

Total No. of Printed Pages:2

SUBJECT CODE NO:- E-139
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(CSE) Examination Nov/Dec 2017
Elective-II: Network Infrastructure Management
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

N.B

- 1) Q. No.1 and Q. No.6 are compulsory.
- 2) Attempt any two from remaining question from each section.

Section A

- | | | |
|-----|--|----------|
| Q.1 | Solve any two | 10 |
| | <ol style="list-style-type: none">a. Explain Network addressing.b. What is VLAN? How to configure.c. How to configure for SAN. | |
| Q.2 | <ol style="list-style-type: none">a. Explain CISCO Protocol.b. How to configure Router and Switch | 07
08 |
| Q.3 | <ol style="list-style-type: none">a. Architecture of SANb. Explain NAS connectivity option. | 07
08 |
| Q.4 | <ol style="list-style-type: none">a. Explain Spanning Tree operation.b. How static IP and Dynamic IP routing Work. | 07
08 |
| Q.5 | Write short note on any three
<ol style="list-style-type: none">a) VTPb) STPc) Subnet Maskd) Virtual LAN | 15 |

Section B

- | | | |
|-----|--|----------|
| Q.6 | Solve any two
<ol style="list-style-type: none">a) Which are practical issues of SNMPb) FLAT based Architecturec) Protocol specification of SNMP. | 10 |
| Q.7 | <ol style="list-style-type: none">a) What is performance management.b) How tools are used in network Management. | 07
08 |

2017

- Q.8 a) Explain global server load balancing and firewall load Balancing. 07
b) Explain performance matrix 08
- Q.9 a) Explain operation of SNMP V2 and V3. 07
b) What is simple Network Management protocol. 08
- Q.10 Write short note on any three 15
- a. Security Management
 - b. MIB
 - c. Remote Network Monitoring
 - d. FLAT based SLB

Total No. of Printed Pages:3

SUBJECT CODE NO:- E-16
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(Civil) Examination Nov/Dec 2017
Structural Mechanics
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- i. Solve any three questions from each section.
 - ii. Assume suitable data if necessary and mention it clearly.
 - iii. Figures to right indicate the maximum marks.
 - iv. Use of non-programmable calculator is permitted.

Section A

Q.1 Derive governing differential equations of equilibrium for a three dimensional state of stress in static condition. Also, derive equilibrium equations for dynamic condition. 13

Q.2 State assumptions made in analysis of thin plates. With usual notations, starting from slope curvature relations derive governing differential equation of thin rectangular plate subjected to transverse load 'q' per unit area. 13

- Q.3
- a) Explain plane strain and plain stress condition and derive stress-strain relationship for the same. 07
 - b) The stress components at a point in a body subjected to two dimensional state of stress are given by 06

$$\sigma_{xx} = 2x^3 + x^2y^2 - y^2 - 3$$

$$\sigma_{yy} = 4y^3 + x^3y^2 + y^2 - 6$$

$$\tau_{xy} = 5x^3y^2$$

Determine whether given state of stress is in equilibrium or not at point(-2,3)

- Q.4
- a) State the assumptions in Kirchhoff's thin plate theory. 07
 - b) Given the following system of strains 06

$$\varepsilon_x = x^2 + y^2 - x^4 + y^4 - 10$$

$$\varepsilon_y = x^3 + y^3 - x^5 + y^5 - 05$$

$$\gamma_{xy} = 5xy(x^2 + y^2 - 5) + 10$$

$$\varepsilon_z = \gamma_{zx} = \gamma_{zy} = 0$$

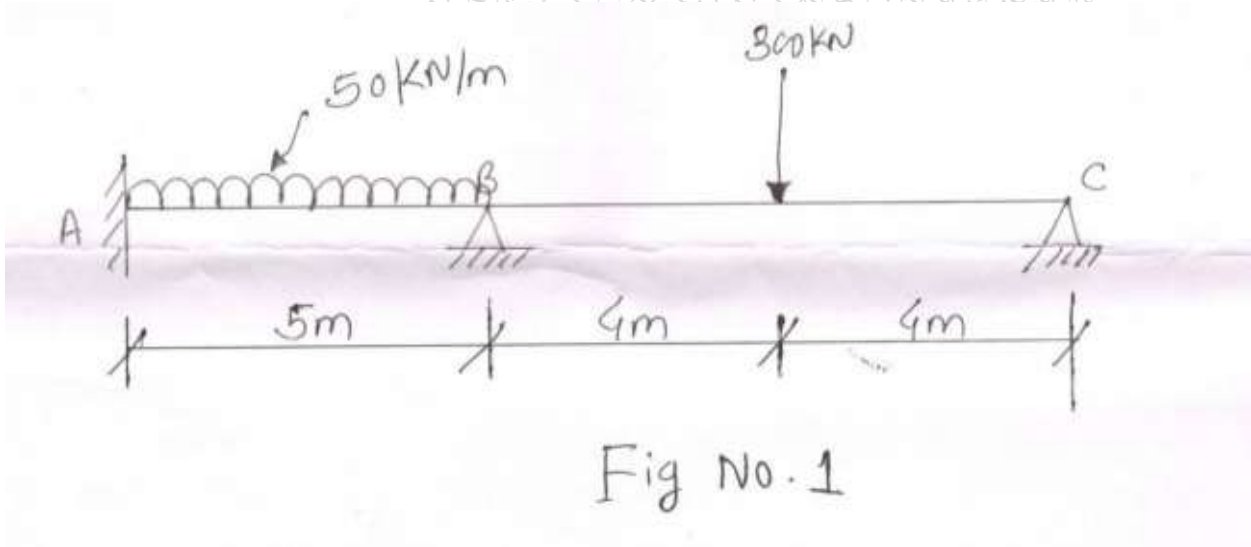
Find the displacement components in terms of x and y, assuming that the displacement and rotation at the origin is zero. Boundary condition at (x, y)=0, displacement (5,4)=0.

- Q.5 Derive with usual notations, governing differential equation of bending of circular plates. Hence write the solution for circular plate subjected to point load at center with simply supported edge over periphery. 14

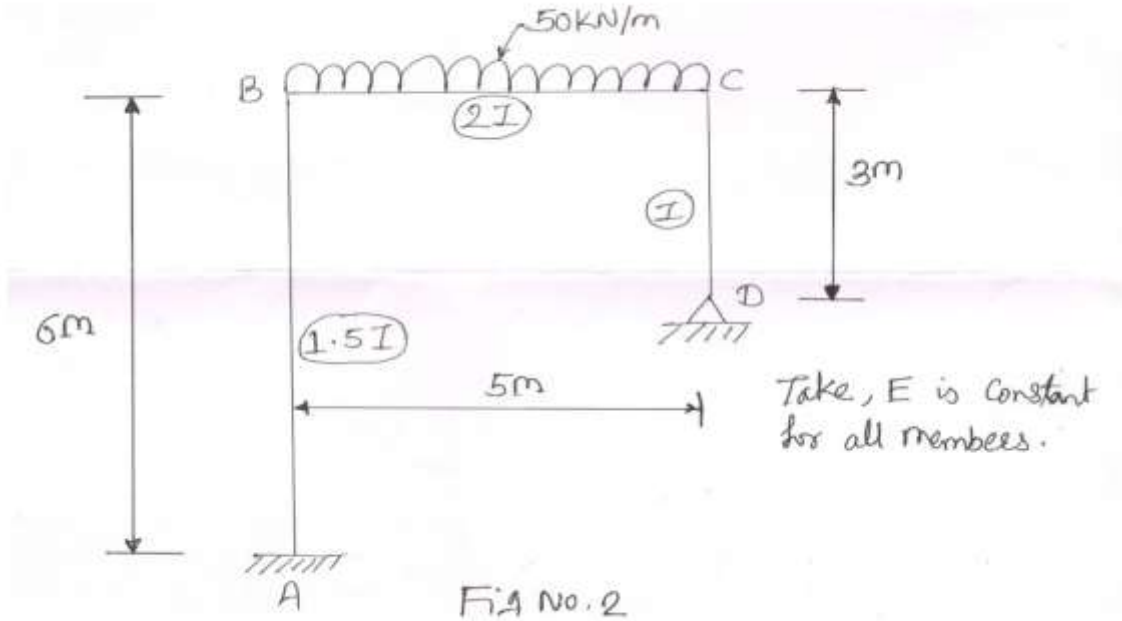
2017

Section B

- Q.6 Explain membrane theory of thin spherical shells and hence derive expressions for the membrane forces in the spherical shells. 13
- Q.7 a) Write down stepwise procedure of flexibility matrix method? 07
b) Draw the diagrams of various types of elements? 06
- Q.8 a) State and explain stepwise procedure adopted in finite element method of structural analysis. 07
b) Differentiate between membrane theory and bending theory of shells. 06
- Q.9 Draw the BMD of the continuous beam shown in fig.1 by stiffness matrix method. 13



Q.10 Analyze the frame as shown in fig.2 by using stiffness matrix method.



SUBJECT CODE NO:- E-46
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(Civil) Examination Nov/Dec 2017
Construction Management
(REVISED)

[Time: Three Hours]

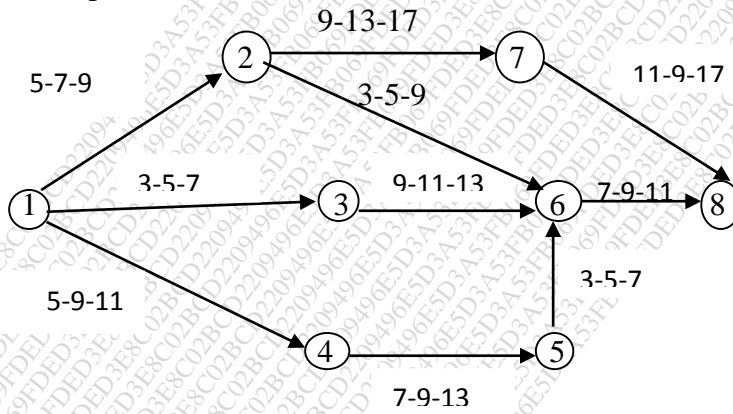
[Max.Marks:80]

N.B

- Please check whether you have got the right question paper.
(i) Solve any three questions from each section
(ii) Figures to right indicate the maximum marks.

SECTION A

- Q.1 a) Explain the role of construction industry in national development. 07
b) State the objectives and explain the function of construction management. 06
- Q.2 a) Explain the criteria for selection of construction equipment for projects. 07
b) Describe between bar chart and milestone start. 07
- Q.3 The network for certain project is shown below. Determine the expected time for each path and Which path is critical. 13



- Q.4 a) Discuss time estimate in PERT 07
b) Discuss cost slope and crashing of network 06
- Q.5 Write short notes on any three 12
- i) Backhoe
 - ii) Management Information Systems
 - iii) Network updating
 - iv) CPM

SECTION B

- Q.6 a) Write a short notes on capital Budgeting 07
b) Describe the term cost of project 07
- Q.7 a) Explain the importance of manpower in construction industry 07
b) Explain minimum wages act 06
- Q.8 a) Write a note on effective organizational communication. 07
b) Explain in detail barrier in communication. 06
- Q.9 a) What are the objectives of material management in construction industry 07
b) A construction company purchases 1000 bags of cement annually. Each bag of cement costs Rs.200 and the cost incurred in procuring each lots is Rs.100. The cost of carrying is 25%. What is the most economic order quantity? What is the average inventory level? 06
- Q.10 Write short notes on any three 12
i) Benefit Cost ratio
ii) EOQ Model
iii) Software use in project planning
iv) Safety manual

Total No. of Printed Pages:3

SUBJECT CODE NO:E -78
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(Civil) Examination Nov/Dec 2017
Professional Practice
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

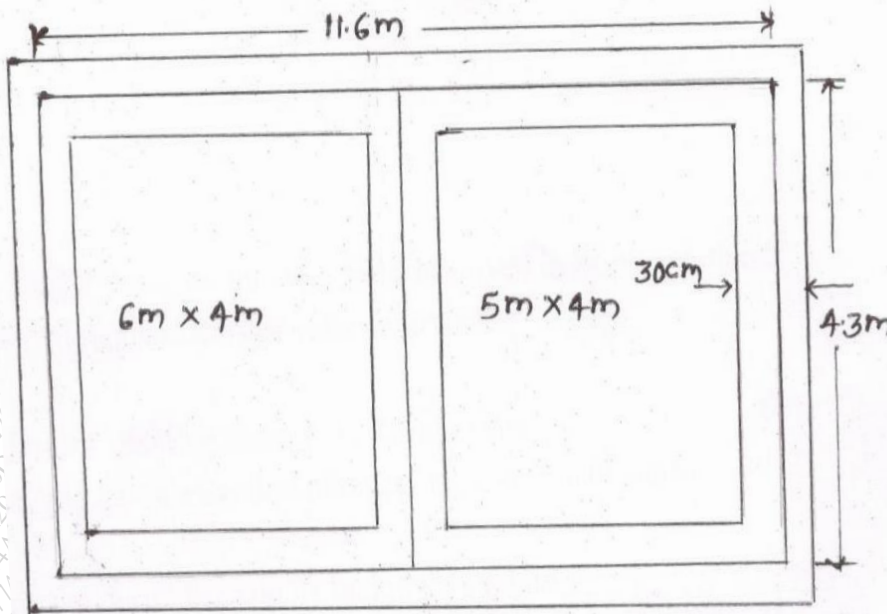
- N.B
- i. Q. No. 1 & 5 are compulsory and solves any two questions from section A & section B.
 - ii. Figures to right indicate the maximum marks.
 - iii. Assume suitable data if necessary.

SECTION – A

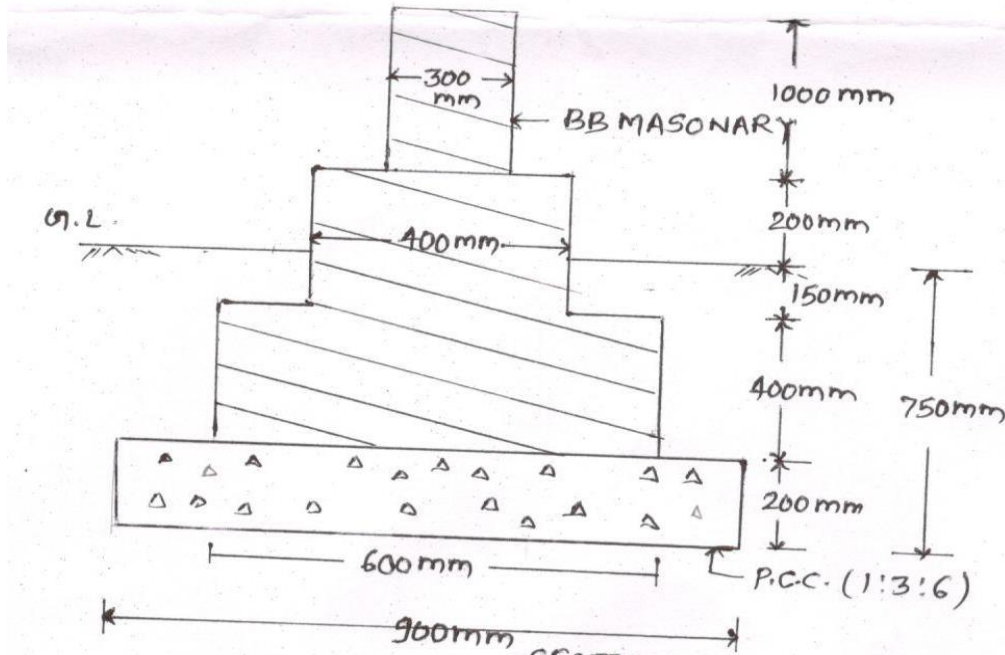
Q.1 Workout the quantities of the following items from the given drawing (fig.1)

20

- a) Excavation for foundation in murum
- b) U.C.R. Masonry in C.M. (1:6) in foundations and plinth
- c) P.C.C. (1:3:6) in foundation
- d) Internal cement plaster in all C.M.1:4
- e) Mosaic tiled flooring in all rooms.



PLAN



Q.2 Write detailed specification for:
 a) Course rubble stone masonry 05
 b) Damp proof course 05

Q.3 Carry out rate analysis for:
 a) UCR masonry in C.M (1:5) in foundation and plinth. 05
 b) Mosaic tile flooring over 20mm thick lime mortar bed (1:2:4) 05

Q.4 Explain the following:
 a) Labour wages 04
 b) Rule of measurements 04
 c) Principal in writing in specification 02

SECTION – B

Q.5 Explain the following in details.
 a) Market value 02
 b) Mobilization fund 04
 c) Contract document 04
 d) M.R and N.M.R 04

Q.6 a) What is muster rule? What are the rules to be observed in its preparations? 07
 b) What are essential requirements of valid contracts? 06

Q.7 a) What are the factors affecting changes in market value? 07
 b) Explain the procedure for selection of tender in government works. 06

- Q.8 a) What is a mortgage deed? Explain its important aspects. 07
b) What is depreciation? Describe various methods for determining depreciation. 06
- Q.9 Write short note on:
a) Negotiated contracts 04
b) Sinking Funds 04
c) Capitalized value 05

SUBJECT CODE NO:- E-111
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(Civil) Examination Nov/Dec 2017
Elective-II: Advanced Structures
(REVISED)

[Time: Four Hours]

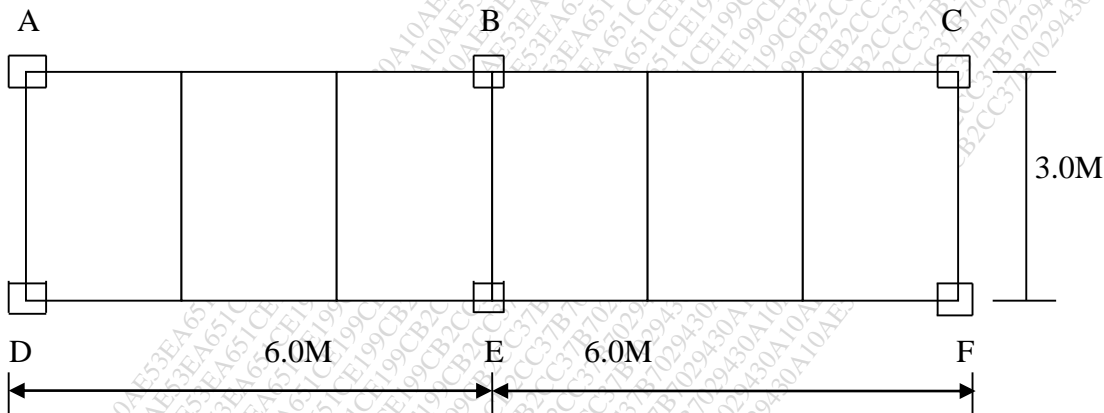
[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- i. Answer any two from section A & section B
 - ii. Assume suitable data if necessary
 - iii. Figures to right indicate the maximum marks
 - iv. Use of non-programmable calculator is allowed
 - v. Use of IS: 456-2000, is permitted

Section A

Q.1 A building rests on six columns 400mm X 400mm arranged as shown in fig 01. Each central column 20 carried a load of 1000KN & the end column carry 600KN each. Design main beam ABC & secondary beam BE of the raft foundation. Consider total wind load moment of 1200 KN-M. SBC of soil 75 KN/M². Use M20 & Fe-415



Q.2 A 600mm square column is supported on four piles of 250 mm diameter each. The center of each pile 20 is located at 0.5 m from the central column. The column carries a service load of 1000KN & moment of 75KN-M. There is moment of 250KN-M due to wind acting in any direction at a time. Design the pile cap use M25 & Fe-500 grades.

Q.3 A cylindrical water tank is 8 M in diameter. Contains water up to height of 2.8 M excluding free 20 board.

Tank rests on a ring beam at bottom 8.0 M in diameter. Dead weight of various components of water tank excluding water load transferred to ring beam is 75KN/M. Design the ring beam. Use free board 0.2M. use M-20 & Fe-415. The ring beam is supported by eight beam symmetrically placed column. Show the reinforcement in details.

No. of columns	2∅	β_s	β_m	β_T	ϕ
08	45	0.066	0.033	0.005	9.5°

Section B

- Q.4 a) Explain how do you analyze a deck slab bridge with reference to moving load on slab, dispersion of load along span. 10
- b) What are the folded plates? Discuss the merits & demerits of it. 10
- Q.5 a) Explain the various types of transmission towers & their utilities in load resistance 10
- b) Explain the terms 10
1. Solidity ration
 2. Guyed towers
 3. Lattice towers
- Q.6 a) A reinforced concrete deep girder is continuous over span of 9.0M apart from centre to centre. It is 4.5 M deep, 300 MM thick & the column are 900 MM width, if the girder supports a uniformly distributed load at 225 KN/M including its own design the beam, using M 20 concert & Fe-415 steel show reinforcement in detailed 12
- b) Compare the design of deep beam by British code& American code. 08

SUBJECT CODE NO: E-114
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(Civil) Examination Nov/Dec 2017
Elective-II: Industrial Waste Treatment
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- i. Q.No.1 of Section A and Q.No.6 of Section B are compulsory.
 - ii. Answer any two questions among the remaining questions (i.e 2 to 5) of section A and any two questions (i.e 7 to 10) of section B
 - iii. Assume suitable data. Mention it clearly.

Section A

- Q.1 Answer the following questions. 10
- a) Name various physical pollutants
 - b) Explain in brief envative approach for waste minimization.
 - c) Define EIA.
 - d) Explain with example, term “Waste Exchanges”.
 - e) Name common recyclables in industries
- Q.2 08
- a) Explain functions of state pollution control boards.
 - b) Explain oxygen sag curve. 07
- Q.3 07
- a) Differentiate between equalization and neutralization.
 - b) Explain in detail various ways of strength reduction of waste. 08
- Q.4 07
- a) Explain term “Economics of Eco-Development”
 - b) How is Environmental Audit of industries carried out? 08
- Q.5 Write short notes on: (**any three**) 15
- a) Biological pollutant associated with stream pollution
 - b) Natural system of stream purification
 - c) Responsibilities of central pollution control board
 - d) Zoning of industries

Section B

- Q.6 Answer the following questions. 10
- a) Define –sugar
 - b) What is cathode and anode in electroplating
 - c) Influent BOD of waste water entering into specific treatment is 1000mg /L and effluent BOD of waste water coming out is 50 mg/L. what is efficiencies of that specific treatment.
 - d) What is distillation?
 - e) Give full form of following abbreviations
 - i) HRT
 - ii) OLR
- Q.7 08
- a) Explain manufacturing process of sugar industry.
 - b) Draw and explain schematic flow diagram for treatment of waste in paper and pulp industry. 07
- Q.8 07
- a) Enlist and explain design parameters for High Rate Anaerobic filters.
 - b) Design a conventional ASP for following data 08
Population = 1 lakh, per capita contribution = 150 LPCD, BODS of raw sewage = 300 mg/L
efficiency of primary treatment. BODS removal = 35%. Also determine effluent BODS,
assuming treatment efficiency of conventional ASP.
- Q.9 08
- a) What are various treatment and disposal methods of industrial waste water?
 - b) What is advance waste water treatment system? Explain with its various types. 07
- Q.10 Write short notes on: (any three) 15
- a) Chemical precipitation
 - b) Ion-exchange
 - c) UASBR
 - d) Tannery industry

Total No. of Printed Pages:2

SUBJECT CODE NO:- E-199
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(CIVIL) Examination Nov/Dec 2017
Environmental Engineering-II
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

- N.B
- Please check whether you have got the right question paper.
- 1) Question No.1 and Question No.6 are compulsory.
 - 2) Solve any two Questions from remaining in each sections.
 - 3) Figures to Right indicate full marks.
 - 4) Assume suitable data and mention it clearly.

Section A

- Q.1 a) Define: 10
- a. Sullage
 - b. Sewage
- b) What are the advantages of circular sewer section
- c) What do you understand by “Sewer appurtenances”
- d) List out various physical properties of waste water
- e) What is sludge buckling?
- f) Differentiate between organic solids and Inorganic solids.
- Q.2 a) Explain self cleaning velocity and Non – scouring velocity 07
- b) A certain district of a city has a projection population of 50,000 residing over an area of 40 hectares. Find the design discharge for sewer line for the following data. 08
- (i) Rate of Water supply = 200 Lpcd
 - (ii) Ang. impermeability factor or coefficient for entire area = 0.3
 - (iii) Time of concentration = 50 min.
- The sewer line is to be designed for a flow equivalent to W.W.F plus twice the D.W.F. Assume that 75% of water supply reaches in sewer as waste water
- Q.3 a) Explain characteristics of waste water in Detail 07
- b) Design a grit chamber for a maximum flow of 8000 m³/day to remove particles of 0.2mm dia. 08
having specific gravity of 2.65. The setting velocities of these particles is found to range from 0.018 to 0.022 m/sec. Maintain a constant flow through velocity of 0.3 m/sec. through the provision of a proportional wire.

- Q.4 a) Write design parameters for primary sedimentation tank for waste water 07
- b) A bar screen is installed in a waste water treatment plant receiving a daily peak flow of crude sewage of 50,000 m³/day. Estimate the headloss through the screen and also the gross area of the screen take desired velocity of flow through screen = 0.8 m/sec. 08

- Q.5 Write short Note (any three) 15
- Screen
 - Slamming tank
 - Disposal of waste water.
 - Nitrogen Removal

Section 'B'

- Q.6 a) Draw a flow Diagram for waste water with their functions. 05
- b) Explain unit operation and unit process 05

- Q.7 a) What is solid waste? What are the disposal techniques of solid waste? Explain any one in detail. 08
- b) Distinguish between conventional filter and high rate trickling filter 07

- Q.8 An average operating data for conventional activated sludge treatment plant is as follows. 15
- Waste water flow = 35,000 m³/day.
 Volume of aeration tank = 10,900 m³
 Influent BOD = 250 mg/ lit
 Effluent BOD=20 mg/ lit
 MLSS = 2500 mg / lit
 Effluent suspended solid = 30 mg/lit
 Waste sludge suspended solid = 9,700 mg / lit.
 Quantity of waste sludge = 220 m³/day

Determine:

- Aeration period (hrs)
- F/M Ratio
- % Efficiency BOD removal
- Sludge age (days)

- Q.9 a) Explain in detail working and design of oxidation pond. 08
- b) Explain sludge digestion process? What are factor affecting sludge digestion 07

- Q.10 Write Short Note (any three) 15
- UASBR
 - Aerated lagoons
 - Septic tank
 - Rotating Biological contractors
 - Importance of Microorganism in sewage treatment

Total No. of Printed Pages:03

SUBJECT CODE NO: E-238
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(CIVIL) Examination Nov/Dec 2017
Water Resources Engineering-II
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

N.B Please check whether you have got the right question paper.

- N.B
- 1) Question No. 1 and 6 are compulsory.
 - 2) Solve any two questions from the remaining questions from each section.
 - 3) Figures to the right indicate full marks.
 - 4) Assume suitable data if necessary.

Section A

- | | | |
|-----|---|----------|
| Q.1 | Solve any five. | 10 |
| | <ol style="list-style-type: none">i) Enlist site selection criteria for Reservoir.ii) What do you meant by phreatic line?iii) Differentiate low & high gravity dam.iv) Define uplift pressure and silt pressure.v) What is buttress dam. Enlist their types.vi) List out modes of failures of gravity dam.vii) Give the classification of Reservoir.viii) Draw the diagram of zoned type of earth dam. | |
| Q.2 | <ol style="list-style-type: none">a) What do you understand by mass inflow curve and how it is prepared?b) Explain various types of reservoirs. What do you understand by multipurpose reservoir. | 08
07 |
| Q.3 | <ol style="list-style-type: none">a) Explain the step by step method of designing a high gravity dam.b) Explain with the help of diagrams various joints and water seals provided in gravity dams. | 08
07 |

2017

- Q.4 a) Derive Laplace equation for seepage through the homogeneous mass of an earth dam. 08
b) Explain the method of stability analysis of U/S slope during sudden drawdown. 07

- Q.5 Write short notes:- 15
- Flat slab buttress dam
 - Elastic theory
 - Fitter criteria for earth dam.

Section B

- Q.6 Solve any five. 10
- Define weir & barrage.
 - What is the necessity of canal falls?
 - Give the classification of canals.
 - What do you meant by energy dissipation?
 - Enlist types of spillway gates.
 - List out purpose of CD works.
 - What are the functions of Modules?
 - List out points of failure of weirs.

- Q.7 a) Using Lacey's theory, design an irrigation channel for the following data: 08
Discharge $Q=50$ cumecs, silt factor $f=1$. Side slopes = $\frac{1}{2} : 1$.

- b) Discuss various methods used for energy dissipation below spillways. 07

- Q.8 a) What are the different types of cross drainage works that are necessary on a canal alignment? State briefly the conditions under which each one is used. 08

- b) Give neat sketch of suitable designs of aqueducts for each of the following crossings: 07

- A major canal over a small drainage
- A canal carrying low discharge over a large drainage.

Q.9 a) Describe, in brief, various types of weirs. Distinguish clearly between a weir and a barrage. 08

b) What are the methods of controlling entry of silt at the headwork of a canal? 07

Q.10 Write a short notes on 15

- i) Sarda type fall
- ii) Super passage
- iii) Straight drop spillway.

Total No. of Printed Pages:2

SUBJECT CODE NO:- E-279
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(CIVIL) Examination Nov/Dec 2017
Design of Structures- III
(REVISED)

[Time: Four Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

N.B

- 1) answer any two from section A & section B
- 2) assume suitable data if necessary
- 3) figures to right indicate the maximum marks
- 4) use if non- programmable calculator is allowed
- 5) use of IS, 456, IS: 3370 , IS : 875 is permitted

Section A

- Q.1 a) Explain the advantages and disadvantages of flat slab construction 03
b) Design an interior panel of flat slab with drop. The dimensions of panel are 6.0m × 7.0m 17
diameter of column is 600 mm . live load intensity 5KN/M² and floor finish load 1.5KN/M²
use M25, Fe500 grades, also show the reinforcement in details
- Q.2 Design a combined rectangular footing for two columns A and B carrying a loads of 550KN and 750KN respectively column A is 300mm × 300mm in size and column B is 400mm × 400mm in si. The c/c spacing of the column is 3.5m. SBC may be taken as 150KN/M² Adopt M20 concrete and Fe500 steel. Draw sketch of reinforcement in detail 20
- Q.3 Design a cantilever retaining wall to support a bank of earth 5.0M high above the earth level at the toe of the wall. Earth density = 17 KN/M³ angle of internal friction 35° coefficient of friction between concrete and soil 0.45 bearing capacity 150KN/M² use M20 mix Fe 415 grade steel 20

Section – B

- Q.4 a) Differentiate between prestressed concrete and reinforced concrete 07
b) Explain various types of losses in prestress concrete. Give brief account of losses in percentage 07
c) Explain the necessity of using high grade material in prestressed concrete 06
- Q.5 a) A circular tank has 12m diameter and 3m water height. Design the flexible base water tank 07
using M30 grade concrete and Fe-415 grade steel
b) A reinforced concrete tank is 6.0m × 3.0m with a maximum depth of 2.5m of water , the 13
tank rests on ground , 150mm × 150 mm splays are provided at the junction of walls and
base slab. Design the tank use M20 & Fe- 500 grades

2017

Q.6 Design the formwork for the beam and slab floor for the following data 20

- 1) Thickness of floor: 120mm
- 2) Center to centre spacing of beams = 3m
- 3) Width of beam = 300mm and depth 400mm below slab
- 4) Height of ceiling of the roof= 3.5m above the floor

Take live load on sheathing equals 4000N/M^2 and dead weight of wet concrete is 26500N/M^3

permissible bending stress in bending & tension	10.2N/MM^2
permissible compressive stress parallel outside	7.0N/MM^2
permissible compressive stress perpendicular outside	2.1 N /MM^2
permissible shear stress	1.0N/MM^2

Total No. of Printed Pages:02

SUBJECT CODE NO: E-321
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(Civil) Examination Nov/Dec 2017
Foundation Engineering
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

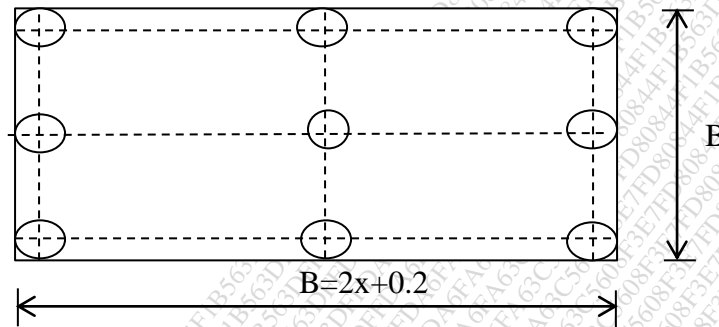
- N.B
- i. Solve any three questions from each section.
 - ii. Draw neat Sketches whenever required.
 - iii. Assume suitable data if necessary and state it clearly.

SECTION-A

- Q.1 a) Explain the method of site exploration. 07
b) Explain various geophysical methods with their limitations and use. 06
- Q.2 a) Define the terms ultimate, net and safe bearing capacities. 07
b) What are the assumptions in Terzaghi's Analysis with their limitations? 06
- Q.3 a) What is floating foundations? Discuss. 06
b) Discuss the effect of water table on bearing capacity of soil. 07
- Q.4 a) Explain types of bearing capacity failures. 06
b) Determine the depth of at which a circular footing of 2m diameter be founded to provide a factor of safety of 3, if it has to carry a safe load of 1600kN. The foundation soil has $C=10\text{kN/m}^2$, $\phi = 30^\circ$ and unit weight $=18\text{kN/m}^3$. Use Terzaghi's analysis. 07
- Q.5 Write short note on:
a) Consolidation Settlement 04
b) Constant Pressure 05
c) Auger Boring 05

SECTION-B

- Q.6 a) 200mm diameter, 8m long piles are used as foundation for columns in a uniform deposit of 10 medium clay (unconfined compressive strength=100kN/m² and adhesion factor=0.9). There are nine piles arranged in square pattern of 3x3. For a group efficiency=1.0, find the spacing between the piles. Neglect bearing.



- b) What is tilt and shift of a well? How it is rectified? 04
- Q.7 a) Discuss the design procedure of pile foundation. 07
 b) Explain difference between friction pile, and bearing pile and under reamed piles. 06
- Q.8 a) State and explain various methods of dewatering of the foundations. 06
 b) Describe the procedure for construction of foundation for tower and tank. 07
- Q.9 a) Write a note on pumping and sealing of bottom of cofferdam. 06
 b) Compare diaphragm cellular cofferdam and circular cofferdams. 05
 c) What is cofferdams? 02
- Q.10 Write short note on:
 a) Negative skin friction 05
 b) Box caisson 04
 c) Scour depth 04

Total No. of Printed Pages:3

SUBJECT CODE NO:- E-368
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(Civil) Examination Nov/Dec 2017
Elective-I: Prestressed Concrete
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

N.B

1. Solve any three questions from section A and B each.
2. Use of IS 1343 and IS 456-200 is allowed.
3. Assume suitable data where required and mention it clearly.
4. Draw neat sketches in justification where necessary.

Section A

- Q.1 A rectangular PSC beam 200×300 mm deep is prestressed by 15×5 mm dia. located at 65mm from bottom and 3×5 mm dia. located at 25 mm from top of the beam. Assuming effective stress in the steel as 850 N/mm^2 , 13
- a. Calculate the stresses at the extreme fiber of mid span section when the beam is carrying its own weight over a span of 6.0m.
 - b. If working u.d.l. of 6.0 kN/m is imposed and the modulus of rupture of the concrete is 6.50 N/mm^2 , obtain maximum working stress in the concrete and calculate the load factor against cracking. Assume density of concrete at 24.0 kN/m^3
- Q.2 a) A post tensioned PSC beam of span length 10m has a rectangular section 300mm wide and 800mm deep. The beam is prestressed by a parabolic cable concentric at support and with an eccentricity of 250mm at center of span. The c/s area of HT wires is 500 mm^2 . The wires are stressed by using a jack at the left end so that the initial force in the cable at the right end is 250 kN. Calculate, 10
- 1) The jacking force required at the left end 2) The total loss of stress in the wires. Use the following data, $\mu = 0.55$, $K = 0.003/\text{m}$, anchorage slip at jacking end = 3mm, relaxation of stresses in steel = 4% shrinkage of concrete = 0.0002, creep coefficient = 2.20.
 - b) Explain in detail the losses in prestress due to creep of concrete along with the method used for its computation. 03
- Q.3 a) Draw a neat sketch of stress distribution in end block with single anchor plate clearly explaining various zones. 03
- b) A prestressing force of 250 kN is transmitted through a distribution plate of 120 mm wide and 120 mm deep, the center of which is located at 100mm from bottom of the end block having section 120 mm wide and 300 mm deep. Evaluate the position of zero stress maximum stress, bursting tension and steel required for it. Use mild steel reinforcement. Solve the problem using "Guyon's" method. The constants required are given in the following table. 10

2017

Distribution ratio	Position of zero Stress	Position of maximum Stress	Ratio of max. to Average stress
0.3	0.16	0.36	0.33
0.4	0.18	0.39	0.27
0.5	0.20	0.43	0.23

- Q.4 A beam of symmetrical I section spanning 8.0 m has a flange width of 200 mm and flange thickness of 60 mm. The overall depth of beam is 400 mm and thickness of web is 80 mm. The beam is prestressed by parabolic cable with an eccentricity of 150 mm at center and zero at support with an effective force of 100 kN. The live load of the beam is 2000 N/m. Draw a stress distribution diagram at the mid span section for following. 13
- i) Prestress + self weight ii) prestress + self weight + live load

- Q.5 Answer any three of the following
1. What is the difference in the materials used for Reinforced cement concrete and Prestressed concrete? Justify the answer. 05
 2. For post tensioning which type of prestressing system is preferred? Explain it in detail. 05
 3. Explain Magnel's method for design of end block 04
 4. What is pressure line and its importance? How the pressure line is located at support, quarter span and midspan section? Draw neat sketches. 04

Section B

- Q.6 a) A simply supported post tensioned prestressed concrete deck slab of road bridge is 500 mm thick spanning over 10.0 m. The slab is prestressed by Freyssinet cables each containing 12 HT wires of 8.0 mm dia. The cables are spaced at 500 mm c/c at an effective depth of 450 mm. If $f_{ck} = 40 \text{ N/mm}^2$ and $f_p = 1600 \text{ N/mm}^2$, estimate the following. 08
- 1) Ultimate flexural strength of the slab for 1.0m width
 - ii) Maximum permissible uniformly distributed ultimate live load on the slab assuming load factor of 1.50 for dead load.
- b) The support section of PSC beam 110 mm wide and 300 mm deep is required to support and ultimate shear force of 45 kN. The compressive prestress at the centroid of the section is 6.0 N/mm^2 . The characteristic cube strength of the concrete is 45 N/mm^2 . The cover to the reinforcement is 50 mm. If Fe 415 is to be used, then design suitable shear reinforcement using IS 1343 recommendations. 05
- Q.7 A PSC T beam is to be designed to support imposed load of 4.8 kN/m over an effective of 5.0m span. The T-beam is made up of a flange 410 mm wide and 40 mm thk. The rib is 100 mm wide and 200 mm deep. The stress in the concrete must not exceed 15 and 0 N/mm^2 in compression and tension respectively. Check the adequacy of the section provided. Find the minimum prestressing force and minimum eccentricity, assuming 20% losses. 13

- Q.8 a) A prestressed concrete slab is to be designed as a one way slab spanning over 6.0m. The permissible compressive stress in concrete is 15.0 N/mm^2 and no tension is permitted. Loss ratio = 0.80. The live load is 12 kN/m^2 . Cable containing 12 wires of 5.0mm diameter initially tensioned to 1200 N/mm^2 are available for use. Design the slab and determine the spacing of the cables. Properly assume the depth of slab. 10
- b) Write down step by step procedure for design of composite section 03
- Q.9 a) A PSC pipe of 1.20 m diameter having a core thickness of 75 mm is required to withstand a service pressure of 1.20 N/mm^2 . Estimate the pitch of 5.0 mm dia. HT wire winding if the initial stress is limited to 1000 N/mm^2 . Permissible stresses in concrete being 12.5 N/mm^2 in compression and zero in tension. The loss ratio is 0.80. If the direct tensile strength of concrete is 2.50 N/mm^2 , estimate the load factor against cracking. 11
- b) Write down the advantages and applications of prestressed concrete poles. 02
- Q.10 Answer any three of the following
1. Which are the various modes of flexural failures? Explain in detail with sketch failure of under reinforced section. 04
 2. Which are the major modes of failure of shear cracking? Explain with neat sketches flexure shear cracking. 04
 3. Explain the recommendations made by the Indian standard Code for composite construction. 05
 4. Which are the design considerations of PSC poles. With general considerations, explain how maximum bending moment is calculated for PSC pole having its height “H” above ground and “h” below ground. 05

Total No. of Printed Pages:2

SUBJECT CODE NO:- E-369
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(Civil) Examination Nov/Dec 2017
Elective-I: Town Planning
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- (i) Question no.1 and question no.6 are compulsory.
 - (ii) Solve any two questions from question no.2 to 5 and any two questions from Q. no.7 to Q.10.
 - (iii) Figures to right indicate the maximum marks.

Section A

- | | | |
|-----|--|----------|
| Q.1 | Write short notes on any two question from the following | 10 |
| | <ul style="list-style-type: none">(i) National Planning.(ii) Distribution of Industries Act 1945.(iii) Planning for production – welfare of industrial workers(iv) Duties and Power of town planning officer. | |
| Q.2 | <ul style="list-style-type: none">i) Explain the principle of town planning.ii) Explain the necessity of town planning. | 08
07 |
| Q.3 | <ul style="list-style-type: none">i) Explain in detail problem of urbanization?ii) Explain the need for organic planning | 08
07 |
| Q.4 | <ul style="list-style-type: none">i) Explain the first sanitary and public health act of Great Britain of 1840.ii) Explain Land Acquisition Act of 1984. | 08
07 |
| Q.5 | <ul style="list-style-type: none">i) Explain impact of industrialization on Town Planning.ii) Explain the concept of Garden City. | 08
07 |

2017

Section B

- Q.6 Write short notes on any two of the following 10
- i) Distribution of land
 - ii) Zoning Powers
 - iii) Shoe string Development
 - iv) Grouping of public Building.
- Q.7
- i) How the aesthetic of town planning is accomplished? Explain in details. 08
 - ii) What are the types of survey? Explain town survey in detail 07
- Q.8
- i) What is traffic management? Explain different type of traffic survey. 08
 - ii) Explain selection of site for industries? 07
- Q.9
- i) What are the housing problems in India? 08
 - ii) Explain in details the causes of slum. 07
- Q.10
- i) Explain the feature of Master Plan. 08
 - ii) Explain classification of Urban road. 07

SUBJECT CODE NO:- E-370
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(Civil) Examination Nov/Dec 2017
Elective-I: Computer Applications in Civil Engg.
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

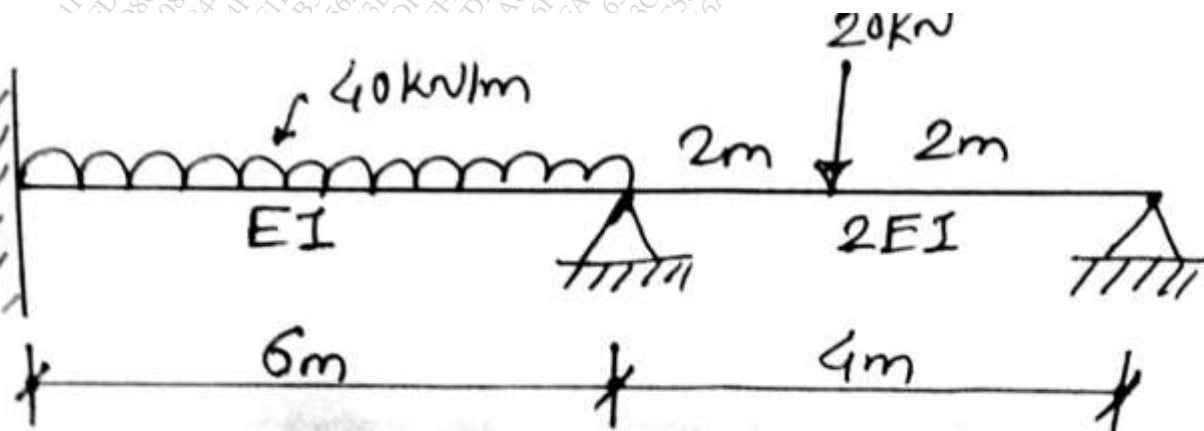
Please check whether you have got the right question paper.

N.B

- (i) Solve any three questions from each section.
- (ii) Assume suitable data if necessary and mention it clearly.
- (iii) Figures to right indicate the maximum marks.
- (iv) Use of non-programmable calculator is permitted.

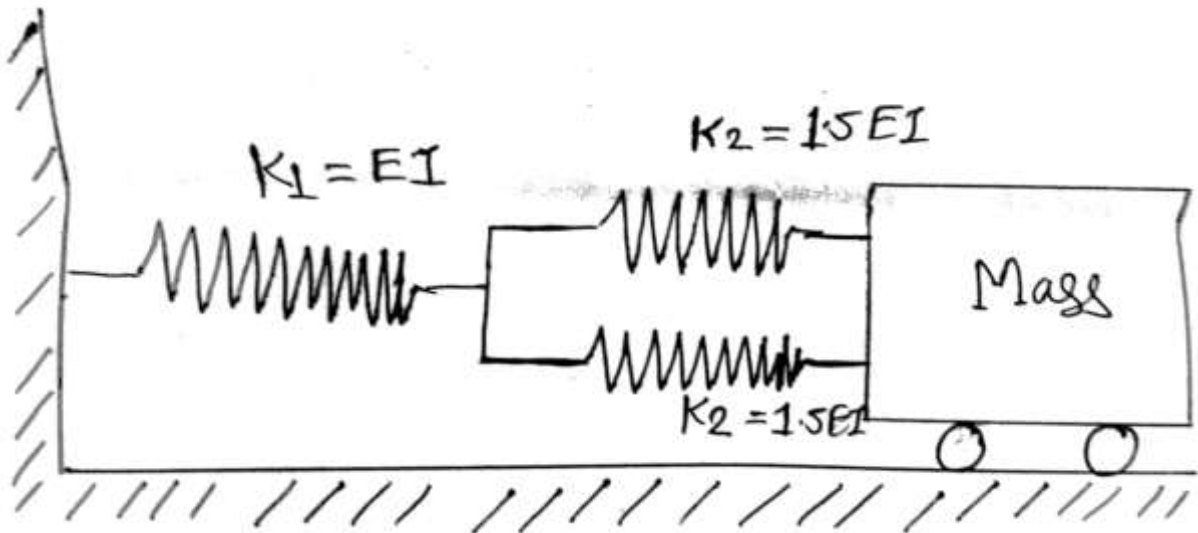
Section A

- Q.1 Explain finite difference method? Explain applications of finite difference method in the analysis of various structures? 13
- Q.2 (a) What is difference in between finite difference method & finite element method. 07
(b) How to develop finite difference equations? 06
- Q.3 (a) State and explain stepwise procedure adopted in finite element method of structural analysis. 07
(b) Draw the diagrams of various types of elements. 06
- Q.4 What is shape function? Explain in brief? Draw 3D Pascal triangle? 13
- Q.5 Analyze the following beam by using finite element method. 14

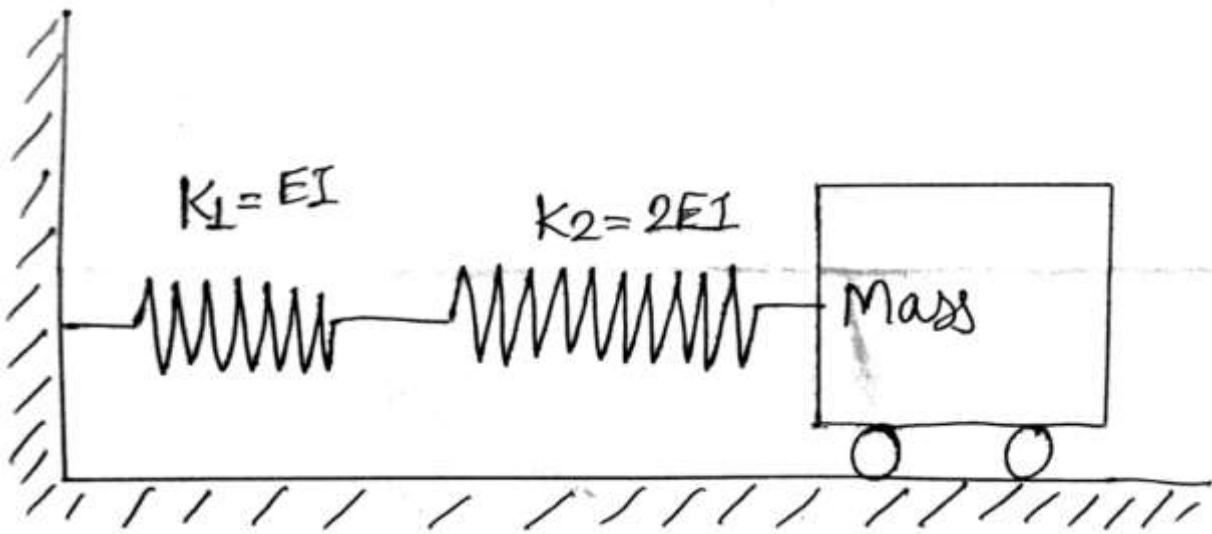


Section B

- Q.6 Explain dynamic method of analysis? Explain SDOF and MDOF systems of dynamic analysis by using SCILAB? 13
- Q.7 (a) What is difference in between free vibration and forced vibration of SDOF system? 07
 (b) Explain Earthquake response of linear types of structures? 06
- Q.8 (a) Explain and compare the analysis of beams and columns by using finite difference method & SCILAB? 07
 (b) Give any one programme in SCILAB? 06
- Q.9 (a) Explain Rayleigh-Ritz method ? Show the equation of motion? 07
 (b) What is difference in between FEM & SCILAB? 06
- Q.10 Write down the equation of motion for the following system. 14



&



Total No. of Printed Pages:02

SUBJECT CODE NO: E-371
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(Civil) Examination Nov/Dec 2017
Elective-I: Plumbing Engineering
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

N.B

- 1) Q.1 & Q.6 are compulsory.
- 2) Solve any two questions from each Section from remaining

Section A

- | | | |
|-----|---|----------|
| Q.1 | Solve any three. | 12 |
| | <ol style="list-style-type: none">a) Define water conservation systems.b) Define structural parameter of Sunken toilet.c) Define different types of flushing devices.d) Types of rentse) Methods of Sanitary Drainage | |
| Q.2 | <ol style="list-style-type: none">a) What is mean by industrial waste? Define in details.b) Enlist local municipal laws relating to plumbing and basic information on fire static water requirements. | 07
07 |
| Q.3 | <ol style="list-style-type: none">a) Explain plumbing Terminologies in details.b) Describe location of valves in details. | 07
07 |
| Q.4 | <ol style="list-style-type: none">a) Give the list of trap scuf and explain in details.b) What is mean by indirect waste? Explain in details. | 07
07 |
| Q.5 | <ol style="list-style-type: none">a) Define floor slopes in details.b) Give Advantages and disadvantages of horizontal and vertical wet venting. | 07
07 |

2017

Section B

- Q.6 Solve any three. 12
- a) Explain jointing methods in details.
 - b) Why storm drain is required? Explain in details.
 - c) What types of pipe materials and jointing methods are required in high rise building?
 - d) Introduction to solar water systems.
 - e) Explain in details of Gully chambers and man holes.
- Q.7 a) Explain T and Y fitting in details. 07
- b) Explain methods of testing for Storm Drainage. 07
- Q.8 a) What is mean by backflow prevention? Explain in details. 07
- b) Explain in details of hot water supply and return systems. 07
- Q.9 a) Explain Sumps and Pumps in details. 07
- b) Explain in details of Hydro-pneumatic system for High rise building. 07
- Q.10 a) Derive sizing calculations for water supply in High rise buildings. 07
- b) Explain different methods of hot water generation other than solar hot water system. 07

Total No. of Printed Pages:02

SUBJECT CODE NO:- E-372
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(Civil) Examination Nov/Dec 2017
Elective-I: Ground Water Engineering
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

N.B

- 1) Q.1 and Q.6 is compulsory.
- 2) Solve any 3 questions from each section.

Section A

Q.1	Solve any three.	12
	a) Describe ground water potentials in India.	
	b) What is mean by water retention properties?	
	c) Explain soil water belt saturation zone.	
	d) Explain laminar and turbulent flow.	
	e) Explain radiant flow of wells.	
Q.2	a) Explain ground water extent and potential of Maharashtra State.	07
	b) Explain water balance budget and equations in details.	07
Q.3	a) What is mean by aeration zone describe in details?	07
	b) Explain various process for finding out the ground water system.	07
Q.4	a) Describe Darcy's laws and its applications.	07
	b) Describe Test measurement for aquifer.	07
Q.5	a) Describe infiltration galleries.	07
	b) What is mean by Radial flow of well? Describe in details.	07

Section B

Q.6	Solve any three	12
	a) Explain Gravity method for ground water Exploration.	
	b) Explain the process of saline zeotic identification.	
	c) Explain process for waste water recharge.	
	d) Describe process for flow measurements for pumps.	
	e) Enlist pollution control norms.	
Q.7	a) Explain Electrical resistivity methods in details.	07
	b) Find mathematical model for ground water using FEM.	07
Q.8	a) Explain processes for saline zeotic identification.	07
	b) What is mean by detention Dam? Explain in details.	07
Q.9	a) Derive equations for flow measurements for pumps.	07
	b) How can derive hard water? What are its effects on human body?	07
Q.10	a) What is the role of Pollution control boards in India?	07
	b) Derive Ratio metric methods for ground water exploration.	07