

Nilachal Polytechnic
Bhubaneswar
1st Internal EXam. Mock Test 2017(W)
Construction Management(CET-601)

Branch : Civil Engg. 5th Semester
 Time: Full Mark: 60

Answer all the following questions

1. a) Define an event & critical event. [02]
 b) Explain the objectives and major functions of construction management. [05]
 c) Define 'Construction Management', what are the main objectives of construction management? Discuss briefly the major functions of construction management. [08]
2. a) What is breakdown structure? [02]
 b) Differentiate between CPM & PERT. [05]
 c) Explain major activities involved in different stages of planning for a construction project. [08]
3. a) What is a Bin Card? [02]
 b) Differentiate between construction stage and commissioning stage [05]
 c) Prepare a construction schedule with the help of Bar Chart for a compound wall describing the various steps in its preparation. [08]
4. a) Define Index & invoice. [02]
 b) Differentiate between Bin card and stores ledger. [05]
 c) The following table gives the activities in a construction project (i) Draw the network for the project (ii) Find the critical path (iii) Find free float and total float for each activity.

Activity	Duration	
1-2	20	
1-3	25	
2-3	10	
2-4	12	
3-4	06	
4-5	10	[08]



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1st Internal EXam. Mock Test 2017(W)
Structural Design-I(CET-501)

Branch : Civil Engg. 5th Semester
 Time: Full Mark: 60

Answer all the following questions

1. a) Write down two advantages of R.C.C. over other materials. [02]
 b) A RCC beam of overall dimensions 250mm x 450mm is subjected to a bending moment of 50 knm. Using Fe415 and M₂₀, design the section by WSM of design and show the details of main reinforcement by a neat sketch. [05]
 c) A rectangular RCC beam of size 350mm width x450mm effective depth is reinforced with 4 nos. 16mm dia. Bars. Find the safe concentrated central point load on a simple span of 3.6m, which the beam can carry in addition to its self-weight. The materials are M20 grade concrete and HYSD steel of grade Fe415. Use WSM. [08]
2. a) How is the modular ratio defined ? [02]
 b) Calculate the moment of resistance and area of steel required for limiting section if width of beam 300 mm, total depth is 700 mm and effective cover is 50 mm. Use LSM. [05]
 c) A cantilever beam of 3 m span carries an UDL of 20 kn/m inclusive of its self weight. Find the steel area for balanced section if it is reinforced in tension only. The width is half the effective depth. The materials are M20 and HYSD Fe415. Use WSM. [08]
3. a) Differentiate between limit states of collapse and limit states of serviceability. [02]
 b) Derive the following expression for MOR of a rectangular section without compression reinforcement in LSM of design, Where the terms carry their usual meanings, $\mu = 0.87 F_y A_{st} d (1 - A_{st} F_y / b d F_{ck})$ [05]
 c) Find the depth of neutral axis of a singly reinforced RC beam of 250 mm width and 500 mm effective depth. It is reinforced with 4 bars of 20 mm diameter. Use M20 concrete and Fe 415 bars. Also check for type of section. [08]
4. a) Define characteristics strength of material. [02]
 b) Write down the assumption made for flexure in limit state method of design. [05]
 c) Design a rectangular beam simply supported over a clear span of 6 m, if superimposed load is 25 kN/m and support width is 30 cm each. Use M₁₅ and Fe₄₁₅. Adopt LSM. [08]



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1st Internal EXam. Mock Test 2017(W) High Way Engg.(CET-502)

Branch : Civil Engg.

5th Semester

Time:

Full Mark: 60

Answer all the following questions

1. a) Name the different types of roads as per IRC classification? [02]
- b) Write down the various functions of CRRl. [05]
- c) Draw the typical cross-section of a national highway in cutting and filling indicating the width of pavement ,roadway and land also layers of road from the base. [08]
2. a) What is kerb ? [02]
- b) Write short notes on
 - i) Stopping sight distance, ii) Cant and camber iii) Sight distance [05]
- c) Calculate the stopping sight distance on a highway at a descending gradient of 2.35% for a design speed 65 kmph. Take the reaction time as 2.5 sec and design co-eff. Of friction as 0.35. [08]
3. a) What is formation width of a road? [02]
- b) Calculate the super elevation required for a concrete road 7.5m wide on a curve of 800m radius for a design speed of 50 kmph? [05]
- c) Design the rate of super elevation for a horizontal highway curve radius 750m and speed 110kmph. [08]
4. a) What is camber or cross slope? [02]
- b) What do you mean by overtaking sight distance? Derive the expression for overtaking sight distance two lane with two way traffic. [05]
- c) The area of a certain district in India is 13,400 sq.km and there are 12 towns as per 1981 census. Determine the length of different categories of roads to be provided in this district by the year 2001. [08]



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Bhubaneswar

1st Internal EXam. Mock Test 2017(W) Concrete Technology(CET-504)

Branch : Civil Engg.

5th Semester

Time:

Full Mark: 60

Answer all the following questions

1. a) What do you mean by M30 grade of concrete? [02]
- b) Write down advantages and disadvantages of concrete as a construction material? [05]
- c) Write down the characteristics of aggregate and explain in brief their influence in the characteristic of concrete. [08]
2. a) What is hydration of cement? [02]
- b) What are the physical properties of cement? Describe any one briefly.? [05]
- c) Explain different admixtures used in concrete and their function.[08]
3. a) What is 43 grade of cement.? [02]
- b) Describe how the presence of deleterious substance in aggregate affect the strength and Durability of concrete. [05]
- c) What is workability? Explain any two method of testing workability of concrete? [08]
4. a) What do you mean by admixture? [02]
- b) How does compacting factor test is conducted in laboratory? Explain in brief with the help of neat sketch? [05]
- c) What are the various properties of admixtures ? Describe them briefly [08]



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1st Internal EXam. Mock Test 2017(W)

Surveying-II.(CET-503)

Branch : Civil Engg.

5th Semester

Time:

Full Mark: 60

Answer all the following questions

1. a) Define parallax. [02]
b) State different types of bench marks. Mention the use of each category. [05]
c) The following readings are successively taken with a level:
0.325,0.635,0.585,1.665,1.735,1.895,2.450,1.780,0.355,0.685,1.235 and 2.155
The instrument was shifted after 3rd and 6th readings. Prepare a level book and calculate RLs of different points. The RL of first point is 255.500m. [08]
2. a) What is difference between line of collimation and axis of telescope [02]
b) Describe the procedure of temporary adjustment of a dumpy level. [05]
c) The following consecutive readings were taken with a level and a 4 m. leveling staff on a continuously sloping ground at common interval of 30m.
0.80,1.540,2.440,3.120,3.824,0.450,1.380,2.100,2.850
The RL of the first point is 200m. Make a level book and apply usual checks. [08]
3. a) Why are face left and face right observations taken ? [02]
b) Reciprocal leveling was done to determine the difference in level between two points A and B on the opposite banks of a river. The following readings were taken:

Position of level	Staff reading	
	A	B
Level near A	2.570	2.170
Level near B	2.360	1.410

If RL of B is 300.250 m What is the RL of A? [05]

- c) The radius of curvature of the arc of a bubble tube is 40m. The tube is graduated at 3mm interval. Calculate the sensitivity of the bubble. [08]
4. a) What are the arithmetical checks for the HI method and the rise and fall method? [02]
b) Reciprocal leveling was done to determine the difference in level between two points A and B on the opposite banks of a river. The following readings were taken:

Position of level	Staff reading	
	A	B
Level near A	2.570	2.170
Level near B	2.360	1.410

If RL of B is 300.250m. What is the RL of A? [05]

- c) What are the characteristics of contours ? Give the use of contour maps in civil engineering practice.

The following readings were taken in sequence during leveling work,
1.505,2.150,1.385,1.890,1.355,2.115,1.955,0.980,1.325,1.175,1.305 & 2.105

The 1st reading was taken on a benchmark of 250m. Find the RLs of the remaining stations if the instrument was shifted after the 3rd, 7th and 10th reading? Use height of collimation method. [08]

