B.E. (Civil Engineering) Fourth Semester (C.B.S.)

Building Construction & Materials

P. Pages : 2 **NIR/KW/18/3352**

Time : Three Hours Max. Marks : 80

Notes :
1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6.
5. Solve Question 7 OR Questions No. 8.
6. Solve Question 9 OR Questions No. 10.
7. Solve Question 11 OR Questions No. 12.
8. Due credit will be given to neatness and adequate dimensions.
9. Assume suitable data whenever necessary.
10. Illustrate your answers whenever necessary with the help of neat sketches.
11. Use of non programmable calculator is permitted.

1. a) What is bearing capacity of soil? Explain plate load test to find bearing capacity of soil. **7**

b) Design the foundation for brick pillar 400mm x 400mm to carry axial load of 80kN. Safe bearing capacity of soil is $60\,kN/m^2$. The angle of repose is 30° and the weight of soil is $14\,kN/m^3$. Draw a dimensional sketch. **6**

OR

2. a) What is foundation? Explain the types of foundation and the purpose of foundations. **7**

b) Differentiate between load bearing structure and framed structure. **6**

3. a) What do you understand by "Reinforced brick masonry"? Explain the method of construction. **7**

b) What is bond? Describe various types of bond in brick masonry. **6**

OR

4. a) Compare English bond with Flemish bond. What are the qualities of a good brick? **7**

b) Explain with a neat sketch cavity wall construction. **6**

5. a) Discuss briefly following terms related to stone **7**
- i) Quarrying
- ii) Seasoning
- iii) Dressing

b) Explain various causes of dampness in building. What are the ill effects of the dampness in building. **7**

OR

6.	a)	What are the appliances used for lifting heavy stone? Explain with sketches.	**7**
	b)	What is the function of lintels and arches? Draw a sketch of segmental arch showing its component.	**7**
7.	a)	What are the ideal requirement of a floor? Explain terrazzo flooring?	**7**
	b)	Define Pitched Roof. Explain lean to roof in detail.	**7**

OR

8.	a)	Enumerate various types of Roof covering materials. Describe any one with neat sketch.	**7**
	b)	What are the factors to be considered for the selection of floor material?	**7**
9.	a)	Design a dog legged stair case for a room size of 2.5x5.0m. The height of floor is 3.60m. Assume suitable data. Draw the sketch of Plan and elevation.	**6**
	b)	Explain Collapsible door and Revolving door with neat sketch.	**7**

OR

10.	a)	Draw neat sketches of the following and explain briefly: a) Clerestory window b) Dormer window	**6**
	b)	Discuss the factors to be considered regarding doors and windows. i) Purpose ii) Location and iii) Size	**7**
11.	a)	Distinguish between plastering and pointing what are the different types of pointing.	**6**
	b)	What are the different types of scaffolding used. Explain any one in detail.	**7**

OR

12.	a)	Explain white washing procedure in detail.	**6**
	b)	What is the object of pointing? Describe the operation of pointing.	**7**

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B.E. (Civil Engineering) Fourth Semester (C.B.S.)

Building Construction & Materials

P. Pages : 2 **NJR/KS/18/4407**

Time : Three Hours Max. Marks : 80

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Notes :
1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6.
5. Solve Question 7 OR Questions No. 8.
6. Solve Question 9 OR Questions No. 10.
7. Solve Question 11 OR Questions No. 12.
8. Assume suitable data whenever necessary.
9. Illustrate your answers whenever necessary with the help of neat sketches.
10. Use of non programmable calculator is permitted.

1. a) Enumerate functions of foundation. State with reason, which type of foundation can be used in following conditions: **8**

i) Coastal Area ii) Slopping ground

b) Differentiate between load bearing and framed structure. **6**

OR

2. a) Design the foundation for a brick pillar of 45cm square carrying 5 tonnes of load on a soil having bearing capacity of $1 \text{tonnes}/\text{m}^2$. Weight of soil is $45 \text{kg}/\text{m}^3$ and the angle of repose is 25º. Assume other data suitably sketch the design. **8**

b) Briefly explain plate load test for determining ultimate bearing capacity. **6**

3. a) Discuss the good requirement of bricks. **6**

b) What are closer bricks? Enlist and explain all types of closer bricks with neat sketches. **7**

OR

4. a) What do you understand by the term 'Reinforced Brick Work'? Discuss in detail with one example of using reinforced brick work. **7**

b) Briefly explain the following terms: **6**

i) Cornice ii) Weathering & Throating

iii) Coping

5. a) What is Random Rubble (RR) Masonry? What are its types? Explain any one in detail with neat sketch. **7**

b) Explain the following terms related to arches: **6**

i) Spandril ii) Intrados & Extrados

iii) Voussoirs

OR

6.	a)	Explain in detail various stone lifting devices with neat sketch.	**7**
	b)	Discuss the causes & ill-effect of dampness on structure.	**6**
7.	a)	Discuss the factors affecting choice of flooring materials.	**6**
	b)	Define Pitched roof. Explain various basic forms of Pitched roof.	**7**

OR

8.	a)	Explain the construction of IPS flooring.	**6**
	b)	Discuss various types of roof coverings.	**7**
9.	a)	Design an open newel stair case of RCC 1.5m wide & provided to an office building. The size of stair case hall is $4.8\text{m} \times 3.0\text{m}$ and it opens on Verandah on both floor. The head room is 4.2m. Sketch the design.	**8**
	b)	Discuss the following terms related to doors & Windows: i) Purpose ii) Location iii) Size	**6**

OR

10.	a)	Explain in detail : i) Ramp ii) Escalator	**7**
	b)	Write detailed note on: i) Revolving Door ii) Louvered Window	**7**
11.	a)	Describe the procedure of carrying out plastering to new wall.	**6**
	b)	What is pointing? Briefly explain different types of pointing with neat sketch.	**7**

OR

12.		Write detailed note on **any four.**	**13**

i) Defects in Painting ii) Shoring

iii) Underpinning iv) White Washing

v) Mason's Scaffolding vi) Stripping of Formwork

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B.E. (Civil Engineering) Fourth Semester (C.B.S.)

Building Construction & Materials

P. Pages : 2 **NRJ/KW/17/4407**

Time : Three Hours Max. Marks : 80

Notes :
1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
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7. Solve Question 11 OR Questions No. 12.
8. Due credit will be given to neatness and adequate dimensions.
9. Assume suitable data whenever necessary.
10. Illustrate your answers whenever necessary with the help of neat sketches.
11. Use of non programmable calculator is permitted.

1. a) Define foundation. Describe the causes of failure of foundation. **6**

b) What do you mean by 'Bearing Capacity'? Describe any one method to determine bearing capacity of soil. **7**

OR

2. a) What measures would you take while constructing foundation in Black Cotton Soil? Explain in detail. **6**

b) Design the foundation for a stone pillar 40 cm x 30 cm carrying a superimposed load of 300 kN at its top. The height of the pillar above the ground level is 4 m. Take the unit weight of stone masonry as $22.5\,\text{kN}/\text{m}^3$ and that of lean cement concrete as $23\,\text{kN}/\text{m}^3$. The soil has angle of repose of 25º, unit weight of $18\,\text{kN}/\text{m}^3$ & SBC of soil as $150\,\text{kN}/\text{m}^3$. The foundation concrete may be in 1:4:8 having safe modulus of rupture equal to $245\,\text{kN}/\text{m}^2$. **7**

3. a) Draw neat sketches in plan of successive courses and elevation to illustrate the construction of a brick wall $2\frac{1}{2}$ brick thick in English bond and single flemish bond. **6**

b) What is meant by reinforced brick work? Explain when it is provided. **7**

OR

4. a) Compare the English bond and flemish bond with sketches. **6**

b) Describe with neat sketches. **7**

i) King Closer

ii) Queen Closer

iii) Header

iv) Stretcher

5.	a)	Draw the elevation and cross section of typical stone masonry. i) Course Rubble Masonry. ii) Ashlar Fine Masonry.	**6**
	b)	What are the appliances used for lifting heavy stone? Explain briefly. Draw sketches.	**7**

OR

6.	a)	What are the functions of Arches and lintels? Give relative merits and demerits of lintels over arches.	**6**
	b)	What are the causes of damp proofing? Also explain different methods of damp proofing. Explain in brief.	**7**
7.	a)	What are the factors to be considered for the selection of floor material.	**6**
	b)	What are the different types of floor finishes? Explain Terrazzo flooring.	**7**

OR

8.	a)	What are the various types of roof covering commonly used for pitched roof? Explain briefly.	**6**
	b)	What are the different types of pitched roof? Explain in brief.	**7**
9.	a)	Explain essential requirement of good stair.	**7**
	b)	Write note on the following. i) Ramps ii) Escalators	**7**

OR

10.	a)	Explain with sketches, the following types of doors. i) Collapsible Door ii) Revolving Door iii) Sliding Door	**7**
	b)	Draw a neat sketch of a casement window having ventilators at the top and illustrate different parts of it.	**7**
11.	a)	What is the object of pointing? Describe the operation of pointing.	**7**
	b)	Explain the process of plastering.	**7**

OR

12.	a)	What are the defects in painting? Suggest suitable remedial measures.	**7**
	b)	What do you understand by the term scaffolding? Explain Masson's scaffolding with neat sketch.	**7**

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B.E. Fourth Semester (Civil Engineering) (C.B.S.)

Building Construction & Materials

P. Pages : 2 **NKT/KS/17/7267**

Time : Three Hours Max. Marks : 80

Notes :
1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6.
5. Solve Question 7 OR Questions No. 8.
6. Solve Question 9 OR Questions No. 10.
7. Solve Question 11 OR Questions No. 12.
8. Due credit will be given to neatness and adequate dimensions.
9. Assume suitable data whenever necessary.
10. Illustrate your answers whenever necessary with the help of neat sketches.
11. Use of non programmable calculator is permitted.

1. a) What is foundation ? State the essential requirements of good foundation. **6**

b) What is bearing capacity of soil ? Explain plate load test to find bearing capacity of soil. **7**

OR

2. a) What measures would you take while constructing foundation in Black Cotton soil ? Explain in detail. **6**

b) Design the foundation for brick pillar 400 mm x 400 mm to carry axial load of 80 kN. Safe bearing capacity of soil is 60 kN/m^2. The angle of repose is 25° and the weight of soil is 16 kN/m^3. Draw a neat dimensional sketch. **7**

3. a) What are the requirement of good bricks. **7**

b) Write a short note on : **6**

i) Stretcher Bond

ii) Header Bond

iii) Closer Bricks

OR

4. a) What are the causes of providing a cavity wall ? Explain the details of its construction with neat sketches. **6**

b) Write the principles to be adopted while construction of brick masonry. **7**

5.	a)	Discuss the following : i) Random Rubble Masonry ii) Dry Rubble stone masonry	**7**
	b)	What are the appliances used for lifting heavy stones ? Explain with sketches.	**7**

OR

6.	a)	What is the function of lintels and arches ? Discuss the commonly used types of lintels and arches.	**7**
	b)	Discuss the causes and effects of dampness.	**7**
7.	a)	Enlist various types of pitched roofs and explain any one in detail.	**7**
	b)	What are the ideal requirement of a floor.	**7**

OR

8.	a)	What are the different types of floor finishes ? Explain Terrazzo flooring.	**7**
	b)	Explain various types of roof covering for pitched roof that are commonly adopted in India. Explain any one in detail.	**7**
9.	a)	What are the different types of stairs. Explain any one in detail.	**7**
	b)	Draw the diagram of paneled door and explain it parts : i) Hold fast ii) Rails iii) Mullion	**6**

OR

10.	a)	Discuss the factor to be considered regarding doors & windows : i) Purpose ii) Location iii) Size	**6**
	b)	Write short note on : i) Pivoted window ii) Casement window	**7**
11.	a)	Distinguish between plastering and pointing what are the different types of pointing.	**6**
	b)	What are different types of scaffolding used. Explain any one in detail.	**7**

OR

12.	a)	What are the good requirement of paints.	**6**
	b)	Explain the process of plastering.	**7**

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B.E. Fourth Semester (Civil Engineering) (C.B.S.)

Building Construction & Materials Paper – V

P. Pages : 2 | **KNT/KW/16/7267**

Time : Three Hours | Max. Marks : 80

Notes : 1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6.
5. Solve Question 7 OR Questions No. 8.
6. Solve Question 9 OR Questions No. 10.
7. Solve Question 11 OR Questions No. 12.
8. Due credit will be given to neatness and adequate dimensions.
9. Assume suitable data whenever necessary.
10. Illustrate your answers whenever necessary with the help of neat sketches.
11. Use of non programmable calculator is permitted.
12. Solve all questions.

1. a) Define foundation. Explain with reason which type of foundation is suggested in the following cases: **7**
i) Construction of building on Black cotton soil with low bearing capacity.
ii) Construction of structure on coastal Area.

b) Differentiate between load bearing and framed structure. **6**

OR

2. a) Enumerate the causes and remedial measures for the failure of foundation. **7**

b) What is Timbering to the trenches? Discuss any two situation along with the method of trenching adopted. **6**

3. a) Define 'Bond' in brick masonry work. Explain in detail English Bond with neat sketch. **7**

b) Briefly explain the following terms: **6**
i) Coping
ii) Corbel
iii) Reveals.

OR

4. a) Describe the construction of cavity wall. State its advantages & disadvantages. **7**

b) Discuss merits & demerits of Pre-cast construction over cast-in-situ construction. **6**

5. a) Discuss briefly following terms related to stone:- **7**
i) Quarrying
ii) Seasoning
iii) Dressing

b) Enumerate the causes & effects of dampness in to the structure. **7**

OR

6.	a)	Enlist various Ashlar stone masonry. Describe any two with neat sketch.	**7**
	b)	Describe stone lifting devices with neat sketches.	**7**
7.	a)	Enumerate good requirement of floors.	**7**
	b)	Define 'Pitched Roof'. Explain lean-to-roof. in detail.	**6**

OR

8.	a)	Explain with reason what type of floor finish you would select in following cases. i) Ware House ii) Cinema Hall iii) College Library.	**7**
	b)	Enlist various roof coverings. Describe any two with neat sketch.	**6**
9.	a)	Plan and design a dog-legged- stair for the hall size of 2.5 m x 4.5 m with clear headroom 3.6 m. Draw the sketch of plan & elevation.	**7**
	b)	Discuss the following terms related to Doors: i) Location ii) Purpose iii) Size.	**6**

OR

10.	a)	Describe the following: i) Louvered window ii) Casement window.	**7**
	b)	Discus the following at length i) Revolving Door ii) Collapsible Door	**6**
11.	a)	Enumerate good requirements of paint. Also list the typical constituents of paint.	**7**
	b)	Define scaffolding. Explain with neat sketch brick-layers scaffolding.	**7**

OR

12.	a)	State the objective of painting. Describe briefly various types of painting.	**7**
	b)	Discuss at length the process of underpinning.	**7**

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B.E. (Civil Engineering) Fourth Semester (C.B.S.)

Building Construction & Material

Paper – V

P. Pages : 2 **TKN/KS/16/7355**

Time : Three Hours Max. Marks : 80

Notes :
1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6.
5. Solve Question 7 OR Questions No. 8.
6. Solve Question 9 OR Questions No. 10.
7. Solve Question 11 OR Questions No. 12.
8. Due credit will be given to neatness and adequate dimensions.
9. Assume suitable data whenever necessary.
10. Illustrate your answers whenever necessary with the help of neat sketches.
11. Use of non programmable calculator is permitted.

1. a) What is foundation? State the essential requirements of good foundation. **6**

b) What are the causes of failure of foundation? What measures are to be taken to prevent such failures? **7**

OR

2. a) Explain the necessity of timbering to the trenches. **6**

b) Describe with sketches the method of setting out foundation trenches. **7**

3. a) What are the points to be observed while supervising the brick work? Explain in detail. **7**

b) What is reinforced brick masonry? Explain its construction. **6**

OR

4. a) Write a short note on : **6**

i) Stretcher bond. ii) Header bond. iii) Closer bricks.

b) What are the causes of providing a cavity wall? Explain the details of its construction with neat sketches. **7**

5. a) Explain with neat sketches different forms of rubble masonry? **7**

b) Enumerate the functional difference and structural difference between Arches and Lintel. **7**

OR

6. a) What are the different methods of damp proofing? Explain in brief. **7**

b) What are the appliances used for lifting heavy stones? Explain with sketches. **7**

7. a) What are the ideal requirements of a floor? **6**

b) What are the advantages and disadvantages of pitched and flat roofs? **7**

OR

8. a) What are the various types of roof covering materials commonly used for pitched roof? Explain briefly. **7**

	b)	Explain with the help of sketches, the IPS flooring.	**6**
9.	a)	Design a dog legged stair case for a room size of 2.5 x 5.0 m. The height of floor is 3.60 m. Assume suitable data.	**8**
	b)	What are the different types of doors? Explain any one.	**6**

OR

10.	a)	Explain with sketches. i) Casement windows. ii) Dormer windows	**7**
	b)	Discuss the factors to be considered regarding doors and windows : i) Purpose ii) Location and iii) Size	**7**
11.	a)	What are the different types of scaffolding used. Explain any one in detail.	**7**
	b)	What are the good requirements of paints.	**6**

OR

12.	a)	What are the objects of plastering? Describe the procedure for carrying out the plastering to brick wall in c.m 1 : 4 in two coats.	**7**
	b)	Enumerate various types of pointing.	**6**

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