1/53 **1903M977** Candidate's Seat No :_____

B.Arch. (Sem.-3) (N.S. 2015K) Examination

AR 302

Building Construction-3

Time : 3-00 Hours] **March 2019** **[Max. Marks : 100**

1. **Attempt all questions**
2. **Figures on right indicate full marks**
3. **Draw neat sketches wherever required**
4. **Assume suitable additional data if required**

1. Draft plan and section of six paneled door indicating all the members of it and joinery detail between rails and styles. (25)
2. Fill in the blanks: (04)
   a. In _____doors, the shutter moves horizontally along tracks with the help of runners and rails. (sliding door, folded doors, pivoted doors)
   b. _____ doors do not require hinges to close or open the shutter nor the frame to hang them.(Collapsible door, folded doors, Paneled door)
   c. _____ doors are made of many narrow vertical strips or creases that fold back to back into a compact bundle when doors are pushed open. (sliding door, folded doors, pivoted doors)
   d. _____ type of lintel cannot be used in the span more than 1m. (Brick Lintel, RCC lintel, Steel Lintel).
3. Sketch the following **(Any 3)**: (21)
   a. Dormer window
   b. Battened and ledged door
   c. Bay window
   d. Fixed Louvered door
4. Differentiate following **(Any 4)** (20)
   a. Arches and Lintels
   b. Flushed door and Panel door
   c. Collapsed door and Sliding door
   d. Pivoted window and louvered
   e. Brick lintels and RCC Lintels
5. Define the following with the help of sketches **(any 10)**: (10)
   a. Holdfast
   b. Jamb
   c. Stile
   d. Frieze Rail
   e. Mullion
   f. Head
   g. Transom
   h. Flange
   i. Span
   j. Key stone
   k. Voussoir
6. Explain the following **(Any two)** (20)
   a. Explain function of doors in a building
   b. Explain different types of sky light windows with the help of sketches
   c. Explain Different types of lintels based on the materials

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1903M978

Candidate's Seat No :_____

B.Arch. (Sem.-3) (N.S.) Examination

AR 302

Building Construction-3

March 2019

Time : 3-00 Hours] **[Max. Marks : 100**

Instruction:
(1) All questions are compulsory.
(2) Figure on the right indicates full marks.
(3) Draw neat sketches wherever requires.
(4) Assume suitable data, if required and state the same.

Q-1 Draw plan, elevation and section of 40 mm thick fully paneled door for the main entrance of a residence of size 1.2 M. X 2.4 M. in suitable scale. Also show following details.

a) Head and jamb detail
b) Stile and panel fixing detail

[25 Marks]

OR

Draw plan, elevation and section in suitable scale of a window with fanlight for bed room of size 1 M. X 1.8 M. in a 300mm thick wall. Give three full size details to explain the construction.

Q-2 Explain with neat sketches **(Any Four)** **[20 Marks]**

a) Explain short note on R.C.C. stair
b) Differentiate between Sky-light & Ventilation
c) Differentiate between Ledge & Brace.
d) Differentiate Sliding door and sliding folding door.
e) What are the requirements of good stair?
f) Advantage of steel window

Q-3 Design and draw plan, elevation and section of 1.0 M. wide straight flight with floor to floor height 3.0 M. in residence. Calculate the nos. of tread required and draw construction details require in suitable scale.

[25 Marks]

OR

Design and draw plan, elevation and section of 1.0 M. wide straight Cantilever flight with floor to floor height 3.3 M. in residence. Calculate the nos. of tread required and draw construction details require in suitable scale.

a) Typical riser and tread details
b) Fixing details of baluster with step.

[P.T.O.]

M 978-2

Q-4 Explain with neat sketches **(Any Two)** **[20 Marks]**

a) Any four types of compound wall based on materials with sketches and Draw foundation detail for any one type

b) Explain with sketches king post, queen post and princess post.

c) Sketch different types of steel trusses.

Q-3 Describe terms with neat sketches **(Any Five)** **[10 Marks]**

a) Architrave

b) Soffit

c) Winder

d) Rebate

e) Mullion

f) Transom

g) Going

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2003M989

Candidate's Seat No : _____

B.Arch. (Sem.-3) (N.S. 2015K) Examination

AR 304

History of Architecture-2

March 2019

Time : 2-00 Hours] **[Max. Marks : 50**

Instructions: (1) All Questions are compulsory.
(2) Use neat sketches to illustrate your answer.
(3) Assume suitable data wherever necessary.
(4) Figures on right indicate the full marks.

Q.1 Explain in details any 1 of following: **Marks 12**

Acropolis in Athens including Propylea (monumental gateway), Erectheion with caryatid porch and Parthenon.

OR

Explain the various types of buildings (with example) built by the Romans highlighting the quality of urban life.

Q.2 Write a short note on any 3 of following: (3 out of 5). **Marks 18**

a) Colosseum, Rome.
b) Explain the spatial elements of Greek temples.
c) Great baths of Caracalla
d) Write a short note on Rani ni vav at Patan.
e) Write a short note on temple architecture of Gujarat.

Q.3 Explain in details any 1 of following: **Marks 10**

Explain the Greek classical period with the orders and their comparison.

OR

Describe the temples at Khajuraho.

Q.4 Sketch the following with appropriate labeling. **Marks 10**

a) Arch of Titus, Rome
b) Pantheon, Rome
c) Theatre of Marcellus, Rome
d) Treasury at Delphi
e) Adalaj ni vav at Ahmedabad

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2003M990

Candidate's Seat No :_____

B.Arch. (Sem.-3) (N.S.) Examination

AR 304

History of Architecture-2

March 2019

Time : 2-00 Hours] **[Max. Marks : 50**

Q 1 Answer any **TWO** in detail :----------(16)

a) Explain the outstanding characteristics of Greek Architecture.
b) Explain the Roman Pantheon and its dome construction.
c) Compare the three Greek Orders in terms of its proportions and other details.

Q2 Answer any **TWO** in detail :----------(16)

a) Explain the Kailashnath Temple at Ellora in detail
b) Explain the outstanding characteristic Regional Islamic Architecture of Malwa and Gujarat
c) Explain the Sun Temple Modhera in detail.

Q3 Write Short Notes on Any **THREE**: ---------- (09)

a) Dome of Hagia Sophia
b) Rose window and flying buttress
c) Roman Aqueducts
d) Greek Acropolis
e) Parts of an Early Christian Church

Q3 Write Short Notes on Any **THREE**: ---------- (09)

a) Stupa At Sanchi
b) Step Well at Adalaj Gujarat.
c) Forts and Temples at Hampi Karnatak.
d) Sun Temple Modhera
e) Jami Majid Ahmedabad

2/53 **2303M1010** Candidate's Seat No :_____

B.Arch. (Sem.-3) (N.S. 2015K) Examination

AR 303

Structures-3

Time : 2-00 Hours] **March 2019** **[Max. Marks : 50**

Instruction: 1. Assume suitable data if necessary.
2. Figures to the right indicate full marks.
3. Use of non-programmable calculator.

Q-1 Fill in the blanks. (05)

(i) The equation for fixed end moment of fixed beam subjected to point load at centre of beam is _____.

(ii) A roller support can develop _____ reaction components.

(iii) The equation for fixed end moment of fixed beam subjected to uniformly distributed load through-out the length is _____.

(iv) Sum of distribution factor at joint is _____.

(v) A Hinged support can develop _____ reaction components.

Q-2 Answer the followings.

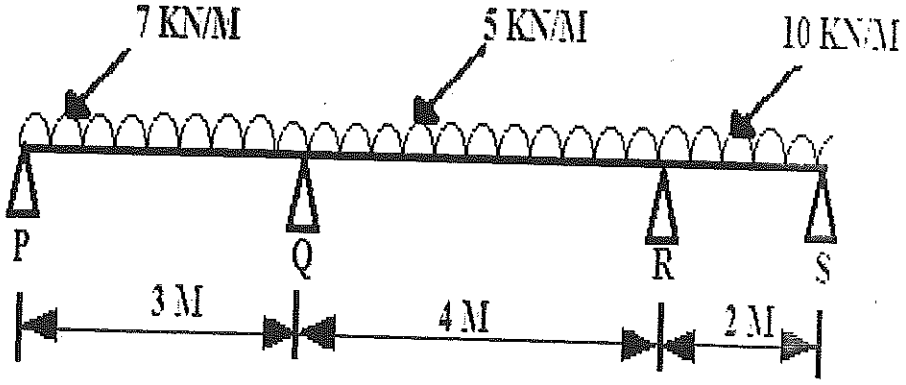
(i) Write advantages and disadvantages of fixed beam over a simply supported beam. (05)

(ii) Explain clapeyron's theorem with neat sketch. (05)

(iii) Explain distribution factor, relative stiffness in moment distribution method. (05)

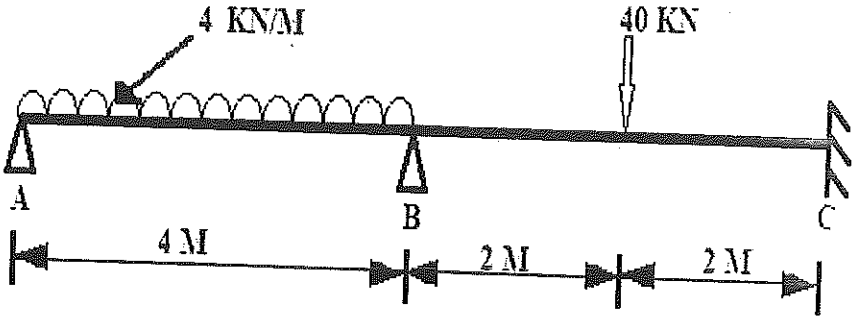
Q-3 (i) Derive fixed end moment of beam having single span L, when subjected to (A) point load at centre, (06)
(B) U. D. L. at full span.

Q-4 (i) Solve by clapeyron's theorem and draw bending moment diagram. (07)



P.T.O

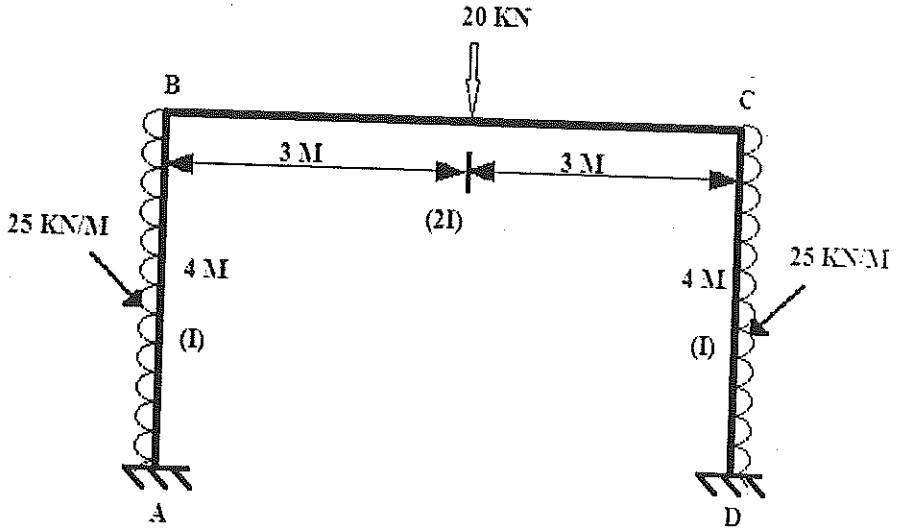
Q-5 (i) Solve this example by moment distribution method and draw bending moment diagram. (08)



OR

OR

Q-5 (i) Solve this example by moment distribution method and draw bending moment diagram. (08)



Q-6 (i) A three hinged parabolic arch hinged at supports and at crown has a span of 18m and central rise of 3.5m. It carries a concreted load of 35 KN at 5m from left support. Determine reaction at the support and bending moment under the point load. (09)

OR

OR

Q-6 Answer the following

(i) Explain types of arches with sketch. (3)

(ii) Discuss stability and static determinacy of trusses. (3)

(iii) Explain types of trusses with neat sketch. (3)

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2303M1011

Candidate's Seat No :_____

B.Arch. (Sem.-3) (N.S.) Examination

AR 303

Structures-3

Time : 2-00 Hours] **March 2019** **[Max. Marks : 50**

Instruction: 1. Assume suitable data if necessary.
2. Figures to the right indicate full marks.
3. Use of non-programmable calculator.

Q-1 Fill in the blanks. (05)

(i) The equation for fixed end moment of fixed beam subjected to point load at centre of beam is _____.

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(iii) The equation for fixed end moment of fixed beam subjected to uniformly distributed load through-out the length is _____.

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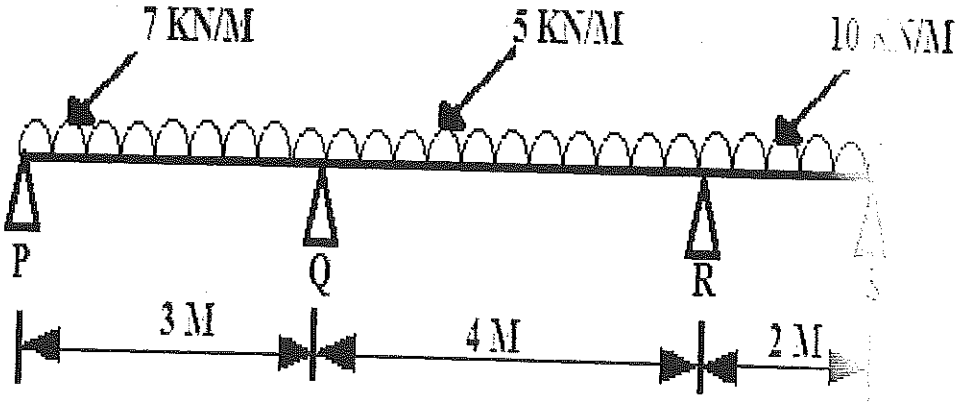
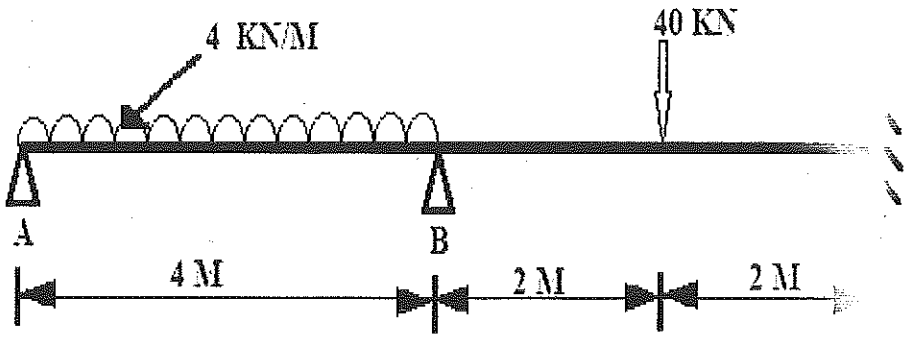


P.T.O

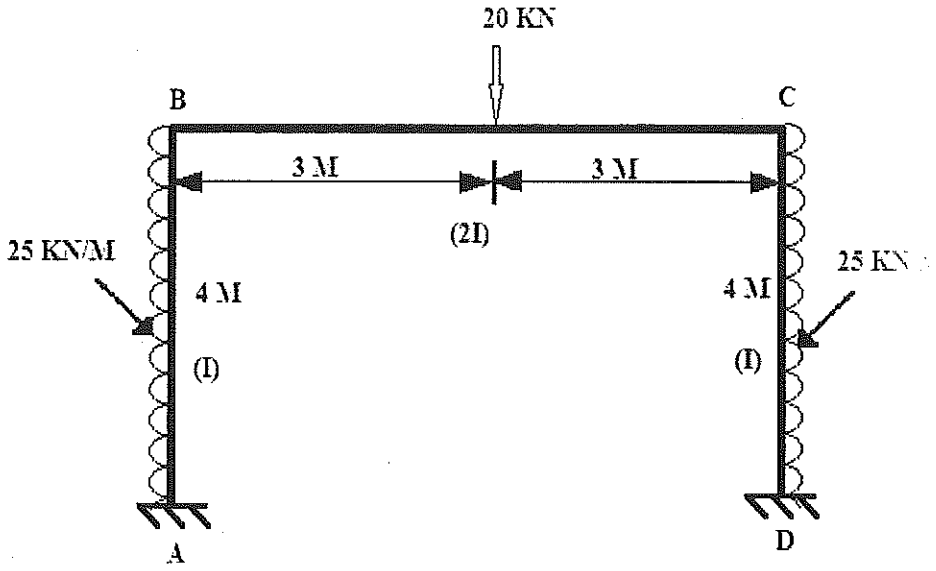
M1011-2

Q-5 (i) Solve this example by moment distribution method and draw bending moment diagram. (08)



OR **OR**

Q-5 (i) Solve this example by moment distribution method and draw bending moment diagram. (08)



Q-6 (i) A three hinged parabolic arch hinged at supports and at crown has a span of 18m and central rise of 3.5m. It carries a concreted load of 35 KN at 5m from left support. Determine reaction at the support and bending moment under the point load. (09)

OR **OR**

Q-6 Answer the following

(i) Explain types of arches with sketch. (3)

(ii) Discuss stability and static determinacy of trusses. (3)

(iii) Explain types of trusses with neat sketch. (3)

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2503M1017

Candidate's Seat No :_____

B.Arch. (Sem.-3) (N.S. 2015K) Examination

AR 306

Climatology

March 2019

Time : 2-00 Hours] **[Max. Marks : 50**

1. **Difference between (Any 5):** (15)
   a. Weather and Climate
   b. Macro climate and Micro climate
   c. Echo and Reverberation
   d. Luminance and Illuminance
   e. Pitch and Wavelength
   f. Conduction and Convection

2. **True or False** (05)
   a. Relative humidityrepresents all form of water such as rail, snow, hail, dew etc.
   b. The transfer of heat by molecular activity from one substance to another or through a substance is called Convection.
   c. Light without glare comes from North
   d. Porous material is used for sound Insulation
   e. Rose diagram is used to find vertical angle of the sun and the earth

3. **Answer in short(Any 2):** (10)
   a. Explain effect of colour and Texture of a surface on light
   b. Explain in brief Principles of sound
   c. Explain behaviour of Sound Waves when it travels through solid and liquid

4. **Answer in Detail (Any 2):** (20)
   a. Why is Ventilation required in the building? How does size and position of opening affect the building?
   b. Heat Exchange process of Human Body and buildings
   c. Explain Passive techniques for thermal comfort in all type of climate.

2503M1018

Candidate's Seat No :_____

B.Arch. (Sem.-3) (N.S.) Examination

AR 306

Climatology

March 2019

Time : 2-00 Hours] **[Max. Marks : 50**

1. **Answer the Following:**
   a. **Fill in the Blanks** 04
      i. _____represents all form of water such as rail, snow, hail, dew etc. (Precipitation, Relative humidity, Absolute humidity)
      ii. _____is the process by which a liquid changes into a gas. (Conduction, Convection, Evaporation)
      iii. _____ can be used to express human thermal comfort. (Psychrometric chart, Rose 2. clear with high solar radiation in _____Climate. (Warm- Humid, Cold - Cloudy, Hot-Dry).
      iv. _____ angle is the horizontal angle of the sun and the earth. (Altitude, Azimuth, Delta).

   b. **Difference between:** 06
      i. Weather and Climate
      ii. Macroclimate and Micro climate

2. **True-False** 05
   a. Light without glare comes from South.
   b. Monsoon winds comes from South West Direction
   c. Long narrow balconies is the characteristics of Cold and dry climate.
   d. Sloping Roofs are generally used in Hot and Dry climate.
   e. Sun path diagram shows us the altitude and azimuth angle of the sun.

3. **Sketches (Any3)** 15
   a. Solar chimney
   b. Wind tower
   c. Sun Path Diagram
   d. Earth Tunnel

4. **Short notes (Any 2)** 10
   a. Climatically passive buildings
   b. Behaviour of Sound Waves when it travels through solid and liquid
   c. Effect of colour and Texture of a surface on light

5. **Answer in Detail (ANY 1)** 10
   a. Explain Factors affecting Climate in detail with the help of sketches.
   b. Explain Wind Circulation pattern inside the Building with the help of sketches

2603M1025

Candidate's Seat No :_____

B.Arch. (Sem.-3) (N.S.) Examination

AR 305

Serveying & Levelling

Time : 2-00 Hours] **March 2019** **[Max. Marks : 50**

Q. 1 (A) Explain in detail surveying and leveling. What are the objects of survey? (5)

Q. 1 (B) Explain the procedure for reciprocal ranging. (5)

Q. 2 (A) Write a short note on surveyor's compass with neat sketch. (5)

Q. 2 (B) List out the various instruments used in chain surveying. (5)

OR

Q. 2 (B) Explain in detail various accessories used in plane table survey. (5)

Q. 3 (A) Explain in detail Intersection method of plane table survey. (5)

Q. 3 (B) What is local attraction? How is it detected and eliminated. (5)

OR

Q. 3 (A) Convert the following Reduced bearing into Whole Circle Bearing. (5)
1) N 27' E (2) S 50' E (3) S 25' W (4) N 57' W (5) N 45' E

Q. 3 (B) Explain in brief Repetition method of measuring horizontal angle by using theodolite (5)

Q. 4 (A) Explain in detail measurement of vertical angle by using theodolite. (5)

Q. 4 (B) Explain the field procedure for measuring horizontal distance between two points by chaining. (5)

OR

Q. 4 (A) Explain with neat sketch various parts of theodolite. (5)

Q. 4 (B) Define the following. (5)
(1) Fore sight (2) Back sight (3) Reduced level (4) Mean sea level (5) fore bearing

Q. 5 (A) Explain the procedure of measuring and calculating the area of irregular Figure by using planimeter. (5)

Q. 5 (B) The following readings were taken with a dumpy level and 4 in leveling staff. The instrument was shifted after 4th readings. The readings are 2.685, 3. 195, 2.865, 1.790, 0.955, 2.165, 1.7S5m. Enter the readings in a page of level book and calculate the RL of points, if the first reading was taken with a staff held on a benchmark 0f 100 m. Also apply usual check. (5)

OR

Q. 5 (A) Write characteristics of contours. (5)

Q. 5 (B) The following consecutive readings were taken using 4 meter leveling staff with a dumpy level on continuously slopping ground at 30 meter interval:0.570,1.235,1.750,2.220,2.665,3.410,1.005,1.835,2.165,3.550,0. 825,0.965,1.730,and 2.320 m. The R.L of starting point was 100.00 mt. Find R.L of other points by Rise and fall method and apply check (5)

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