 500 mm x 500 mm
Longitudinal bar : 16@20 mm dia bars
Transverse bars : 10mm dia bar@300 mm
Base reinforcement - 10 mm dia bars @ 200 mm C/c both ways.
Footing size : 2.5 m x 2.5 m
Footing thickness at free end is 150 mm and at column face is 400 mm, depth below G.L. is 1m.

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5 Sem. / Civil, Brick Tech, Constr, Mgmt., Civil Engg (Spl Highway Engg.)

Sub. : Reinforced Cement Concrete Design & Drawings

Time : 6 Hrs. M.M. : 150

SECTION-A

Note: Multiple type Questions. All Questions are compulsory. (10x1=10)

Q.1 Minimum grade of concrete to be used in Reinforced concrete as per IS:456-2000 is
a) M15 b) M20
c) M25 d) M30

Q.2 If the depth of actual neutral axis in a beam is less than the dept of critical neutral axis, then beam is called
a) Balanced beam b) Under reinforced beam
c) Over reinforced beam d) None of the above

Q.3 According to IS:456-2000 the maximum compressive stress in concrete for design purpose is taken as
a) 0.370 f_{ck} b) 0.416 f_{ck}
c) 0.446 f_{ck} d) 0670 f_{ck}

Q.4 According to IS: 456:2000 the maximum strain in concrete at the outermost compression fiber in the limit state design of flexural member is
a) 0.0020 b) 0.0035
c) 0.0050 d) 0.0065

Q.5 Prestresing can not be provided in :
a) Beams b) Slabs
c) Girders d) Arches

Q.6 In the limit state method, balanced design of a reinforced concrete beam gives
a) Smallest concrete section and maximum area of reinforcement
b) Largest concrete section and maximum area of reinforcement

c) Smallest concrete section and minimum area of reinforcement
d) Largest concrete section and minimum area of reinforcement

Q.7 Minimum live load (in kN/m²) for the assessable roof is taken as :
a) 1 b) 1.5
c) 2 d) 4

Q.8 In a doubly reinforced rectangular beam, the allowable stress in compression steel is
a) Equal to the permissible stress in tension in steel
b) More than the permissible stress in tension in steel
c) Less than the permissible stress in tension in steel
d) No related to the permissible concrete compression stress

Q.9 The side face reinforcement, if required, in T-beam will be
a) 0.1% of the web area
b) 0.15% of the web area
c) 0.2% of 0.3% of the web area depending upon the breadth of the web
d) Half the longitudinal reinforcement

Q.10 Minimum clear cover (in mm) to the main steel bars in slab provided as compared to IS 456:2000 is
a) 10 b) 15
c) 20 d) 40

Section-B

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

Q.11 Explain Limit state of serviceability.
Q.12 What is prestressed concrete?
Q.13 Define slabs and write different type of slabs.
Q.14 Explain Under-Reinforced Sections of an RCC section.
Q.15 What is Characteristic strength?
Q.16 Derive the formula of Moment of resistance for over reinforced section.
Q.17 Write partial factor of safety for concrete and steel and why it is more in case of concrete?
Q.18 What is TOR steel used in Reinforced concrete element.
Q.19 Define Neutral Axis.
Q.20 Write the circumstances under which doubly reinforced beams are used.

Section-C

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

Q.21 A singly reinforced beam 250mm x 400mm is reinforced with 4 bars of 18mm diameter. Find the ultimate moment of resistance of the beam section. Use M20 concrete and Fe 415 steel.
Q.22 Find the area of steel required for a short reinforced concrete column 400mmx400 mm to carry an axial load of 1195kN. Use M 20 concrete and Fe415.
Q.23 Write the steps for the design of shear reinforcement.
Q.24 Write a short note on curtailment of bars.
Q25 Why a T-beam is considered better as compared to a rectangular beam?
Q.26 Write the 5 differences between LSM and WSM.
Q.27 Loss due to shrinkage of concrete occurs in pre-tensioning or post-tensioning or in both. Explain the loss for your answer.
Q.28 An RCC beam 330mm x 600mm (effective) is reinforced with Fe415, 6 bars of 18 mm dia also 8mm dia 2 legged vertical stirrups of Fe 415 steel are provided at 200 mm C/C spacing. Calculate the ultimate shear strength of the beam section. M20 grade of concrete is used.
Q.29 A short RCC column 300 mm x 300 mm is reinforced with 6 bars of 20 mm diameter. The effective length of the column is 3 meter. Find the ultimate load for the column. Use M20 concrete and Fe 415 steel.
Q.30 A reinforced concrete slab is supposed to lay over a room having inside dimensions 3m x 6m. The thickness of the supporting wall is 250 mm. Live load over the slab is 2.5kN/m². Use M20 concrete and Fe 415 steel. Compute the dept of the slab.
Q.31 Enlist the 5 difference between one way and two way slabs.
Q.32 Determine the maximum UDL a beam of 200 mm x 400mm reinforced with 4 bars of 20mm diameter can carry. Span of the beam is 3 meter. Use M20 concrete and Fe415 steel.
Q.33 Enlist five assumptions made in limit state of collapse.
Q.34 Why nominal cover to reinforcement is provided?
Q.35 Which type of slab is more economical one way or two way and why? Justify your answer.

Section-D

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

Q.36 Design a simply supported two-way slab for the roof of a room of clear dimension 3mx3m. Using M25 grade concrete and Fe415 grade steel. The corners are not prevented from lifting. If the Width of

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5th Sem / Civil, Brick Tech., Constr. Mgmt., Civil Engg (Spl Highway Engg)

Subject:- Reinforced Cement Concrete Design and Drawings

Time : 6Hrs. M.M. : 150

SECTION-A

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

Q.1 Minimum grade of concrete to be used in plain concrete used under sea water as per IS: 456 - 2000 is

a) M15 b) M20
c) M25 d) M30

Q.2 For a reinforced concrete section, the shape of shear stress diagram is

a) Wholly parabolic
b) Wholly rectangular
c) parabolic above neutral axis and rectangular below neutral axis
d) rectangular above neutral axis and parabolic below neutral axis

Q.3 The compressive strength of concrete determined from 150 mm x 150 mm cylinder as compared to that determined from 150 mm x 300 mm cylinder is

a) more b) less
c) equal d) none of above

Q.4 A doubly reinforced beam is considered less economical than a singly reinforced beam because.

a) tensile steel required is more than that for a balanced section
b) shear reinforcement is more
c) concrete is not stressed to its full value
d) Compressive steel is under stressed

Q.5 Limit state of serviceability for deflection including the effect due to creep, shrinkage and temperature occuring after erection of partition and application of finisher as applicable to floors and roofs is restricted to

a) span/150 b) span/200
c) span/250 d) span/350

Q.37 Design a slab over a room 4.5 m x 6 m as per IS code. The slab are simply supported on masonry walls all round, and corners are not held down. The live load on the slab is 3 kN/m². The slab has a bearing of 150 mm on supporting walls. Use M20 concrete and Fe415.

Q.38 Determine the ultimate moment of resistance of a rectangular beam 300 mm x 600 mm reinforced with 5 bars of 25 mm diameter in tension zone and 2 bars of 25 mm diameter in compression zone. Use M20 concrete and Fe 415 steel. Take d' = 60 mm

SECTION-E

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

Q.39 Draw the sectional plan and elevation of a column with the following data :

Column Size : 600 mm X 600 mm
Longitudinal bar : 8@20 mm dia
Transverse bars : 6 mm dia bars @ 300 mm
Base Reinforcement - 12 mm dia bars @ 200 mm C/C both ways.
Footing size : 3m x 3m
Footing thickness at free end is 200 mm and at column face is 500 mm, depth below G.L is 1.5 m

Q.40 Draw the L-section and two cross sections of a simply supported RCC beam with the followings data:

Clear span: 3m
Beam Size : 300 mm x 300 mm
Bearing on the wall : 150 mm
Main reinforcement : 6-12 mm dia bars out of which two bars are bent up at 1/7 from centre of support.
Stirrups 6 mm dia @ 200 mm C/C
Anchor bars: 2 No's- 10 mm diameter

Q.41 Draw the sectional plan and elevation of a slab with the following data:

Room size : 3.5m X 7 m
Thickness of slab : 175 mm
Wall thickness : 300 mm
Main reinforcement : 12 mm dia @ 150 mm C/C, alternate bar bent up.
Distribution reinforcement : 10 mm dia @ 200 mm C/C

Q.6 Minimum clear over (in mm) to the main steel bars in beams provided as compared to IS 456:2000 is
a) 10 b) 15
c) 25 d) 40

Q.7 Percentage of steel for balanced design of singly reinforced rectangular section by limit state method depends on
a) Characteristic strength concrete
b) yield strength of steel
c) modulus of elasticity of steel
d) all of these

Q.8 Beams are designed for
a) Shear force only
b) bending moment only
c) both shear force and bending moment
d) bearing

Q.9 If the depth of actual neutral axis in a beam is more than the depth of critical neutral axis, then beam is called
a) balanced beam b) under reinforced beam
c) over reinforced beam d) none of above

Q.10 A strand is made of
a) 6 wires b) 7 wires
c) 8 wires d) 9 wires

SECTION-B

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

Q.11 Explain Limit state of durability.
Q.12 Write any two cause of losses in prestress.
Q.13 What is characteristic load?
Q.14 Write the minimum grade of concrete to be used in prestressed concrete members.
Q.15 Explain Over-Reinforced Sections for an RCC section.
Q.16 Define the term modular ratio.
Q.17 Write the formula of Moment of resistance for under reinforced section.
Q.18 Define the term Beam.
Q.19 Write the weight and volume of 1 bag of cement.
Q.20 Define two way slab.

SECTION-C

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

Q.21 A singly reinforced beam 300 mm X 600 is reinforced with 2 bars of 25 mm diameter. Find the ultimate moment of resistance of the beam section. Use M 20 concrete and Fe 415 Steel.

Q.22 Write the significance of development length in the design of reinforced concrete structures.

Q.23 A short RCC column 400 mm X 400 mm is provided with 8 bars of 16 mm diameter. If the effective length of the column is 2.25 meter, find the ultimate load for the column. Use M20 concrete and Fe 415 steel.

Q.24 A reinforced concrete slab is supposed to lay over a room having inside dimensions 3 m x 7 m. Thickness of the supporting wall is 300 mm. live load over the slab is 2 kN/m². Use M20 concrete and Fe 415 steel. Compute the depth of the slab.

Q.25 What are the considerations that govern thickness of one way and two way slabs?

Q.26 A short RCC column 450 mm X 450 mm is reinforced with 8 bars of 20 mm diameter. The effective length of the column is 2.75 meter. Find the ultimate load for the column. Use M20 concrete and Fe 250 steel.

Q.27 Describe various steps involved in the design of Axially loaded column.

Q.28 How shear is resisted in the beams? Explain.

Q.29 Explain at least four assumptions which are used for designing of concrete structure by Limit State method.

Q.30 Enlist three advantages and disadvantages of pre-stressed concrete as compared to reinforced concrete.

Q.31 Write two cases of critical sections for shear design as per IS: 456-2000.

Q.32 Define bond stress and development length.

Q.33 Write the three necessary conditions for T-beam action?

Q.34 An RCC beam 250mm wide and 500 mm deep (effective) is reinforced with Fe415, 4 bars of 20 mm dia also 8 mm dia 2 legged vertical stirrups of Fe 415 steel provide at 200 mm C/C spacing. Calculate the ultimate shear strength of the beam section. M20 Grade of concrete is used.

Q.35 Main steel is provided along which span in a one way slab and why?

SECTION-D

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

Q.36 Design a circular column to carry an axial load of 1650 kN. The column has an effective length of 3 meter. Use M 25 concrete and Fe 415 steel.

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/030752

5th Sem. / Civil., Constr. Mgmt., Civil Engg.
(Spl Highway Engg.)
Subject : Highway Engineering

Time : 3 Hrs. M.M. : 100

SECTION-A

Note: Multiple type Questions. All Questions are compulsory. **(10x1=10)**

Q.1 The organization which recommends specifications for roads in India

a) MOST b) CRRI
c) IRC d) NAHI

Q.2 The permissible gradient which is convenient for all type of vehicle is :

a) Minimum Gradient b) Limiting Gradient
c) Ruling Gradient d) Exceptional Gradient

Q.3 The final survey of road alignment is the :

a) Reconnaissance Survey
b) Location Survey
c) Land Survey
d) Traffic Survey

Q.4 Bitumen of grade 60/70 indicate that its _____ lies between 60 and 70

a) Crushing Value b) Impact Value
c) Penetration Value d) Softening Point

Q.29 Write difference between a base course and a sub base course.

Q.30 Define landslides. Write classification and causes of landslides.

Q.31 Define road drainage. List the requirements of a good road drainage system.

Q.32 What is the road maintenance? State the common causes of failure of flexible roads.

Q.33 Define pot hole. State the causes of formation and the remedial measures to be taken.

Q.34 State the difference between a dragline and a power shovel.

Q.35 State the necessity of studying the airport engineering.

Section-D

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

Q.36 Define curve. Write necessity and advantages of providing curves. Explain different types of horizontal curves provided in highways giving sketches.

Q.37 Define water bound macadam road. Explain the method of its construction. Write the advantages and disadvantages.

Q.38 Write notes on the following:

a) Lowering the water table
b) Seepage control
c) Capillary control

Q.5 Joint in the roads are necessarily constructed in :
a) Gravel Road b) Cement Concrete Road
c) WBM Road d) Bituminous Road

Q.6 The drains which are provided below the road bed for water cross drainage are:
a) Cross Drains b) Side Gutter Drains
c) Under Drains d) Catch Water Drains

Q.7 The process of disposing off the water across the road by intercepting it:
a) Sub-Surface Drainage b) Cross Drainage
c) Surface Drainage d) None of these

Q.8 Ruts are formed in flexible pavements due to :
a) Iron wheeled bullock carts
b) Excessive use of bitumen
c) Damage to wearing course due to fast moving vehicle
d) Distressed Value

Q.9 A machine which can perform digging much below its locating position:
a) Scraper b) Dragline
c) Grader d) Shovel

Q.10 A closed structure at airport to park aircraft for maintenance is :
a) Apron b) Airfield
c) Aerodrome d) Hanger

Section-B

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

Q.11 Define all weather roads.

Q.12 Define camber.

Q.13 Define preliminary survey.

Q.14 Write the materials used in highway construction.

Q.15 What is soil stabilization?

Q.16 What is bridle path?

Q.17 Write the types of causeway.

Q.18 Define cracking.

Q.19 What is hot mix plant?

Q.20 Define airfield.

Section-C

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

Q.21 What does IRC stand for? Write its functions and list the IRC classification of roads.

Q.22 Define gradient. Write the factors affecting the gradient for a road. List it's the types.

Q.23 What is sight distance? Explain different types of sight distances.

Q.24 Discuss the basic considerations governing the road alignment in plain area.

Q25 What is reconnaissance survey? Enlist its objectives and the information to be collected.

Q.26 Enlist any five requirements of a good road aggregates.

Q.27 Define the softening point for bitumen. Explain the procedure to determine it in the laboratory.

Q.28 What is the rigid pavement. Write its merits and demerits.

LiB 16/7/24 (E)

No. of Printed Pages : 4
Roll No. .....

180752/170752/120752
/030752

5th Sem / Civil, Constr. Mgmt., Civil Engg
(Spl Highway Engg)

Subject:- Highway Engineering

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 The kilometer stones painted with white base and green top depict a:
a) Village Road b) National Highway
c) Major District Road d) State Road

Q.2 The portion of road visible ahead of the driver of the vehicle and clear of all obstacle is:
a) Sight Distance
b) Overtaking Sight Distance
c) Stopping Sight Distance
d) Passing Sight Distance

Q.3 The different places having importance to be connected with the proposed road alignment are shown in:
a) Index Map
b) Key Map
c) Land Acquisition Plan
d) Detailed Location Survey plan

Q.4 Test conducted to access the ability of a roa aggregate to resist fracture under repeated load is :
a) Impact Test b) Ductility Test
c) Abrasion Test d) Penetration Test

Q.28 What is the flexible pavement, Write its merits and demerits.

Q.29 Define premix carpet. Discuss various construction steps for its construction.

Q.30 Define soil erosion. Discuss the methods to control soil erosion.

Q.31 Define sub-surface drainage. Discuss the methods of providing sub-surface drainage in roads.

Q.32 What is the road maintenance? State the objectives of road maintenance.

Q.33 Define corrugations in roads. State the causes of formation.

Q.34 Write the safety measures to be taken while working in a hot mix plant.

Q.35 Discuss the factors to be considered while selecting the site for an airport w.r.t. zoning laws.

SECTION-D

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

Q.36 Define binder. List the functions they perform as a binder. Explain different types of binders in detail.

Q.37 What is cement concrete road? Explain the method of construction of cement concrete roads.

Q.38 Write notes on the following:
a) Dumpers
b) Dragline
c) Power shovels

Q.5 On porous untreated surface, the application of low viscosity bitumen is:
a) Tack Coat
b) Prime Coat
c) Seal Coat
d) Base Coat

Q.6 Landslides which occur as a result of tension failure are:
a) Flow
b) Complex Landslides
c) Fall
d) Slides

Q.7 In sub surface drainage system, the method 'providing sand blanket over full embankment width' falls under:
a) Control of seepage flow
b) Lowering the water table
c) Control of capillary rise
d) None of these

Q.8 While repairing, the pot holes should be cut to size in:
a) Oval Shape
b) Rectangular Shape
c) Circular Shape
d) Irregular Shape

Q.9 Grader is used for:
a) Preparing Subgrade
b) Preparing Top Surface
c) Shaping Subgrade
d) Site Clearance

Q.10 The paths on the airfield surface designed for taxing the aircraft:
a) Runways
b) Aprons
c) Airfield
d) Taxiways

SECTION-B

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

Q.11 Define expressway.
Q.12 Define carriageway.
Q.13 Define location survey.
Q.14 Write two functions of road aggregates.
Q.15 What is mud pumping?
Q.16 List the main causes of soil erosion.
Q.17 What is berm?
Q.18 Define resurfacing.
Q.19 Write the types of shovels.
Q.20 Define runway.

SECTION-C

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

Q.21 Define NAHI Write functions of NAHI.
Q.22 What is camber? Give its functions.
Q.23 Define super elevation. Explain anyone methods of providing super elevation.
Q.24 Discuss the basic considerations governing the road alignment in hilly area.
Q.25 What is preliminary survey? Discuss the stages to conduct it.
Q.26 Define bitumen modifiers. Discuss the purpose of adding these materials.
Q.27 What is the aggregates crushing value? Explain the procedure to determine it in the laboratory.

L119
30/12/24(M)

No. of Printed Pages : 4
Roll No. .....

220752

5th Sem. /Civil
Subject : Highway Engineering

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple Choice Questions. All Questions are compulsory. **(6x1=6)**

Q.1 The inward transverse inclination given to the cross section of carriageway is called gradient. (CO1)

a) Camber b) Embarkment
c) Slope d) Super elevation

Q.2 The bitumen containing inert material_____. (CO3)

a) Tar b) Cutback
c) Asphalt d) Emulsion

Q.3 The major problem of hill road in winter season. (CO4)

a) Snow avalanche b) Landslide
c) Snow fence d) Snow makers

Q.4 Pot holes for repair should be cut to size in _____-shape (CO2)

a) Rectangular b) Circular
c) Square d) Triangular

Q.5 Which type of lighting is becoming popular due to energy efficiency and long life-span? (CO3)

a) HPS b) LPS

c) MH d) LEDs

Q.6 C.A.O. was establishment in the year. (CO6)

a) 1942 b) 1950

c) 1962 d) 1947

Section-B

Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Bitumen is completely soluble in_____. (CO3)

Q.8 WBM road is an example of _____. (CO2)

Q.9 Define Retaining wall. (CO2)

Q.10 The curve in which convexity lies on the outer edge of a hill road is called_____. (CO4)

Q.11 _____ is the compressible filler material. (CO4)

Q.12 Define Hanger. (CO6)

Section-C

Note: Short answer type Question. Attempt any eight questions out of Ten Questions. (8x4=32)

Q.13 What are the advantages of providing curves? (CO1)

Q.14 Write the function of N.H.A.I. (CO1)

Q.15 What is the necessity of road drainage system? (CO4)

Q.16 Write short note on resurfacing when it is necessary. (CO4)

Q.17 Write the procedure to conduct ductility test of bitumen. (CO3)

Q.18 Name the various method of soil stabilization. Explain mechanical stabilization. (CO2)

Q.19 What is the function of seal coat? (CO2)

Q.20 What are the causes of land-slides? How you will prevent them? (CO4)

Q.21 What are the main types of road signs? (CO5)

Q.22 What are the advantages of air transportation as compared to other modes of tansport? (CO6)

Section-D

Note: Long answer questions. Attempt any two question out of three Questions. (2x8=16)

Q.23 Explain Los angle's Abrasion test to determine hardness of road aggregate. State its significance. (CO3)

Q.24 (a) State the various types of camber. What are the objects of providing camber. (CO1)

(b) What are the advantages of super elevation? (CO1)

Q25 Explain in detail the maintenance of Bituminous roads.

No. of Printed Pages : 4 L113
Roll No. ..... T3/1/25(M) 220756B

5th Sem.
Branch : Civil
Subject : Solid Waste Management

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple Choice Questions. All Questions are compulsory. **(6x1=6)**

Q.1 Which of the following/s is a bio-degradable waste? (CO1)

a) Food waste b) Garden Waste
c) Paper Waste d) All of these

Q.2 The process of decomposing bio-degradable waste is called _____. (CO3)

a) Incineration b) Composting
c) Pulverisation d) Pyrolysis

Q.3 Cardboard and cartons waste is disposed of in ___(CO2)

a) Green Bin b) Blue Bin
c) Black Bin d) None of these

Q.4 Non-Ferrous metals can be separated by _____.(CO2)

a) Screening
b) Magnetic Separation
c) Eddy current Separation
d) Ballistic Separation

Q.5 Which of the following is not a waste treatment method for biomedical waste? (CO5)

a) Incineration b) Chemical Disinfecting
c) Autoclaving d) Sieving

Q.6 The major source of e-waste for the constituent Lead is _____. (CO5)

a) Mother-Board b) Computer housing
c) Chip resistors d) Solder in PCBs

Section-B

Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Define Solid Waste. (CO1)

Q.8 According to the Solid waste management rules, a _____ is a person who collects recyclable waste from streets, dumping grounds, and parks for a living. (CO2)

Q.9 Name at least four hazardous solid wastes. (CO1)

Q.10 _____ is a contaminated liquid that seeps through solid waste disposal sites and accumulates contaminants. (CO4)

Q.11 Define pyrolysis. (CO4)

Q.12 Define e-waste. (CO5)

Section-C

Note: Short answer type Question. Attempt any eight questions out of Ten Questions. (8x4=32)

Q.13 Name the different types of Solid waste and explain any two with examples. (CO1)

Q.14 Describe any four physical properties of Municipal solid waste. (CO1)

Q.15 What is the necessity of the transfer station concerning the transportation of Municipal Solid waste? (CO2)

Q.16 What is the principle of the composting process? (CO3)

Q.17 What is the Vermi-Composting? (CO3)

Q.18 What factors should be considered for site selection for a landfill? (CO4)

Q.19 Describe the various types of incinerators. (CO4)

Q.20 What are the various sources of bio-medical waste? (CO5)

Q.21 Describe the classification of the bio-medical waste. (CO5)

Q.22 What are the ill effects of the e-waste? (CO5)

Section-D

Note: Long answer questions. Attempt any two question out of three Questions. (2x8=16)

Q.23 List the tools and equipment used to store and collect the Municipal Solid waste. (CO2)

Q.24 Differentiate between the Banglore Method and the Indore method of composting. (CO3)

Q25 What is a solid waste management hierarchy? Also, explain various waste prevention and waste reduction techniques. (CO4)

Section-D

Note: Long answer questions. Attempt any two question out of three Questions. **(2x8=16)**

Q.23 Discuss the use of waste products and industrial by products in the production of bricks, blocks, and concrete. (CO1)

Q.24 Describe the role and working principles of pile-driving equipment in construction projects. (CO5)

Q25 What are the different types of rollers used in soil compaction? Describe their roles. (CO5)

No. of Printed Pages : 4 220756C

Roll No. .....

5th Sem.

Branch : Civil

Subject : Advanced Construction Technology

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple Choice Questions. All Questions are compulsory. **(6x1=6)**

Q.1 The main advantage of steel fibre reinforcement is: (CO1)

a) Increased compressive strength

b) Increased tensile strength

c) Increased flexibility

d) Reduced weight

Q.2 FRP stands for: (CO1)

a) Fibre Resistant Plastic

b) Fibre Reinforced Plastic

c) Fibre Recycled Product

d) Fibre Reinforced Polyethylene

Q.3 Which of the following vibrators is commonly used for concrete consolidation in large slabs? (CO2)

a) Internal vibrator b) Surface vibrator

c) Needle vibrator d) Form vibrator

Q.4 Which equipment is typically used in the foundatio... construction of bridges? (CO3)

a) Power shovel b) Derrick pole

c) Trenching equipment d) Scraper

Q.5 Gantry cranes are used for: (CO4)

a) Moving soil

b) Transporting materials horizontally

c) Drilling

d) Pile driving

Q.6 The main function of vibratory rollers is: (CO5)

a) Excavating

b) Compacting soil or asphalt

c) Lifting heavy materials

d) Grading Land

Section-B

Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Carbon fibres are mainly used in concrete to improve its _____ properties. (CO1)

Q.8 Plastics like HDPE and RPVC are used primarily for _____. (CO1)

Q.9 The Tremie method is used for _____. (CO2)

Q.10 Define Prefabrication. (CO3)

Q.11 Tower cranes are typically used in the construction of _____. (CO4)

Q.12 Graders are primarily used for _____. (CO5)

Section-C

Note: Short answer type Question. Attempt any eight questions out of Ten Questions. (8x4=32)

Q.13 Explain the properties and applications of polypropylene fibres in construction. (CO1)

Q.14 What are the uses of micro-silica in construction? (CO1)

Q.15 What are the benefits of using roller-compacted concrete in infrastructure projects? (CO2)

Q.16 Describe the process of underwater concreting using the Tremie method. (CO2)

Q.17 What is the significance of using geo-synthetics in embankment construction? (CO3)

Q.18 Discuss the construction equipment used in high-rise building Construction. (CO3)

Q.19 Explain the working of a power-driven scotch derrick crane. (CO4)

Q.20 How do belt conveyors assist in material handling in construction? (CO4)

Q.21 What are the working principles of bulldozers used in excavation? (CO5)

Q.22 Explain the role of compacting equipment in construction projects. (CO5)

Q.26 What are the essential requirements of valid contract?

Q.27 Write a short note on a one-time study.

Q.28 What are the physiological causes for accidents?

Q.29 Give the example of accidents in construction industry.

Q.30 What are the basic functions of a tractor?

Q.31 What are the factors affecting selection of construction equipment?

Q.32 Define work charge establishment.

Q.33 Define accounts and bills.

Q.34 What is earnest money and muster roll?

Q.35 Classify the construction industry in detail.

SECTION-D

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

Q.36 State conditions for work order.

Q.37 Why data is collected by the contractor in pre-tendering planning?

Q.38 Describe the important point should be kept in mind while organizing labour at construction site?

LID 8/7/24(M)

No. of Printed Pages : 4 180765/120765/030765

Roll No. .....

5th Sem / Civil, Brick Tech., Civil Engg (Spl Highway Engg)

Subject:- Construction Management and Accounts

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 A contractor is the person who will carry out

a) constructional work b) Relationship

c) Money d) None of the above

Q.2 The basic requirement of man is

a) Industry b) Food

c) Money d) None of the above

Q.3 The total time to complete the project is known as the

a) Advantages of scheduling

b) Limitation of Scheduling

c) Property of Scheduling

d) None of the above

Q.4 The planning between the notification inviting tender and the submission of bid is

a) Contract planning b) Pre-tender planning

c) Scheduling d) None of the above

Q.5 Organisation must have common
a) Engineer b) Workmen
c) Goal d) None of the above

Q.6 The simplest and earliest form of organization is
a) function organization
b) Line and staff organization
c) Line or military organization
d) None of the above

Q.7 For site organization, the first thing required is the details of
a) Different plans b) Labour
c) Organization d) None of the above

Q.8 The short form of British standard specification is
a) MC b) IS
c) BS d) None of the above

Q.9 When the payment is made on a time basis the system of payment is known as:
a) Time rate system b) Piece rate system
c) real wage system d) Nominal wage system

Q.10 Trade unions create a shortage of labour:
a) Yes b) No

SECTION-B

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

Q.11 Design is the function of construction management.

Q.12 After the project is properly planned it is scheduled.

Q.13 In the execution of a project only a singleoperation is to be carried out.

Q.14 The planning after the acceptance of a tender and award of a contract is_____

Q.15 Money is a great driving _____ for increasing output.

Q.16 For site organization the first thing required is the detail of_____plans.

Q.17 There are _____system of wage payments.

Q.18 Process chart is a graphic representation of an operation analysis.

Q.19 Proper lighting is essential for working at night.

Q.20 Safety first speed afterwards.

SECTION-C

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

Q.21 What are the important resources of construction industry?

Q.22 Enlist drawbacks or limitations of bar charts?

Q.23 What points must be kept in mind for an effective planning a construction work?

Q.24 What are the advantages of function organization?

Q.25 Enlist the principles of storing and stacking material at site?

No. of Printed Pages : 4 LIB 30/12/24 (E)

Roll No. 180765/120765/030765

5th Sem / Civil, Brick Tech., Civil Engg
(Spl Highway Engg)

Subject:- Construction Management and Accounts

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 The construction which is done with the help of heavy timber, Steel is known as (CO1)

a) Light construction
b) Industrial construction
c) Heavy construction
d) None of above

Q.2 Organizing is the function of construction (CO1)

a) Work b) Management
c) Detail d) None of above

Q.3 No Project can be completed by a (CO1)

a) Single person b) group of person
c) Team d) None of above

Q.4 Scheduling is a (CO2)

a) Mechanical process b) Chemical process
c) Financial process d) None of above

Q.24 Enlist any five requirements of good organization? (CO3)

Q.25 What points should be kept in mind when deciding the layout of equipment? (CO4)

Q.26 Write a short note on conditions of construction workers in India? (CO5)

Q.27 Which methods are adopted for recording the progress? (CO6)

Q.28 What are the common causes of accidents. (CO7)

Q.29 Give the difference between dragline and power shovel. (CO8)

Q.30 Name the common types of earth moving equipment's. (CO8)

Q.31 Define final payment and cashbook. (CO9)

Q.32 What are the sources of receipt of money (CO9)

Q.33 Explain the term deposite works (CO9)

Q.34 Explain why progress control is necessary. (CO6)

Q.35 What are the different stages in construction? (CO1)

SECTION-D

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

Q.36 What are the different types of measurement books? Discuss. (CO9)

Q.37 Explain the important characteristics of network techniques? (CO9)

Q.38 Describe the merits and demerits of line and staff organization. (CO3)

Q.5 The activities are represented by number of parallel bar, the method is (CO2)

a) Critical path method
b) Construction activities
c) Bar charts
d) None of above

Q.6 The backward pass starts with the earliest completed time of the (CO2)

a) Initial task
b) Secondary tasks
c) Final task
d) None of above

Q.7 The line maintain discipline and_____ (CO3)

a) Stability
b) Flexibility
c) Simplicity
d) None of above

Q.8 The location of equipment should be near to the (CO4)

a) River site
b) Station site
c) Construction site
d) None of above

Q.9 The wages improve :- (CO5)

a) Living standard
b) education of children
c) both a & b
d) None of above

Q.10 Poor eye sight is_____ cause of accident. (CO7)

a) Phycological cause
b) Physiological cause
c) Physical cause
d) None of above

SECTION-B

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

Q.11 In a network, time flows left to right. (CO2)

Q.12 After the project is properly planned it is scheduled (CO2)

Q.13 Bar chart is the _____ of planning and scheduling. (CO2)

Q.14 Function organization is a type of organization. (CO3)

Q.15 Organization has a common goal. (CO3)

Q.16 Sectional drawings should show details of _____ (CO4)

Q.17 The site plan gives indications of the north line (CO4)

Q.18 Wages are of_____types. (CO5)

Q.19 The Indian labor is the most efficient in the world. (CO5)

Q.20 Job diary is the _____ for recording progress. (CO6)

SECTION-C

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

Q.21 Classify the construction industry in details. (CO1)

Q.22 What is the importance of construction planning? (CO2)

Q.23 Give the comparison between PERT and CPM. (CO2)

Q.28 Define piers and name different types of pier and explain them briefly

Q.29 What is bearing? Explain different types of bearing used for the bridge.

Q.30 Write types of maintenance and Explain them briefly.

Q.31 Define the permanent drainage system in a tunnel along with a diagram

Q.32 Give advantages and disadvantages of bull headed rails

Q.33 Write factors affecting the route for railways and explain in detail

Q.34 What are the advantages of welding of rails and explain arc welding.

Q.35 What is the necessity of point of crossing?

SECTION-D

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

Q.36 What are the requirements of ideal sleepers? Give advantages and disadvantages of concrete sleepers.

Q.37 Explain the necessity of constructing the temporary bridge. What are the advantage and disadvantage of temporary bridge.

Q.38 What are various type of investigation done before starting the tunnel work. Explain them in briefly

LIB 8/7/24

No. of Printed Pages : 4 180753/030753/743

Roll No. .....

5th Sem / Civil, Constr, Mgmt, Civil Engg
(Spl Highway Engg)
Subject:- Railways, Bridges and Tunnels

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 The first train was run in India between Bombay and Thane on

a) 1860 b) 1900
c) 1853 d) 1904

Q.2 The function of Rail is to provide_____path

a) Semi-Rigid b) flexible
c) Rigid d) Superior

Q.3 Dog spike is_____ shaped in Section

a) Round b) Square
c) Rectangle d) Triangle

Q.4 A well maintained track reduce chances of_____

a) Buckling b) Square
c) Derailment d) None of the above

Q.5 The point of meeting of wing rail and Splice rail is called

a) Acute crossing b) Control

c) Nose Crossing d) CTC System

Q.6 Culvert span is usually less than_____m

a) 15 m b) 50m

c) 20 m d) 6m

Q.7 What is provided to support cutting Edge

a) Curb b) Both A and B

c) Repair d) None of the above

Q.8 Sliding plate is simplest type of_____

a) Contraction b) Thermal

c) Expansion d) None of the above

Q.9 Foundation is_____part of bridge Sub Structure

a) Upper most b) Middle most

c) Lower most d) None of the above

Q.10 Open foundation are suitable for bridge of_____ height

a) High b) None of the above

c) Low d) Moderate

SECTION-B

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

Q.11 In which part abutments are provided in bridge _____

Q.12 Repair and maintenance fall under _____

Q.13 The bearing which allows longitudinal Expansion of bridge girder is called_____

Q.14 In a bridge _____ is provided adjacent to abutments

Q.15 Main function of bridge foundation is to_____

Q.16 Double-headed rails are known as_____

Q.17 Bull headed rails fail due_____ of rails

Q.18 Adzing of sleeper is done at the slope of_____

Q.19 Distance between rails for broad gauge is_____

Q.20 Full face method used for_____ soils

SECTION-C

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

Q.21 Write the various functions of the railway

Q.22 Write the advantages and disadvantages of flat-footed rails

Q.23 Explain single slip and cross-overs

Q.24 Classify the tunnel according to soil type and location

Q.25 Name different methods of tunneling and purpose of lining in the tunnel

Q.26 What are the requirements and function of fish plates

Q.27 Define wing walls and their functions

Q.24 What is the function of sleepers? Enumerate the advantages and disadvantage of the cost iron sleepers? (CO2)

Q25 Explain different types of bridge bearings with neat sketches. (CO2)

No. of Printed Pages : 4
Roll No. .....

LIB
02/1/25(M)

220753

5th Sem./ Civil
Subject : Railways, Bridges & Tunnels

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple Choice Questions. All Questions are compulsory. **(6x1=6)**

Q.1 Two important Constituents in the Composition of steel used for rail are. (CO1)

a) Carbon & Sulphur
b) Manganese & Phosphorous
c) Carbon & Manganese
d) Carbon & Silicon

Q.2 In broad gauge, the clear horizontal distance between the inner flanges of two rails forming a track is- (CO2)

a) 1.676 m b) 1.00 mm
c) 1.764m d) 1.284m

Q.3 In which type of bride, the platform of the bridge is supported by cables (CO3)

a) Deck b) Through
c) Suspension d) None of the above

Q.4 The useful life of timber bridge is (CO4)

a) 1-2 years b) 25-30 years
c) 10-15 years d) 5-10 years

Q.5 Which type of tunnel section is suitable in soft rocks. (CO5)

a) Horse shoe shaped b) Rectangular type shape

c) Circular shape d) Segmental shape

Q.6 The operation of loading of rock, earth or any other excavated material is called (CO6)

a) Bloating b) Mucking

c) Driving d) Grouting

SECTION-B

Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)

Q.7 In meter gauge, the clear distance between the inner flanges of two rails forming a trace is _____. (CO2)

Q.8 The material used as an elastic cushion between the sleeper and the top of formation is called_____. (CO1)

Q.9 _____ type bridge is not suitable for a shallow wide river. (CO3)

Q.10 An abutment serves both as a pier and _____. (CO4)

Q.11 _____ shaped tunnels are suitable for carrying water. (CO6)

Q.12 _____is the art of providing fresh air inside tunnels during or after their construction. (CO6)

SECTION-C

Note: Short answer type Question. Attempt any eight questions out of Ten Questions. (8x4=32)

Q.13 What is Gauge in Railways? Explain its types. (CO2)

Q.14 What are the requirements of an ideal material for Ballast? (CO1)

Q.15 Give comparison between flat footed rails and double headed rails. (CO1)

Q.16 Write the different type of crossings. Explain them briefly. (CO2)

Q.17 Draw the plan and section showing Component parts of a Bridge. (CO4)

Q.18 Write a short note on lighting of tunnels. (CO6)

Q.19 Broadly give the Classification of bridges. (CO3)

Q.20 What are the purpose of providing bearing in a bridge structure? (CO4)

Q.21 List different shapes of tunnels & describe any two of them. (CO5)

Q.22 What is the difference between a Bridge and a culvert? (CO3)

SECTION-D

Note: Long answer questions. Attempt any two question out of three Questions. (2x8=16)

Q.23 What is the need of ventilation in tunnels?

Discuss different methods of ventilation for tunnels. (CO6)

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Roll No. .....

5th Sem /Civil, Constr., Mgmt, Civil Engg
(Spl Highway Engg.)

Time : 3Hrs. **Subject:- Quantity Surveying** M.M. : 100

SECTION-A

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

Q.1 _____is prepared on the basis of plinth area of building, the rate being deducted from the cost of similar building having similar specification, heights and construction in the locality.

a) Cube Rate Estimate b) Plinth area estimate
c) Maintenance Estimate d) Supplementary estimate

Q.2 The brickwork is measured sq meter incase of

a) Honey comb brick work
b) Brick flat soling
c) Half brick walls
d) All of above

Q.3 In long wall and short wall method of estimate, the length of long wall is the centre to centre distance between the walls and

a) Breadth of the wall
b) Half breadth of wall on each
c) One forth breadth of wall on each side
d) None of above

Q.4 While preparing a detailed estimate

a) Dimension should be measured correct to 0.01m
b) Area should be measured correct of 0.01 sqm
c) Volume should be measured correct of 0.01 cum.
d) All of above

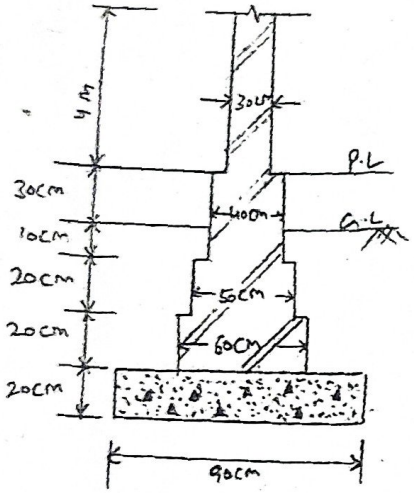
Q.37 In a side long ground in cutting, a hill road is to be constructed, calculate the quality of earth work for a length of 200 m.

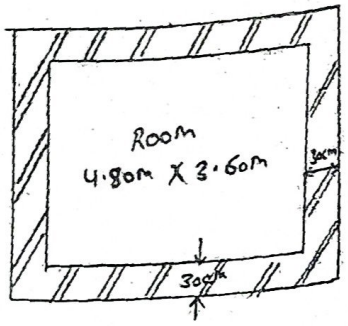
i) The depth of cutting at Rd-o is 60 cm at the centre and cross slope of ground is 8:1.
(ii) the depth of cutting at Rd.100 is 1.2m at the centre and cross slope of ground is 10:1
(iii) The depth of cutting at Rd. 200 is 1.8m at the centre and cross slope of ground is 12:1.

Formation width is 8m and side slope in cutting is 2:1

Q.38 work out the quantities of following item of work from given figure of a room 4.80m x 3.60m.

(I) Excavation for foundation.
(ii) lime concrete in foundation.
(iii) Brick masonry in foundation and Plinth.
(iv) Brick masonry in super structure.





Q.5 The unit of measurement for earth work is in
a) sq . metre b) Numbers
c) cubic meter d) Metre

Q.6 The unit of measurement of Door and window is in
a) sq . metre b) Numbers
c) Cubic metre d) Metre

Q.7 In analysis of rates contractor profit is taken as
a) 5% b) 15%
c) 10% d) 1%

Q.8 Which one of the following is the value of dismantled materials of a built up property at the end of its utility period?
a) Scrap value b) Municipal value
c) Salvage value d) Market value

Q.9 While submitting a tender, the contractor is required to deposit some amount with the department as a guarantee of a tender is known as
a) Bank gaurantee b) Earnest money
c) Security money d) None of these

Q.10 At which angle the bore are bent to the longitudinal axis of the beam ?
a) 45 degree
b) 75 degree
c) 50 degree
d) 90 degree

SECTION-B

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

Q.11 When found that actual estimate is likely to exceed more then detailed estimate are known as _____.

Q.12 _____ to _____% of estimate cost is added in an estimate for contingencies.

Q.13 Define water charge.

Q.14 Define analysis of rate.

Q.15 Define of measurement for stone work is _____.

Q.16 Define limited tender.

Q.17 Define CSR

Q.18 Brick wall are measured in sq. m if the thickness of wall is _____.

Q.19 Scrap value is generally _____% os total cost of construction.

Q.20 The total cost of construction of a project including land is called_____.

SECTION-C

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

Q.21 Write down the importance of estimating in field of civil Engg.

Q.22 Write short note on contingencies and work charged establishment.

Q.23 What are the general rules of measurement?

Q.24 Briefly explain the center - line method of building estimate.

Q.25 What is slab culvert ? Explain.

Q.26 What is overhead costs and its types ?

Q.27 What is the importance of rate of analysis ?

Q.28 Find out dry materials required for $1m^3$ ashler stone masonry in cement mortar 1:5

Q.29 Find out dry material required for $10m^3$ lime concrete.

Q.30 Explain the qualities of a good contractor.

Q.31 What are the disadvantages of lump-sum contracts.

Q.32 Prepare tender document for R.C,C works

Q.33 What do you understand by specifications ? What is the purpose of it ?

Q.34 What is your's purchase ? Explain.

Q.35 Explain the 'sinking fund' in detail

SECTION-D

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

Q.36 Prepare detail analysis of rate for $10m^3$ Cement concrete 1:5:10 in foundation or floor with brick ballast 40mm thick gauge assuming the suitable rate of required materials and manpower.

SECTION-D

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

Q.36 Prepare the analysis of rate for the cement concrete in foundation with 40 mm down ballast, cement and sand proportioning (1:2:4) for first 10 cum. Assume local suitable local rate for required material and the manpower.

Q.37 Define Valuation and various methods involved in valuation along with the purpose of valuation.

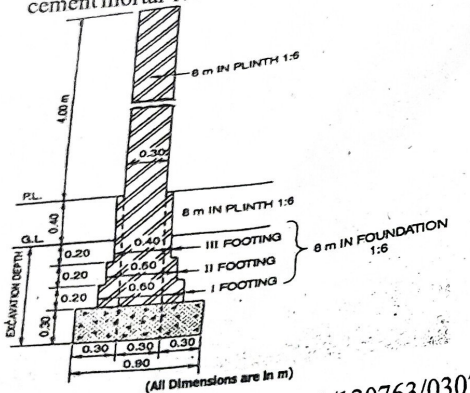
Q.38 Calculate the quantities of the following items of works for 100 m length of the boundary wall of cross section shown in fig.

i) Earth work in foundation

ii) Second class brickwork in cement mortar 1:6 in foundation & plinth

iii) First class Brickwork in cement mortar 1:6 in superstructure

iv) 12 mm thick cement Plaster on outer wall surface in cement mortar 1:4



Roll No. .....

4th Sem / Civil, Constr. Mgmt, Civil Engg (Spl Highway Engg)

Subject:- Quantity Surveying & Valuation

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 Which of the following is the purpose of valuation?
a) Approximate estimation of cost
b) Taxation
c) Detailed estimation of cost
d) Analysis of rate

Q.2 Which of the following estimate is carried out if the sanctioned estimate exceeds 10% due to change in the price?
a) Detailed Estimate b) Plinth Area Estimate
c) Supplementary Estimate
d) Revised Estimate

Q.3 Which of the following is measured in square meter?
a) Cornice
b) Concrete Work
c) Shuttering
d) Steel Bar reinforcement

Q.4 Deduction at cross wall for total length of the center line is
a) Thickness of wall b) No deduction
c) Twice the thickness of wall
d) Half of thickness of wall

Q.5 What percentage of the total cost is added in the cost of the construction for contingencies?
a) 2% b) 5%
c) 1% d) 15%

Q.6 The volume is measured correct to the nearest
a) 0.1 cum b) 0.01 Cum
c) 0.02 cum d) 0.001 Cum

Q.7 Factors affecting the analysis of rate are
a) Specification of items
b) Rate of materials
c) Wages of Labour
d) All of the above

Q.8 The approximate volume of cement required to prepare $10\ m^3$ of 1:2:4 Concrete is
a) $1.6\ m^3$ b) $3.2\ m^3$
c) $2.5\ m^3$ d) $2.2\ m^3$

Q.9 The money which the contractor has to deposit with the department when the contract is allotted to him
a) Earnest Money b) Security Money
c) Retention Money d) Both C and D

Q.10 The Value of property at the end of its useful life without being dismantled is known as
a) Salvage Value b) Scrap Value
c) Book Value d) Junk Value

SECTION-B

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

Q.11 Name the types of estimates.

Q.12 The useful part of the livable area of a building is known as_____.

Q.13 First class brickwork in cement mortar in 1:5 in superstructure is measured in_____.

Q.14 The thickness of plastering in indoor walls is_____.

Q.15 Draw Abstract of Cost Form.

Q.16 Item rate contract is also known as_____.

Q.17 The rivets, bolts and nuts are measured in_____.

Q.18 Gradual decrease in the value of property is known as _____.

Q.19 The type of contract in which the contractor agrees to execute the work as per supplied drawings is_____.

Q.20 The Weight of 12 mm dia mile steel reinforcement per metre length is_____.

SECTION-C

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

Q.21 What is necessity of making rough cost estimate before starting any civil engineering project?

Q.22 Differentiate between plinth area estimate & cubical content estimate.

Q.23 Calculate the cost of construction of G+3 building on the basis of cubical content estimate if the height of each floor is 3.2 m and the plinth area of building is 1200 m^2 and the cost of construction per cubic meter is Rs 3000.

Q.24 Find out the number of bricks required for a brick masonry wall 15 m long, 3.3 m high and 230 mm thick.

Q.25 Write down the unit of measurement & unit of payment for the following item of work:
a) Half Brick wall b) R.C.C Work

Q.26 Calculate the dry material required for 50 Sqm of cement sand (1:5) plaster 15 mm thick.

Q.27 Write short note on center line method for taking out the quantities.

Q.28 Define Specification. Write specification of RCC work.

Q.29 Find out the dry material for 1 cum of R.C.C work(1:2:4) having 1.5% steel.

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

Q.31 What is contract? Explain its basic elements.

Q.32 Define Valuation and write its method.

Q.33 Prepare tender document for RCC work.

Q.34 Write short note on Scrap Value and Sinking Fund.

Q.35 Explain the following :
a) Tender Document b) Earnest Money

Section-D

Note: Long answer questions. Attempt any two question out of three Questions. (2x8=16)

Q.23 Describe the qualifications and characteristics of a good contractor. (CO3)

Q.24 Prepare tender document for construction of an industrial shed. (CO4)

Q25 Explain replacement cost & rental return method.(CO5)

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5th Sem.
Branch : Civil
Subject : Estimation & Costing

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple Choice Questions. All Questions are compulsory. (6x1=6)

Q.1 Which is the most correct estimate? (CO1)

a) Cubic method b) Plinth area basis

c) Detailed estimate d) Preliminary method

Q.2 The RCC work is calculated for beam, lintels, column, footing slab etc. is calculated in _____. (CO2)

a) Numbers b) Quintal

c) Cubic meter d) Kilogram

Q.3 While submitting a tender, the contractor is required to deposit some amount with the department as a guarantee of the tender is known as (CO3)

a) Guarantee b) Earnest money

c) Caution money d) Bank guarantee

Q.4 Which of the following is not included in tender documents? (CO4)

a) Special terms & conditions

b) Contract agreement

c) Approved drawings

d) All of the above

Q.5 Depreciation value of an asset is equal to (CO5)

a) Cost - Scrap value b) Cost+Scrap value

c) Cost+market price d) None of these

Q.6 Scrap value of the property may be (CO5)

a) Positive only b) Constant

c) Negative only d) Both negative & positive

Section-B

Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)

Q.7 When the cost of the estimate exceed 10% or more, _____estimate is prepared. (CO1)

Q.8 Define lead. (CO2)

Q.9 While submitting tender, the contractor is to deposit 2% of estimated cost as _____. (CO3)

Q.10 Define unbalanced tender. (CO4)

Q.11 Define Scrap value. (CO5)

Q.12 Define valuation. (CO5)

Section-C

Note: Short answer type Question. Attempt any eight questions out of Ten Questions. (8x4=32)

Q.13 Write down the significance of estimating. (CO1)

Q.14 Explain the steps involved in analysis of rates. (CO2)

Q.15 Describe long & short wall method of finding out quantities. (CO2)

Q.16 Write a short note on contract documents. (CO3)

Q.17 Explain the qualities of a good contractor. (CO3)

Q.18 Prepare the tender document for RCC work. (CO4)

Q.19 Prepare the tender document for construction of a small house. (CO4)

Q.20 What factors affect the valuation of property. (CO5)

Q.21 What is year purchase? Explain. (CO5)

Q.22 Write a note on "Depreciation of building". (CO5)