

School: SOE	Level: BE	Invigilator's Sign:
Program: BCE	Year/Part: VII	Superintendent's Sign:
Subject: Design of Reinforced Concrete Structure (EG701CE)		Code No.

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- i. Answers should be given by filling the Multiple-Choice Questions' Answer Sheet.
ii. The main answer sheet can be used for rough work.

Code No.

GROUP A (Multiple-Choice Questions)	[10x1=10]	Time: 20 Minutes
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1. Instructions:

- Choose one answer out of four options.
 - Use black ball pen for shading only one circle for correct option of a question in Answer Sheet which you have provided.
 - No mark will be awarded for cutting, erasing, over writing and multiple circles shading
- 1) In Limit State Method, the partial safety factor for concrete (γ_c) as per IS 456:2000 is:
a) 1.2 b) 1.5 c) 1.7 d) 2.0
 - 2) In WSM, steel is assumed to obey:
a) Hooke's law up to working stress b) Plastic deformation theory
c) Nonlinear stress-strain relation d) None of the above
 - 3) For **dead load + live load** combination, the load factor in IS 456:2000 is:
a) 1.2 b) 1.4 c) 1.5 d) 2.0
 - 4) The maximum strain in extreme compression fiber of concrete as per IS 456:2000 is:
a) 0.002 b) 0.0025 c) 0.0035 d) 0.0045
 - 5) Shear reinforcement in RC beams is provided in the form of:
a) Longitudinal bars only b) Bent-up bars and stirrups c) Cover concrete
d) Prestressing tendons
 - 6) Anchorage value of a standard bend of 90° is:
a) 4 ϕ b) 8 ϕ c) 12 ϕ d) 16 ϕ
 - 7) In cantilever beams, tensile reinforcement shall extend beyond the support by at least:
a) d b) L/4 c) L/5 d) 2d
 8. A column is considered **long** when slenderness ratio:
a) Exceeds 12 b) Exceeds 20 c) Exceeds 30 d) Exceeds 40
 9. In seismic design, which performance level is MOST emphasized?
a) Strength only
b) Serviceability only
c) Ductility and energy dissipation
d) Durability only
 10. The maximum spacing of reinforcement in slabs shall not exceed:
a) 3d or 300 mm (whichever less)
b) 3d or 450 mm (whichever less)
c) 2d or 300 mm (whichever less)
d) 2d or 450 mm (whichever less)

Multiple Choice Questions' Answer Sheet

Marks Secured: _____

In Words: _____

Examiner's Sign: _____ Date: _____

Scrutinizer's Marks: _____

In Words: _____

Scrutinizer's Sign: _____ Date: _____

Corrected Fill

(A) ● (C) (D)

Incorrected Fill

(A) ✗ (B) ● (C) (D) ✓

1. (A) (B) (C) (D)	6. (A) (B) (C) (D)
2. (A) (B) (C) (D)	7. (A) (B) (C) (D)
3. (A) (B) (C) (D)	8. (A) (B) (C) (D)
4. (A) (B) (C) (D)	9. (A) (B) (C) (D)
5. (A) (B) (C) (D)	10. (A) (B) (C) (D)

Manmohan Technical University
Office of the Controller of Examinations
Exam Year: 2082, Mangsir(Model Question)

School: SOE	Level: BE	Time: 3 Hours
Program: BCE	Year/Part: VII	Full Marks: 50
Subject: Design of Reinforced Concrete Structure (EG701CE)		

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ The figures in the margin indicate **Full Marks**.
- ✓ Assume suitable data if necessary.

GROUP A (Multiple-Choice Questions in separate paper)

[10×1=10]

GROUP B (Short Answer Questions - **Attempt Any Five Questions**)

[5×4=20]

11. Describe the Philosophy of Design of Structures in Earthquake Prone Region.
12. A cantilever beam has 2.3m span with uniform depth 400mm. It carries UDL of 10KN/m. The beam is reinforced by 4-20mm diameter Design shear stirrups in the beam. Use M20 Mix & Fe415 steel grade.
13. Describe about Splicing of Reinforcement.
14. Determine the ultimate moment of resistance of a beam 350mm * 500mm (effective) with reinforced with 6 bars of 20 mm in tension zone and 3-20 mm bars in compression zone Use M20 concrete and Fe 250 steel.
15. Difference between working stress method and Limit state method.
16. Explain the method of calculating long term deflection.

Group C (Attempt all questions)

- 17 Design a RCC slab located at internal panel having internal dimension 3.6mX 4.2 m. Live load on the slab is 3.0 KN/m² and floor finish load is 1.0 KN/m² and dead load =4.0 KN/m², Use M-20 & Fe 415 steel. make all checks with sketches. [8]
- 18 Design the reinforcement in short column 400x600mm subjected to an ultimate axial load of 1500 KN together with ultimate moments $M_{uy} = 120\text{KNm}$ and $M_{ux} = 90\text{KNm}$ about the major and minor axis respectively. The unsupported length is 4.0m. Use M20 grade concrete and Fe250 grade steel. [6]
- 19 Teak wood floor beams are used at spacing of 3.10m centres. The span of the beam is 5.4m. The dead load of span is 2.8 KN/m² and live load 3KN/m². Design the beam. Assume necessary data if required. [6]

*** All The Best***

