# AR : ARCHITECTURE AND PLANNING

*Duration* : Three Hours                                                                                  *Maximum Marks* :15~~~

**Read the following instructions carefully**

1. This question paper contains **20** printed pages including pages for rough work. Please check all pages and report discrepancy, if any.

2. Write your registration number, your name and name of the examination centre at the specified locations on the right half of the ORS.

3. Using HB pencil, darken the appropriate bubble under each digit of your registration number and the letters corresponding to your paper code.

4. All the questions in this question paper are of objective type.

5. Questions must be answered on **O**bjective **R**esponse **S**heet (**ORS**) by darkening the appropriate bubble (marked A, B, C, D) using HB pencil against the question number on the left hand side of the ORS. **Each question has only one correct answer**. In case you wish to change an answer, erase the old answer completely. More than one answer bubbled against a question will be treated as a wrong answer.

6. Questions 1 through 20 are 1-mark questions and questions 21 through 85 are 2-mark questions.

7. Questions 71 through 73 is one set of common data questions, questions 74 and 75 is another pair of common data questions. The question pairs (76, 77), (78, 79), (80, 81), (82, 83) and (84, 85) are questions with linked answers. The answer to the second question of the above pairs will depend on the answer to the first question of the pair. If the first question in the linked pair is wrongly answered or is un-attempted, then the answer to the second question in the pair will not be evaluated.

8. Un-attempted questions will carry zero marks.

9. **NEGATIVE MARKING**: For Q.1 to Q.20, *0.25* mark will be deducted for each wrong answer. For Q.21 to Q.75, *0.5* mark will be deducted for each wrong answer. For the pairs of questions with linked answers, there will be negative marks only for wrong answer to the first question, i.e. for Q.76, Q.78, Q.80, Q.82 and Q.84, *0.5* mark will be deducted for each wrong answer. There is no negative marking for Q.77, Q.79, Q.81, Q.83 and Q.85.

10. Calculator **without data connectivity** is allowed in the examination hall.

11. Charts, graph sheets and tables are NOT allowed in the examination hall.

12. Rough work can be done on the question paper itself. Additional blank pages are given at the end of the question paper for rough work.

## Q. 1 – Q. 20 carry one mark each.

**Q.1** Function of Air Handling Unit in a building is to

- (A) purify and re-circulate the cool air.
- (B) supply purified bulk of air from outside to the window air-conditioner.
- (C) collect the stale air from the room and throw it outside the building.
- (D) act as a container in which air is carried from one place to the other.

**Q.2** The KYOTO Protocol - 2003 addressed the issue of

- (A) Bio-diversity
- (B) Green House Gases
- (C) Wetlands
- (D) Rainwater Harvesting

**Q.3** The principle of Solid Waste Management involves

- (A) Reproduce, Reuse, Recycle.
- (B) Recycle, Replenish, Reuse.
- (C) Reduce, Reuse, Reproduce.
- (D) Reduce, Reuse, Recycle.

**Q.4** The correct diagram for a Mirror Stereoscope is



(A)

(B)

(C)

(D)
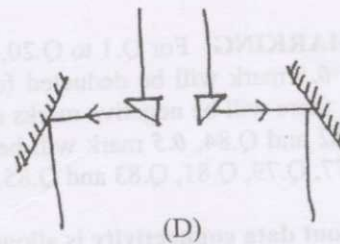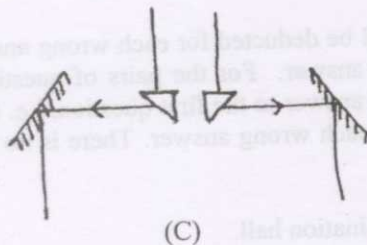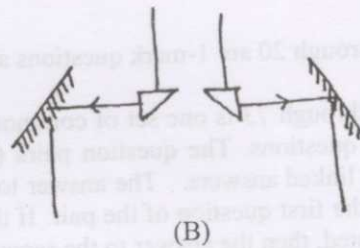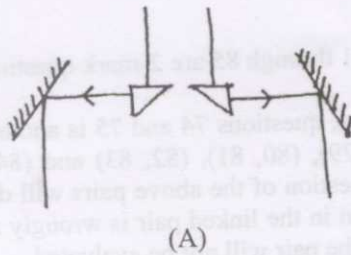
**Q.5** Which of the following is not included in the UDPFI Guidelines for urban development ?

- (A) Perspective Plans
- (B) Development Plans
- (C) City Development Plans
- (D) Annual Plans

**Q.6** A system of art-appreciation characterized by an unorthodox experimental approach to appreciate visual, literary and musical aspects of a design process, is called

- (A) Avant-garde.
- (B) Post-modernism.
- (D) Proto-Deconstruction.

Q.7    An applied science of design concerning universal human characters and  configuration, effective utility and safety is called

(A)    Anthropometry.                        (B)    Cognitive behavioural mapping.
(C)    Universal design.                      (D)    Ergonomics.

Q.8    'Entasis' is a visual correction for end columns by providing

(A)    a slight convexity to the columns.
(B)    a slight concavity to the columns.
(C)    a major convexity to the columns.
(D)    a major concavity to the columns.

Q.9    The first group of people to influence the architecture of South-east Asia and the Amaravati School of Art was

(A)    *Sakas* and *Palas*.                   (B)    *Satavahanas* and *Pandyans*.
(C)    *Pallavas* and *Guptas*.              (D)    *Rashtrakutas* and *Chalukyans*.

Q.10   A linear regression model involving one independent and one dependent variable requires at least

(A)    One pair of data.                      (B)    Two pairs of data.
(C)    Three pairs of data.                   (D)    Four pairs of data.

Q.11   Identify the **FALSE** statement.

(A)    Susceptibility to non-structural elements' damage in any building would be high even in a moderate level earthquake.
(B)    For important non-structural elements, no structural analysis is required to assess vulnerability.
(C)    Earthquake damage to non-structural elements results in loss of critical functions.
(D)    The non-structural elements can be retrofitted appropriately.

Q.12   Under which category the percentage of land use decreases with an increase in city size ?

(A)    Residential                            (B)    Commercial
(C)    Recreational                           (D)    Transportation and Communication

Q.13   The instrument that provides standards for land development by indicating lot sizes and layouts is

(A)    Zoning regulations.                    (B)    Land use control.
(C)    Building bylaws.                       (D)    Subdivision regulations.

Q.14   Identify the group containing only GIS packages.

P.    Total Station
Q.    SatGuide
R.    GPS
S.    ILWIS
T.    CorelDraw
U.    GeoMedia
V.    ArcInfo

(A)    P, Q, U        (B)    Q, R, V        (C)    S, U, V        (D)    R, T, V

Q.15   Organizations namely STACO, UNSCC and ISO are associated with:

(A)    Environmental planning                 (B)    Landscape architecture
(C)    Modular coordination                   (D)    Urban design

Q.16    'Inflorescence' in a tree-structure refers to

(A)    Flowering character.          (B)    Fragrance of the flowers.
(C)    Spread characteristics of the  (D)    Depth of the root structure.
       branches.

Q.17    Income inequalities across population is expressed through

(A)    Cohort pyramid.               (B)    Lorenz curve.
(C)    Indifference curve.           (D)    Inverted U-curve.

Q.18    The Columbian Exposition in North America is synonymous with

(A)    City Beautiful Movement.      (B)    Urbana Lake front development.
(C)    CIAM.                         (D)    Broad-acre City.

Q.19    The ideal cross-section of a combined sewerage system for significant variation in flow is

(A)    Circular.                     (B)    Egg-shaped.
(C)    Semi-elliptical.              (D)    Horse-shoe-shaped.

Q.20    The international guideline for conservation and restoration of monuments and sites recommended by ICOMOS, is known as

(A)    Venice Charter.               (B)    Amsterdam Declaration.
(C)    Granada Convention.           (D)    Burra Charter.

## Q. 21 to Q.75 carry two marks each.

Q.21    Heating, cooling and ventilation in passive system designs are dependent on

(A)    differences in standards of active energy systems and amount of sunlight.
(B)    quality of insulation and quantity of glazing.
(C)    mechanical ventilation and the floor height of the building.
(D)    daylight factor and energy from mechanical systems.

Q.22    Which pair, out of the following options, is used in more than one computer languages listed below?
        C, AutoLISP, Basic, Pascal

(A)    ;  /n        (B)    ,  ?        (C)    ?  /n        (D)    ,  ;

Q.23    Match labels in the diagram with items in the table :
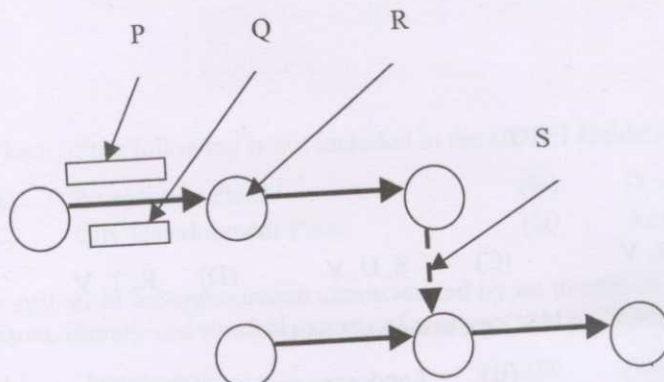


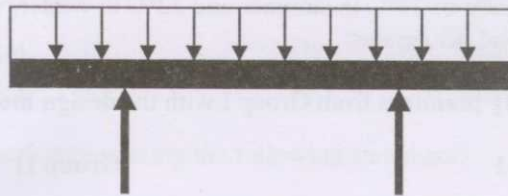| 1 | Activity |
| 2 | Dummy activity |
| 3 | Duration |
| 4 | Event starting/ finishing |

(B)    P-4, Q-1, R-3, S-2

Q.24 Select the valid combination of shear force and bending moment diagrams for the loading shown below.

W tons per meter run

| Bending Moment Diagram | Shear Force Diagram |
|---|---|
| P | 1 |
| Q | 2 |
| R | 3 |
| S | 4 |

(A)    P-3    (B)    Q-2    (C)    R-1    (D)    S-4

Q.25    Recommended temperature and fresh air flow for HVAC systems in office ~~~~~~~ dia are

    (A)    21°C with maximum of 30°C in summer and 25°C in winter, with fr~~~~~~~~ ons of 18-22 litres per second per person.

    (B)    29°C with maximum of 32°C in summer and 36°C in winter, with fresh ai~~~~ 28-32 litres per second per person.

    (C)    30°C with maximum of 36°C in summer and 32°C in winter, with fresh air prov~~~ 38-42 litres per second per person.

    (D)    21°C with maximum of 24°C in summer and 22°C in winter, with fresh air provisions of 12 litres per second per person.

Q.26    Match the **architects / city planners** from Group I with the **design movements** listed in Group II

| | Group I | | Group II |
|---|---|---|---|
| P. | Viollet-le-Duc | 1 | Post Modernism |
| Q. | William Morris | 2 | Arts & Crafts Movement |
| R. | Robert Venturi | 3 | Ekistics |
| S. | C.A. Doxiadis | 4 | French Rationalism |

    (A)    P-4, Q-2, R-1, S-3        (B)    P-3, Q-1, R-4, S-2

    (C)    P-2, Q-3, R-1, S-4        (D)    P-1, Q-4, R-2, S-3

Q.27    Structural adjustment between two regions with respect to supply and demand of labourers and their wages is explained by

    (A)    Input-Output Analyses by W. Leontiff.

    (B)    Export-Base Model by Douglas C. North.

    (C)    Backwash effect based Economic Growth Model by Gunner Myrdal.

    (D)    Economic Base Theory by Hans Blumenfield.

Q.28    Match the **surfaces** in Group – I with their respective range of **albedo values** in Group – II

| | Group - I | | Group - II |
|---|---|---|---|
| P | Close ground crops | 1 | 0.45 - 0.95 |
| Q | Bare lands | 2 | 0.05 - 0.055 |
| R | Water surface | 3 | 0.05 - 0.45 |
| S | Snow | 4 | 0.15 - 0.25 |

    (A)    P-3, Q-4, R-2, S-1        (B)    P-4, Q-3, R-2, S-1

    (C)    P-4, Q-3, R-1, S-2        (D)    P-4, Q-2, R-3, S-1

Q.29    Which of the following is **NOT** a criterion for defining urban areas in India?

    (A)    Population size.

    (B)    Percentage of male working population engaged in non-agricultural pursuits.

    (C)    Density of population.

    (D)    Percentage of pucca houses.

Q.30    Signal phasing in transportation system refers to

    (A)    the number of combinations of traffic movements served through a signalized intersection.

    (B)    the distance between signalised intersections.

    (C)    phase of electric power required to make the signals operational.

    (D)    relative placements of red, green and amber lights on a signal post.

Q.31 Pair the groups correctly:

|   | Group I | | Group II |
|---|---|---|---|
| P | Solar constant | 1 | W/m deg C |
| Q | Air to air transmittance, U-value | 2 | $1.4 \ kW/m^2$ |
| R | Volumetric specific heat | 3 | $W/m^2$ deg C |
| S | Conductivity, k-value | 4 | $K \ Cal/m^3$ deg C |

(A)   P-2, Q-3, R-4, S-1          (B)   P-2, Q-1, R-4, S-3
(C)   P-1, Q-2, R-3, S-4          (D)   P-4, Q-3, R-1, S-2

Q.32 Identify the right network representing the following statement,

'S controls X, Y & Z; T controls Y & Z; and U controls Y'.

(A)                                            (B)

(C)                                            (D)
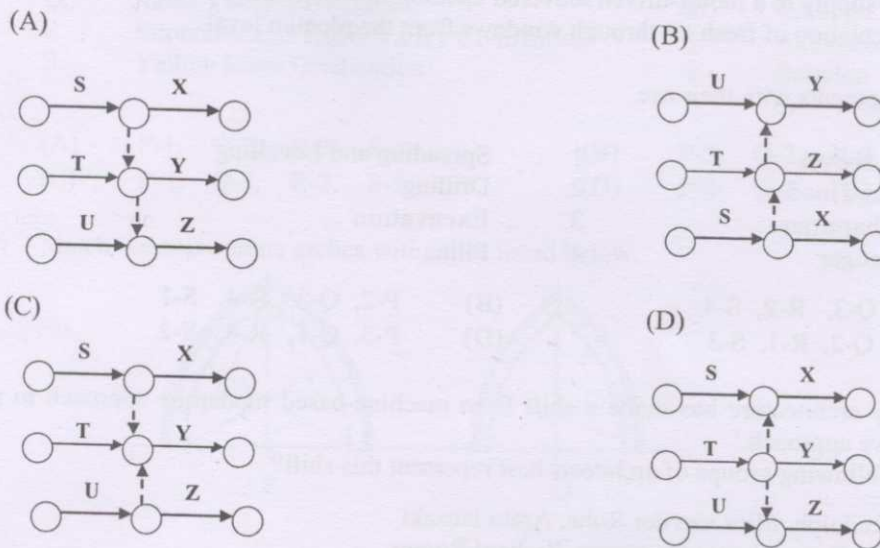
Q.33 Architectural projects designed by Laurie Baker are generally characterised by
P.   Appropriate technology
Q.   Human scale
R.   Interpretation of nine-square model
S.   Use of locally available materials

(A)   P, R, S          (B)   P, Q, S          (C)   Q, R, S          (D)   P, Q, R

Q.34 Match the glasses listed in Group I, with the appropriate descriptions in Group II

|   | Group I | | Group II |
|---|---|---|---|
| P | Liquid crystal laminated glass | 1 | Promotes absorption of both visible light and infrared radiation. |
| Q | Electro-chromic glass | 2 | Improves thermal performance of the glass by reflecting visible light and infrared radiation. |
| R | Coated glass | 3 | Requires continuous supply of electricity to change from translucent to transparent state |
| S | Tinted glass | 4 | Requires electrical pulses to change from transparent to opaque state |

(A)   P-4, Q-1, R-3, S-2          (B)   P-1, Q-3, R-2, S-4
(C)   P-3, Q-4, R-2, S-1          (D)   P-2, Q-3, R-4, S-1

Q.35 Which of the following commands in AutoCad is used to extract one or mo͟r̲e̲ a list?

(A) Filter  (B) Boundary  (C) Explode  (D)

Q.36 Identify the satellites that provide useful information for physical planning.

P. IKONOS  Q. IRS-1D  R. CartoSAT  S. INSAT-1B
T. PSLV  U. Google Earth  V. Apple  W. Quick Bird

(A) P, Q, R, W  (B) R, S, T, V  (C) P, Q, R, S  (D) S, T, U, V

Q.37 Stack effect is

(A) the process of supplying fresh air by electro-mechanical means both vertically and horizontally.
(B) the tendency of hot air in a shaft to rise and create a draft of cool air intake.
(C) the air-supply to a motor-driven louvered opening in basement.
(D) the circulation of fresh air through windows from the plenum level.

Q.38 Match the equipments with their use.

P. Power shovel  1. Spreading and Levelling
Q. Front end loader  2. Drilling
R. Drop hammer  3. Excavation
S. Earth-auger  4. Piling

(A) P-1, Q-3, R-2, S-4  (B) P-2, Q-3, R-4, S-1
(C) P-4, Q-2, R-1, S-3  (D) P-3, Q-1, R-4, S-2

Q.39 'Contemporary architecture has made a shift from machine-based modernist approach to passive energy-sensitive approach.'
Which of the following groups of architects best represent this shift?

(A) Paul Rudolph, Mies van der Rohe, Arato Isozaki
(B) Norman Foster, James Carpenter, Richard Rogers
(C) James Sterling, Philip Johnson, Ralph Rapson
(D) Arthur Erikson, Frei Otto, Rem Koolhass

Q.40 'Park le de Villete', Paris designed by Bernard Tschumi, is characterised by

(A) continuous sequence along a zigzag line.
(B) beast like benches embedded with fragments of coloured tiles and stepped terraces.
(C) point grid, superimposition and agglomeration of activities.
(D) semi underground cave-like gallery for the display of artworks.

Q.41 The predominant characteristics of spatial organizational principles found in the works of Le Corbusier and Frank Lloyd Wright are characterized respectively by

(A) Grid organization and Linear-planar organization.
(B) Centralized-clustered organization and Grid organization.
(C) Radial organization and Grid-radial organization.
(D) Centralized organization and Multi-grid organization.

Q.42 The ratios presented by the two-number series 70:113:183 and 86:140:226 stand respectively for

(A) the blue and the red series of Le Modular.
(B) the vertical and horizontal proportions found in Leonardo da Vinci's Pentagram.
(C) the horizontal and vertical proportions found in Leonardo da Vinci's Pentagram.
(D) the red and the blue series of Le Modular.

Q.43    The difference between an axonometric projection and an isometric projection or with respect to a picture plane is in terms of

(A)    height or breadth of cross-sectional views generated by the picture plane.
(B)    measurements in the angle of faces with respect to the aspect ratio.
(C)    obliqueness in projection of faces of the object on the vertical plane.
(D)    foreshortened angular measurements in the three principal axes.

Q.44    A squinch system is a method of constructing an arch across a square base by erecting

(A)    Pendentives and Cul-de-four.          (B)    Intra-domes and Tension ring.
(C)    Saucer-domes and Traverse vaults.    (D)    Cross-bandages and Hoop lines.

Q.45    Match the following:

P.    Nile Valley Civilization                    1.    Shang
Q.    Indus Valley Civilization                   2.    Harappa
R.    Euphrates and Tigris Valley Civilization    3.    Akhetaton
S.    Yellow River Civilization                   4.    Babylon

(A)    P-1,  Q-2,  R-3,  S-4          (B)    P-3,  Q-2,  R-4,  S-1
(C)    P-4,  Q-3,  R-2,  S-1          (D)    P-4,  Q-2,  R-3,  S-1

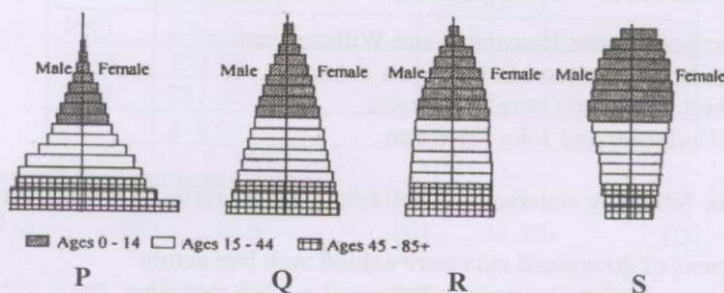Q.46    Match the appropriate arches with types listed below.
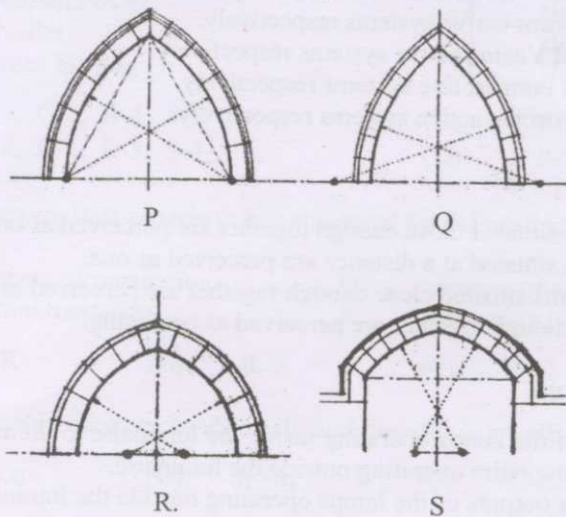


1. Equilateral Arch        2. Lancet Arch        3. Drop Arch
4. Surbased Arch           5. Tudor Arch         6. Roman Arch

(A)    P-1,   Q-2,   R-5,   S-3          (B)    P-1,   Q-2,   R-3,   S-5
(C)    P-1,   Q-2,   R-3,   S-4          (D)    P-6,   Q-2,   R-5,   S-3

Q.47    The study of varying population sizes of urban centers in a region is assessed by

(A)    Multiplier effect.          (B)    Rank-size Rule.
(C)    Shift-share analysis        (D)    Bulk share of workforce.

Q.48    Identify the correct hierarchy of traditional Indian settlements expressed in an ascending order.

(A)    *Kharvata – Khetaka – Nagara – Durga*
(B)    *Durga - Vidambaka – Pura – Rajdhani*
(C)    *Grama – Khetaka – Kharvata – Nagara*
(D)    *Ni...*

Q.49 Formal regions and Functional regions are determined respectively by their

(A) 'Natural resources; physiography' and 'Economic linkages.'
(B) 'Economic linkages' and 'Natural resources; physiography.'
(C) 'Industrial location' and 'Transportation; communication.'
(D) 'Transportation; communication' and 'Industrial location.'

Q.50 *Nagar Panchayats* and District Planning Committees in India were introduced as a result of

(A) National Urbanisation Policy
(B) Jawaharlal Nehru National Urban Renewal Mission
(C) Electoral reforms
(D) Constitution (73$^{rd}$ and 74$^{th}$ Amendment) Acts

Q.51 The concept of 'Slum-networking' aims to promote

P  social and physical improvement of slums.
Q  holistic development in conformity with the infrastructure of the entire city.
R  improvement of physical networks only within the slum areas.
S  rehabilitation of slum dwellers.

(A)  P, Q        (B)  P, Q, R        (C)  P, R        (D)  Q, R, S

Q.52 Shells and Space Frames are examples of

(A) modular Bulk-active and Form-active systems respectively.
(B) modular Surface-active and Vector-active systems respectively.
(C) modular Vector-active and Form-active systems respectively.
(D) modular Bulk-active and Surface-active systems respectively.

Q.53 The **Law of vicinity** states that

(A) the objects of similar form situated close enough together are perceived as one.
(B) the objects of similar form situated at a distance are perceived as one.
(C) the objects of different forms situated close enough together are perceived as one.
(D) the objects situated close enough together are perceived as confusing.

Q.54 Luminaire efficiency is defined as the

(A) sum of the light outputs of the lamps operating inside the luminaire to the ratio of the sum of the light output of the luminaire operating outside the luminaire.
(B) sum of the individual light outputs of the lamps operating outside the luminaire to the ratio of the light output of the luminaire.
(C) ratio of the light output of the luminaire to the sum of the individual light outputs of the lamps operating outside the luminaire.
(D) ratio of the light output of the luminaire to the individual light output of the lamp operating outside the luminaire.

Q.55 Match the following:

| | Group I | | Group II |
|---|---|---|---|
| P | Dumbwaiter | 1 | Opening |
| Q | Comb-plate | 2 | Escalator |
| R | Co-axial cable | 3 | Elevator |
| S | Transom | 4 | Data Signal |

(A)  P-1, Q-2, R-3, S-4        (B)  P-3, Q-2, R-4, S-1
(C)  P-2, Q-1, R-4, S-3        (D)  P-4, Q-3, R-1, S-2

Q.56 Negative and positive correlations between Price and Quantity of a commodity are represented by

    (A)    Demand and supply curves.
    (B)    Supply and demand curves.
    (C)    Indifference curves and scattered matrix.
    (D)    Scattered matrix and indifference curves.

Q.57 Traditional Indian settlement patterns, based on orthogonal grid are represented by:

    (A)    *Padmaka, Kurmaka* and *Swastika*
    (B)    *Mandala, Kurmaka* and *Angula*
    (C)    *Dandaka, Vidambaka* and *Dhanurmusti*
    (D)    *Sarvatabhadra, Prastara* and *Chaturmukha*

Q.58 Plans of Mohenjodaro and medieval Jaipur are based on:

    (A)    grid pattern and sectoral allocation of zoning.
    (B)    radial pattern and grid allocation of zoning.
    (C)    clustered pattern and segregated allocation of zoning.
    (D)    centralized pattern and composite allocation of zoning.

Q.59 Match the following:

| Group I | | Group II |
| --- | --- | --- |
| P. Frank Gehry | 1 | Pyramide du Louvre |
| Q. Norman Foster | 2 | Bilbao Guggenheim Museum |
| R. I.M.Pei | 3 | Hong Kong & Shanghai Bank |
| S. James Stirling | 4 | Neu Staatsgaleri |

    (A)    P-1, Q-3, R-4, S-2        (B)    P-2, Q-3, R-1, S-4
    (C)    P-2, Q-1, R-3, S-4        (D)    P-3, Q-2, R-4, S-1

Q.60 The most appropriate criteria to be considered for delineating backward regions are

    P    density of population.        Q    amount of sales tax collection.
    R    infant mortality.              S    per capita income and its distribution.

    (A)    P, R        (B)    R, S        (C)    P, S        (D)    P, Q

Q.61 The relationship between headway (h) and flow (q) in a traffic stream is represented by:

    (A)    $h = q^2$        (B)    $h = q$        (C)    $h = 1 / q^2$        (D)    $h = 1 / q$

Q.62 Match the diagrams of Age-Sex pyramids from the descriptions of the population growth, given below:



Ages 0 - 14    Ages 15 - 44    Ages 45 - 85+

    P            Q            R            S

1. Rapid Growth    2. Slow Growth    3. Zero Growth    4. Negative Growth

    (A)    P-1, Q-2, R-3, S-4        (B)    P-4, Q-3, R-2, S-1
    (C)    P-3, Q-2, R-4, S-1        (D)    P-1, Q-2, R-4, S-3

Q.63 'Ecological Footprint' corresponds to

(A) the land area required to preserve as forests to ensure sufficient lev_____ for a community.

(B) the land area necessary to supply natural resources to a community and _____ wastes.

(C) the land area required to take care of solid wastes and sewerage of a community.

(D) the land area per person per year, from which forests are cut.

Q.64 Match the following with their area of application

| P | Potometer | 1 | Area measurement |
|---|---|---|---|
| Q | Histogram | 2 | Soil moisture measurement |
| R | Electrostatic precipitator | 3 | Transpiration |
| S | Planimeter | 4 | Suspended particles |
| T | Potentiometer | 5 | Statistics |

(A) P-1, Q-1, R-2, S-3, T-1
(B) P-4, Q-5, R-5, S-4, T-1
(C) P-3, Q-5, R-4, S-1, T-2
(D) P-2, Q-3, R-2, S-5, T-5

Q.65 Select the appropriate word from the list given below that fits in ALL the blanks:

1. The aim of conservation is to retain or recover the _____ significance of a place.

2. Preservation is appropriate where the existing state of the fabric itself constitutes of specific _____ significance.

3. Restoration is appropriate only if there is sufficient evidence of an earlier state of the fabric and only if returning the fabric to that state recovers the _____ significance of the place.

4. Reconstruction is appropriate where a place is incomplete through damage or alteration and where it is necessary for its survival, or where it recovers the _____ significance of the place as a whole.

(A) historical      (B) cultural      (C) architectural    (D) aesthetic

Q.66 The rule for generating a Fibonacci series is:

(A) $F_i = F_{i-1} + 2$ for i>1 given $F_i$ and $F_0$
(B) $F_i = F_{i-1} + 1$ for i>1 given $F_i$ and $F_0$
(C) $F_i = F_{i-1} + F_{i-2}$ for i>1 given $F_i$ and $F_0$
(D) $F_i = (F_{i-1})^2$ for i>1 given $F_i$ and $F_0$

Q.67 Two names associated with the planning of Paris and Philadelphia are respectively:

(A) Georges-Eugene Hausmann and William Penn
(B) Patrick Geddess and Louis Wirth
(C) Albert Perry and Oswald Spangler
(D) Le Corbusier and John Friedman

Q.68 Which of the following statements is valid for a saddle surfaced shell structure?

P     regions of downward curvature exhibit arch like action
R     regions of upward curvature behave as a cable structure

(A) P is true and R is false           (B) R is true and P is false
(C) Both P & R are true              (D) Both P and R are false

Q.69    Which of the following statements describes the advantage of A.C. supply over D

(A)     Electroplating process
(B)     Noise reduction in motors
(C)     Facility of transforming from one voltage to another
(D)     Charging of storage batteries

Q.70    For which application software the following expression is valid?

(* 2.5 (+ (/ a 2) (- 5 x)))

(A)     Qbasic          (B)     AutoLISP        (C)     Java            (D)     C++

## Common Data Questions

### Common Data for Questions 71,72 and 73:

For a building, the gross rent fetched is Rs. 22,500/- per month; municipal tax is Rs. 8,000/ per quarter; repair and maintenance charges are @ 10% of gross rent and other expenses borne by owner are Rs.16,000/- per annum.

Q.71    What would be the total outgoings in Rs. ?
(A)     60,000/-        (B)     70,000/-        (C)     75,000/-        (D)     80,000/-

Q.72    What would be the net annual rent in Rs. ?

(A)     1,90,000/-      (B)     1,95,000/-      (C)     2,00,000/-      (D)     2,05,000/-

Q.73    If the Years Purchase in perpetuity comes out to be 12.5, what would be the capitalized value, in Rs. of the above building?

(A)     24,00,000/-     (B)     24,37,000/-     (C)     24,37,500/-     (D)     25,00,000/-

### Common Data for Questions 74 and 75:

The following table provides total population and urban population of India in various years.

| Year | Total Population (millions) | Urban Population (millions) |
|------|------------------------------|------------------------------|
| 1901 | 238.40 | 25.85 |
| 1911 | 252.09 | 25.94 |
| 1921 | 251.32 | 28.09 |
| 1931 | 278.98 | 33.46 |

Q.74    Level of Urbanisation in the year 1921 was:

(A)     10.29           (B)     10.84           (C)     11.18           (D)     11.99

Q.75    As per the table given in Q. No. 74 the Annual Growth Rate of urban population of India during 1921 – 31 was:

(A)     0.03            (B)     0.79            (C)     1.76            (D)     1.91

## Linked Answer Questions: Q.76 to Q.85 carry two marks eac

**Linked Answer Questions 76 and 77:**

Q.76  In professional practice, when there are disputes among the architects, clients and contracte regarding the building constructions or contract, then to resolve the issues the Expert / Experts appointed for the same is / are termed as

(A)    Arbitrator        (B)    Lawyer        (C)    Solicitor        (D)    Valuer

Q.77  When there is dispute among the above Experts then another expert is appointed to resolve the issues, who is known as

(A)    Mediator        (B)    Referee        (C)    Judge        (D)    Umpire

**Linked Answer Questions 78 and 79:**

Q.78  Identify the formula for calculating the reverberation time (t) of a hall of volume V cu.m., where S represents sound absorption area.

(A)    $t = 16V/ S$        (B)    $t = 0.16V^2/S$        (C)    $t = 0.16V/S$        (D)    $t = 16V/S^2$

Q.79  A school auditorium has a capacity of 800 persons. Considering 3.5 cu.m. of volume per person and reverberation time of 1.25 sec, the total sound absorption area required would be:

(A)    348 sq.m.        (B)    358 sq.m.        (C)    368 sq.m.        (D)    378 sq.m.

**Linked Answer Questions 80 and 81:**

Q.80  If a bedroom of 3m x 3m x 3m requires 3 air-changes per hour, and  difference in temperature between inside and outside ($\Delta T$) = 12 deg C, then Ventilation Heat Flow Rate ($Q_V$) will be:

(A)    0.12 kW        (B)    0.35 kW        (C)    0.70 kW        (D)    1.17 kW

Q.81  For a given air velocity of 2m/s, the necessary cross-sectional area of supply-duct will be:

(A)    0.0375 sq.m.        (B)    0.0225 sq.m.        (C)    0.0113 sq.m.        (D)    0.0037 sq.m.

**Linked Answer Questions 82 and 83:**

Q.82  The number of Senior Secondary schools required for a city of population of 1,00,000 persons is:

(A)    8-10        (B)    14-15        (C)    18-20        (D)    25-28

Q.83  The total land requirement for Senior Secondary schools for a city of population of 1,00,000 persons is about:

(A)    8 ha        (B)    15 ha        (C)    25 ha        (D)    40 ha

**Linked Answer Questions 84 and 85:**

Q.84    Identify the relationship governing the cost of land (*C*) based on the following factors:

Net density in plots per hectare                          = *p*
Land use percentage allocation in net housing      = *q*
Price of land in Rs. per sq m                              = *s*

(A)     $C = (10,000/p \times 100/q)\, s$        (B)     $C = (10,000/p \times q/100)\, s$
(C)     $C = (10,000/p \times 100/s)\, q$        (D)     $C = (10,000/s \times 100/q)\, p$

Q.85    If for a housing development, $p = 30$, $q = 45$ and $s = 500$, then the cost of land per dwelling unit is:

(A)     Rs. 1,333/-        (B)     Rs. 3,000/-        (C)     Rs. 75,000/-        (D)     Rs. 3,70,370/-

# END OF THE QUESTION PAPER