Remark

AR:ARCHITECTURE AND PLANNING

AI25btech11027 - Bhuvana

2011

Duration:Three hours   Maximum Marks:150

Q.1 to Q.25 carry one mark each.

1) Capital town of Gandhinagar has been designed by **(GATE EE 2025)**

    a) Norman Foster   b) B.V.Doshi   c) H.K.Mewada   d) Le Corbusier

2) Rajiv Awas Yojana of Ministry of Housing,Government of India addresses housing for **(GATE EE 2025)**

    a) Middle Income Group   c) High Income Group
    b) Low Income Group   d) Slum Dwellers

3) The triangular space formed by two consecutive arches is **(GATE EE 2025)**

    a) Tympanum   b) Spandrel   c) Regula   d) Extrados

4) Rose Window is an iconic feature of **(GATE EE 2025)**

    a) Notre Dame,Paris   c) St.Peter's ,Rome
    b) Hagia Sophia,Istanbul   d) Victoria Memorial,Kolkata

5) Purity of colour is described by **(GATE EE 2025)**

    a) Hue   b) Value   c) Chroma   d) Tone

6) A slab simply supported on all its edges with a ratio of longer side to shorter side greater or equal to 2.0 is designed as **(GATE EE 2025)**

    a) One way slab   c) Flat slab
    b) Two way slab   d) Coffered slab

7) Entablature consists of **(GATE EE 2025)**

    a) Architrave,Tenia,Cornice   c) Frieze,Cornice,Triglyphs
    b) Architrave,Frieze,Cornice   d) Cornice,Guttae,Tympanum

8) Town planned for `Motor Age` refers to **(GATE EE 2025)**

a) Toronto,Ontario   c) Radburn,New Jersey

b) Nassan Shores,Long Island   d) Green Belt,Maryland

9) The minimum road curb length required for parking 10 cars perpendicular to the road is   **(GATE EE 2025)**

a) 15 m   c) 35 m

b) 25 m   d) 40 m

10) Which of the following generates heat island?   **(GATE EE 2025)**

a) Urban areas   c) Wetlands

b) Coastal areas   d) Forest areas

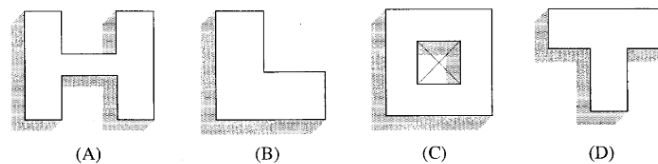11) The most suitable earthquake resistant built plan form is   **(GATE EE 2025)**

(A)   (B)   (C)   (D)

Fig. 11.

12) Transfer of Development Right (TDR) is a tool used for   **(GATE EE 2025)**

a) Human development   c) Economic development

b) Land development   d) Infrastructure development

13) Dandaka form of settlement layout is basically a   **(GATE EE 2025)**

a) Grid Iron pattern   c) Radical pattern

b) Ring radical pattern   d) Informal pattern

14) Maximum horizontal angle from the speaker in a seating area of a lecture theatre should be   **(GATE EE 2025)**

a) 70°   b) 90°   c) 120°   d) 140°

15) U-value refers to   **(GATE EE 2025)**

a) Utility function for convective heat transfer

b) Thermal transmittance of building components

c) Energy transfer between thermal bridges

d) Measure for area related heating and cooling loads

16) Consistency of cement is measured by   **(GATE EE 2025)**

a) Pycometer

c) Universal Testing Machine

b) Slump cone

d) Vicat's apparatus

17) The appropriate material for flooring of an external ramp of a building would be **(GATE EE 2025)**

a) Polished granite

c) Glazed ceramic tile

b) Wax polished marble

d) Rough finish sandstone

18) Which of the following is **NOT** a member of a steel Truss? **(GATE EE 2025)**

a) Gusset plate   b) Wall plate   c) Fish plate   d) Anchor Bolts

19) Identify the odd among the following **(GATE EE 2025)**

a) Security deposit

c) Performance bank guarantee

b) Professional tax

d) Earnest money

20) Weep hole is a term used to describe **(GATE EE 2025)**

a) Perforations in the cast iron pipe used for bording
b) Holes in retaining wall for draining water
c) Holes in the cover plate of floor traps
d) Holes dug in earth to recharge ground water

21) Busway,Busduct and Raceway are components of **(GATE EE 2025)**

a) Security system

c) Eletrical system

b) Air conditioning system

d) Water supply system

22) The difference between Wet Bulb Temparature and Dry Bulb Temparature is called **(GATE EE 2025)**

a) Dry bulb depression

c) Variable depression

b) Wet bulb depression

d) Atmospheric depression

23) In India, one of the Slum Implrovement initiatives is **(GATE EE 2025)**

a) Special Residentia Zone

c) Indira Awas Yojana

b) Valmiki Ambedkar Malin Basti Awas Yojana

d) Eco Housing

24) Suspended Floors is a structural system used in **(GATE EE 2025)**

a) Lloyds Building,London

c) Petronas Tower,Kualalampur

b) Jin Mao Building,Shanghai

d) Hongkong Shanghai Bank,Hongkong

25) Residual method of valuation is used to determine   **(GATE EE 2025)**

    a) Public Private Partnership Deal   c) Property Tax

    b) Rent   d) Selling Price

Q.26 to Q.55 carry two marks each.

26) Match the buildings in **Group I** with their architect in **Group II**   **(GATE EE 2025)**

Group I	**Group II**
P. Bibliotheca Alexandrina,Alexandria	1. I.M.Pei
Q. Institut du Monde Arab,Paris	2. Jean Nouvel
R. Bank of China,Hongkong	3. Daniel Libeskind
S. Jewish Museum,Berlin	4. Renzo Piano
	5. Snøhetta

    a) P-5,Q-2,R-1,S-4   c) P-4,Q-2,R-5,S-3

    b) P-5,Q-4,R-1,S-3   d) P-5,Q-2,R-1,S-3

27) A room measuring 5 m $*$ 3.5 m enclosed by brick wall has a ceiling at 3 m height. The room has a door and a window opening of 1 m $*$ 2 m and 1 m $*$ 1 m respectively.The quantity of plastering required for interior walls (in sqm) is   **(GATE EE 2025)**

    a) 46.5   b) 48   c) 51   d) 68.5

28) One cubic metre of Ordinary Portland Cement yeilds a volume of M15 concrete in the range of   **(GATE EE 2025)**

    a) 2 to 3 cum   b) 4 to 5 cum   c) 7 to 8 cum   d) 8 to 9 cum

29) Match the CAD commands in **Group I** with their functions in **Group II (GATE EE 2025)**

Group I	**Group II**
P. LAYISO	1. blends selected object to destination layer
Q. LAYMCH	2. freezes layer of selected object
R. LAYMRG	3. hides or locks layers other than those of selected objects
S. LAYLCK	4. assign selected object to destination layer
	5. locks object of destination layer

    a) P-2,Q-4,R-1,S-5   c) P-3,Q-5,R-4,S-2

    b) P-3,Q-2,R-1,S-5   d) P-3,Q-4,R-1,S-5

30) Match the buildings in **Group I** with their corresponding structual forms in **Group II**. **(GATE EE 2025)**

Group I	Group II
P. Hall of Nations,New Delhi	1. Spherical Structure
Q. Salvacao Church,Mumbai	2. Folded Plates
R. State Trading Corporation Building,New Delhi	3. Octahedral lattice structure
S. Matrimandir,Auroville	4. Vierendeel girders
	5. Shell roof structue

a) P-3,Q-5,R-4,S-1

b) P-2,Q-5,R-4,S-1

c) P-3,Q-5,R-4,S-2

d) P-3,Q-5,R-2,S-1

31) Identify the **INCORRECT** statements **(GATE EE 2025)**

a) Guggenheim,Bilbao is an example of Deconstructivism.

b) Silver Abstraction is a term used metal clad modern high rise buildings

c) Spiral Building in Tokyo has a curvilinear built form.

d) Free Building plan form is a concept given by Le Corbusier

32) Match the terms in **Group I** with their features in **Group II** **(GATE EE 2025)**

Group I	Group II
P. Quoin	1. Geometric representation of the universe
Q. Stucco	2. Small dome
R. Mandala	3. Triangular form above an opening
S. Cupola	4. Corner stone at the angle of buildings

a) P-4,Q-3,R-2,S-1

b) P-3,Q-5,R-1,S-4

c) P-4,Q-5,R-1,S-2

d) P-3,Q-1,R-5,S-2

33) Match the architectural styles in **Group I** with their features in **Group II**. **(GATE EE 2025)**

Group I	Group II
P. West Asiatic	1. Arches and pendentives
Q. Greek	2. Small dome
R. Mandala	3. Triangular form above an opening
S. Cupola	4. Corner stone at the angle of buildings
	5. Plaster

a) P-3,Q-2,R-1,S-4

b) P-5,Q-4,R-1,S-2

c) P-5,Q-4,R-1,S-3

d) P-4,Q-3,R-5,S-2

34) Gestalt's Laws of visual perception **DO NOT** relate to **(GATE EE 2025)**

a) Aesthetic of form are a function of Golden Section

b) Things are perceived as a whole

c) Whole thing is greater than the sum total of its parts

d) Elements with continuity are perceived together

35) A site in a map drawn to scale of 1 : 16000 measures 75 sqcm. The actual area of the site in hectares is **(GATE EE 2025)**

a) 120

b) 162

c) 192

d) 256

36) Identify the **CORRECT** CAD statements **(GATE EE 2025)**
   P. SPLINE connects sequence of line segments into a single object
   Q. SPLINE is a smooth curve passing through or near a given set of points
   R. PLINE creates straight line segments,arc segments or both
   S. PLINE can be closed only when its start and end points are coincident and tangent
   T. PLINE allows adjusting the width and curvature of its multiline segments
   U. SPLINE can be explored into smaller segments
   V. PLINE can be converted into a continuous curve segment

a) P,R,S,U   b) Q,R,T,V   c) R,S,T,V   d) S,T,U,V

37) Match the eminent personalities in **Group I** with their books and statements in **Group II** **(GATE EE 2025)**

Group I	Group II
P. Kevin Lynch	1. The Fountainhead
Q. Ayn Rand	2. Small is Beautiful
R. Paul D.Spreiregen	3. Site Planning
S. E.F.Schumacher	4. Urban Design:Architecture of Towns and Cities
	5. Design of Cities

a) P-4,Q-2,R-5,S-3

b) P-3,Q-1,R-2,S-5

c) P-5,Q-1,R-4,S-2

d) P-3,Q-1,R-4,S-2

38) Match the urbans forms listed in **Group I** with the towns listed in **Group II GATE EE 2025)**

Group I	Group II
P. Grid Iron	1. New Delhi
Q. Radical	2. Washington D.C.
R. Linear	3. Copenhagen
S. Finger plan	4. Mumbai
	5. Canberra

a) P-2,Q-1,R-4,S-3

b) P-3,Q-1,R-2,S-5

c) P-3,Q-1,R-4,S-2

d) P-2,Q-1,R-4,S-5

39) Consider the following features **(GATE EE 2025)**

1. Length finely proportional to its width
2. Statues as silhouettes against the sky above cornice lines
3. Fountains significantly fine vintage points
4. Series of different shapes connected by traditional narrow streets,column screens or arches

The element of urban design which comprises the above is

a) Vista

b) Piazza

c) Rond Point

d) Bosque

40) Match the instruments in **Group I** with their corresponding functions in **Group II** **(GATE EE 2025)**

Group I	Group II
P. Hygrometer	1. Precipitation
Q. Disdrometer	2. Vapor Pressure
R. Anemometer	3. Solar Radiation
S. Manometer	4. Relative Humidity
	5. Velocity of Air

a) P-4,Q-1,R-2,S-3

b) P-4,Q-3,R-2,S-5

c) P-1,Q-2,R-5,S-4

d) P-4,Q-1,R-5,S-2

41) Match the instuments in **Group I** with their corresponding functions in **Group II** **(GATE EE 2025)**

Group I	Group II
P. Symmetrical layout,water cascades,entombment	1. French gardens
Q. Radical layout,symmetrical sculptures,boulevards	2. English gardens
R. Occult symmetry,pontoon bridges,stepping stones	3. Chinese gardens
S. Hierarchy of courts,hierarchy of gates,zoomorphic forms	4. Mughal gardens
	5. Japanese gardens

a) P-2,Q-1,R-4,S-3

b) P-4,Q-1,R-5,S-3

c) P-4,Q-3,R-5,S-1

d) P-5,Q-1,R-2,S-3

42) Arrange the following sense of enclosures in a hierarchy of decreasing order **(GATE EE 2025)**

Fig. 42.

Group I

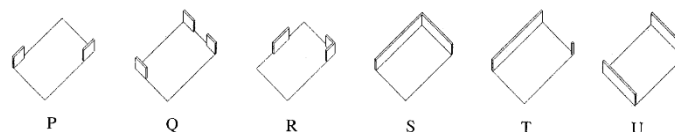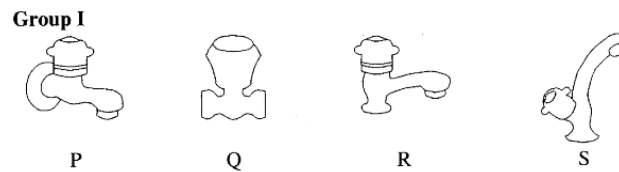P Q R S

Fig. 46.

a) $S > Q > U > P > T > R$ c) $P > Q > R > S > T > U$
b) $U > S > Q > R > P > T$ d) $T > P > S > Q > U > R$

43) Match the elements of **Group I** with their corresponding type in **Group II** (GATE EE 2025)

Group I	Group II
P. Fire hydrant	1. Street Furniture
Q. Planter beds	2. Street Hardware
R. Letter box
S. Traffic signs
T. Lamp Posts

a) P-2,Q-1,R-1,S-2,T-2   c) P-1,Q-1,R-2,S-2,T-2
b) P-1,Q-1,R-2,S-1,T-1   d) P-2,Q-1,R-2,S-2,T-2

44) In a construction project schedule. A is the first activity .Activities B & C follow A. Activity D follows B & C. Activity E follows C. Activity F follows D & E. **(GATE EE 2025)**

Activity	A	B	C	D	E	F
Duration	3	2	5	6	5	3

The critical time to complete the project will be

a) 14 days   b) 16 days   c) 17 days   d) 20 days

45) The maintenance cost of a building will be Rs.2 lakhs after 10 years. The The annual sinking fund required for such maintenance @ 6% interest per annum will be **(GATE EE 2025)**

a) Rs.17, 200/-   b) Rs.15, 200/-   c) Rs.13, 200/-   d) Rs.11, 200/-

46) Match the figures in **Group I** with the fixtures in **Group II**   **(GATE EE 2025)**
Group II:

1. Sink Cock 2. Bib Cock 3. Pillar Cock 4. Stop Cock

a) P-1, Q-4, R-2, S-3   c) P-3, Q-1, R-2, S-4
b) P-2, Q-3, R-1, S-4   d) P-2, Q-4, R-3, S-1

47) Match the joints in Group I with the corresponding figures in Group II   **(GATE EE 2025) Group I:**

P. Butt joint   Q. Re- bated joint   R. Table joint   S. Tongue & Groove joint
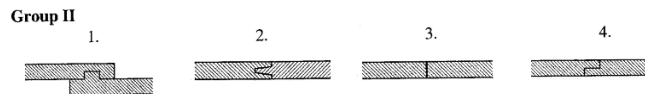

Fig. 47.

a) P-3, Q-4, R-1, S-2   c) P-3, Q-1, R-2, S-4
b) P-4, Q-1, R-3, S-2   d) P-3, Q-4, R-2, S-1

Common Data Questions
Common Data for Questions 48 and 49: A beam of span L is simply supported at two ends. One half span of the beam weighs W and the remaining half span weighs $2W$.

48) Maximum shear force in the beam will be: **(GATE EE 2025)**

a) W b) $1.25W$ c) $1.75W$ d) $3W$

49) Maximum bending moment will occur at: **(GATE EE 2025)**

a) $L/16$ from midpoint of the beam   c) $L/7$ from midpoint of the beam
b) Midpoint of the beam   d) One of the endpoints of the beam

Common Data for Questions 50 and 51:
A building site has a plot of 500 sqm

Maximum allowable height = $G + 7$ Area to be utilized for paved access roads = 10%
Maximum ground coverage = 40%   Runoff coefficient for paved surface = 0.9
Maximum allowable FAR = 2.0   Runoff coefficient for unpaved surface = 0.3

50) If maximum allowable FAR is utilized, the minimum ground coverage would be: **(GATE EE 2025)**

a) 20%   b) 25%   c) 30%   d) 35%

51) If it rains for 30 min with an intensity of 10 cm/hr, minimum volume of rain water that can be collected will be: **(GATE EE 2025)**

a) 12.75 cum   b) 14 cum   c) 15 cum   d) 16 cum

Linked Answer Questions
Statement for Linked Answer Questions 52 and 53:
An auditorium having volume of 4500 cum and total absorption of all acoustic materials is 480 m^2 sabine.

52) The reverberation time of the auditorium is: **(GATE EE 2025)**

a) 1.0 second   b) 1.5 second   c) 2.0 second   d) 2.5 second

53) To reduce reverberation time by 0.5 second, additional absorption (m^2 sabine) required would be: **(GATE EE 2025)**

a) 120   b) 160   c) 240   d) 720

Statement for Linked Answer Questions 54 and 55:
A residential sector planned over an area of 100 hectares has been divided into various plots, each having one dwelling unit with an average household size of 5 persons. Remaining area is devoted for schools, roads, parks, shops, etc.

Plot size	Number
500 sqm	500
300 sqm	500
200 sqm	1000

54) The gross density of the residential sector in persons per hectare would be: **(GATE EE 2025)**

a) 100   b) 150   c) 200   d) 250

55) Assuming 20% of the total population being higher secondary school going children and expected enrolment being 80% with per capita floor space requirement of 5.0 sqm, then minimum land required for school building with 40% ground coverage and FAR 0.5 would be: **(GATE EE 2025)**

a) 1.0 hectares   b) 1.6 hectares   c) 2.2 hectares   d) 2.8 hectares

General Aptitude(GA) Questions
Q.56 to Q.60 carry one mark each

56) Choose the word from the options given below that is most nearly opposite in meaning to the given word:
Amalgamate   **(GATE EE 2025)**
a) merge
b) split
c) collect
d) separate

57) Choose the most appropriate word from the options given below to complete the following sentence.

If you are trying to make a strong impression on your audience,you cannot do so by being understand ,tentative or _____ **(GATE EE 2025)**

a) hyperbolic
b) restrained
c) argumentative
d) indifferent

58) Choose the most appropriate words from the options given below to complete the following sentence:

I contemplated _____ for my vacation but decided against it. **(GATE EE 2025)**

a) to visit India
b) visiting to India
c) to visit
d) visit to

59) If $\log_e(P) = (\frac{1}{2})\log_(Q) = (\frac{1}{3})\log_e(R)$, then which of the following options is **TRUE**? **(GATE EE 2025)**

a) $p^2 = Q^3 R^2$ b) $Q^2 = PR$ c) $Q^2 = R^3 P$ d) $R = P^2 Q^2$

60) Which of the following options is the closest in meaning to the word below:

inexpensible **(GATE EE 2025)**

a) Incomprehensible
b) Indelible
c) Inextricable
d) Infallible

Q.61 to Q.65 carry two marks each.

61) A container originally contains 10 litres of pure spirit. From this container 1 litre of spirit is replaced with 1 litre of water. Subsequently, 1 litre of the mixture is again replaced with 1 litre of water and this process is repeated one more time. How much spirit is now left in the container? **(GATE EE 2025)**

a) 7.58litres   b) 7.84litres   c) 7litres   d) 7.29litres

62) A transporter receives the same number of orders each day. Currently, he has some pending orders (backlog) to be shipped. If he uses 7 trucks, then at the end of the 4th day he can clear all the orders. Alternatively, if he uses only 3 trucks, then all the orders are cleared at the end of the 10th day. What is the minimum number of trucks required so that there will be no pending order at the end of the 5th day? **(GATE EE 2025)**

a) 4   b) 5   c) 6   d) 7

63) The variable cost (V) of manufacturing a product varies according to the equation $V = 4q$, where q is the quantity produced. The fixed cost (F) of production of the same product reduces with q according to the equation $F = \frac{100}{q}$. How many units should be produced to minimize the total cost ($V + F$)? **(GATE EE 2025)**

a) 5   b) 4   c) 7   d) 6

64) P, Q, R and S are four types of dangerous microbes recently found in a human habitat. The area of each circle with its diameter printed in brackets represents the growth of a single microbe surviving the human immunity system within 24 hours of entering the body. The danger to human beings varies proportionately with the toxicity, potency and growth attributed to a microbe shown in the figure below: **(GATE EE 2025)**
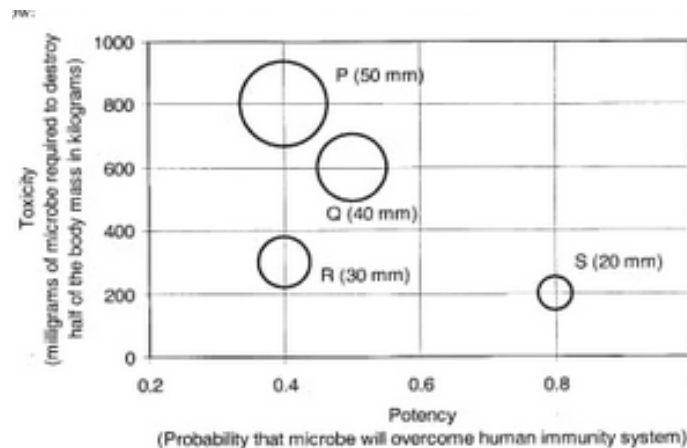

Fig. 64.

A pharmaceutical company is contemplating the development of a vaccine against the most dangerous microbe. Which microbe should the company target in its first attempt?

a) P   b) Q   c) R   d) S

65) **Few school curricula include a unit on how to deal with bereavement and grief, and yet all students at some point in their lives suffer from losses through death and parting.**
Based on the above passage, which topic would not be included in a unit on bereavement? **(GATE EE 2025)**

a) how to write a letter of condolence
b) what emotional stages are passed through in the healing process
c) what the leading causes of death are
d) how to give support to a grieving friend

END OF THE QUESTION PAPER