

# GATE 2022

**Civil Engineering**

**Forenoon Session - 12.02.2022**



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Syllabus :

**Maths & Aptitude**

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## General Aptitude

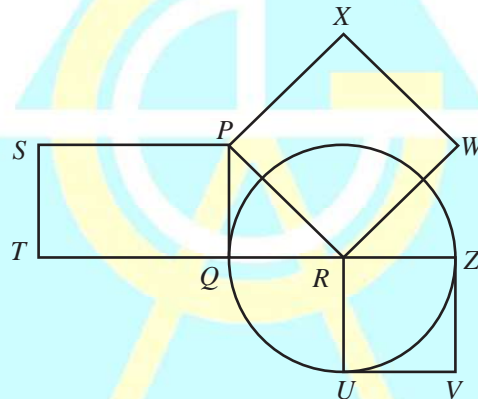
## Question 1

- \* P is the sister of Q
  - \* Q is the husband of R
  - \* R is the mother of S
  - \* T is the husband of P
  - \* T is \_\_\_\_\_ of S?
- (A) The grand father      (B) An uncle  
(C) The father              (D) A brother

Ans. B

## Question 2

R is the center of circle. The line PQ and ZV are tangential to the circle. The relation among the areas of the squares, PXWR, RUVZ and SPQT is



- (A) Area of SPQT = Area of RUVZ = Area of PXWR  
(B) Area of SPQT = Area of PXWR – Area of RUVZ  
(C) Area of PXWR = Area of SPQT – Area of RUVZ  
(D) Area of PXWR = Area of RUVZ – Area of SPQT

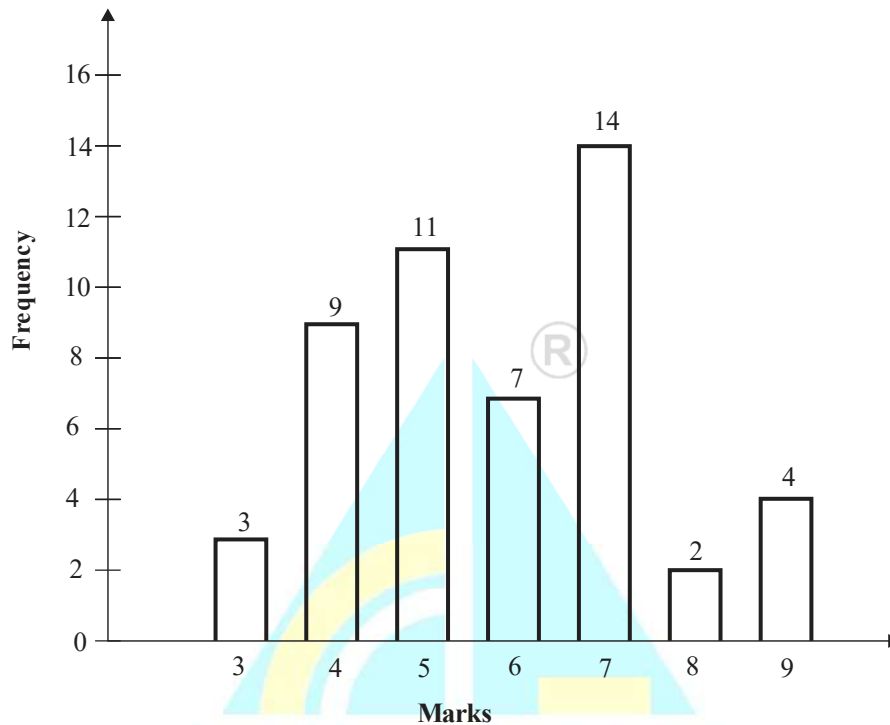
Ans. B

## Question 3

Healthy eating is a critical component of healthy aging. When should one start eating healthy? It turns out that it is never too early. For example babies who start eating healthy in the first year are more likely to have better overall health as they get older. Which one is correct?

- (A) Eating healthy and better overall health are more correlated at a young age, but not old age.  
(B) Eating healthy can be started at any age, earlier the better.  
(C) Healthy eating is more important for adult than kid.  
(D) Healthy eating is important for those with good health conditions but not for other.

Ans. B

**Question 4**

The above frequency chart shows the frequency distribution of marks obtained by a set of student in an exam. Which one is correct ?

- (A) Mode > Mean > Median  
(B) Median > Mode > Mean  
(C) Mean > Mode > Median  
(D) Mode > Median > Mean

**Ans. D****Question 5**

If  $p : q = 1 : 2$ ,  $q : r = 4 : 3$ ,  $r : s = 4 : 5$  and  $u$  is 50% more than  $s$ .  $p : u = ?$

- (A) 2 : 15  
(B) 16 : 45  
(C) 1 : 5  
(D) 4 : 25

**Ans. B****Question 6**

You should \_\_\_\_\_ when to say \_\_\_\_\_.

- (A) know/no  
(B) no/no  
(C) know/know  
(D) no/know

**Ans. A****Question 7**

Consider a cube made by folding a single sheet of paper of appropriate shape. The interior faces of the cube are all blank, the exterior faces that are not visible in the above view may not be blank.





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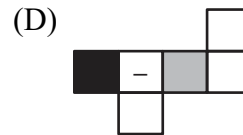
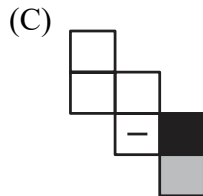
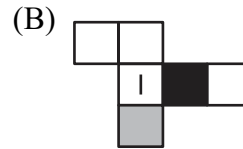
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Which one of the following represents a possible unfolding of the cube?



**Ans. C**

**Question 8**

P invested 5000 per month for 6 months of a year and Q invested  $x$  per month for 8 month of the year in a partnership business. The profit is shared in proportion to the total investment made in that year. If at the end of that investment year, Q receives  $\frac{4}{9}$  of the total profit, what is the value of  $x$  (in ).

- (A) 8437 (B) 3000  
(C) 2500 (D) 4687

**Ans. B**

**Question 9**

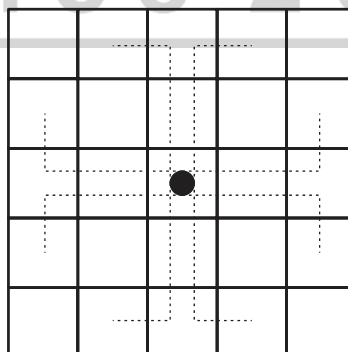
Two straight lines pass through the origin  $(x_0, y_0) = (0, 0)$  one of them passes through the point  $(x_1, y_1) = (1, 3)$  and the other passes through the point  $(x_2, y_2) = (1, 2)$ . What is the area enclosed between the straight line in the interval  $(0, 1)$  on the  $x$ -axis ?

- (A) 1.5 (B) 0.5  
(C) 2.0 (D) 1.0

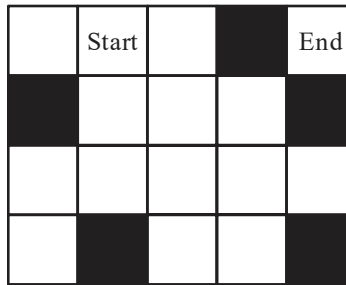
**Ans. B**

**Question 10**

A piece can move two-step straight and then take a turn as shown in figure,



If the piece starts from start point. The minimum number of move required to reach end point



- (A) 4 (B) 5  
(C) 6 (D) 7



Ans. B

Technical Section

Question 1

Mathematics

$$\frac{d^3 y}{dx^3} + x \left( \frac{dy}{dx} \right)^{3/2} + x^2 y = 0$$

- (A) An ordinary differential equation of order 3 and degree 3  
(B) An ordinary differential equation of order 3 and degree 3/2  
(C) An ordinary differential equation of order 3 and degree 2  
(D) An ordinary differential equation of order 2 and degree 3

Ans. D

Question 2

Mathematics

The Cartesian co-ordinates of a point  $P$  in right - handed co-ordinate system are  $(1, 1, 1)$ . The transformed co-ordinates of  $P$  due to a  $45^\circ$  clockwise rotation of the co-ordinate system about the positive x-axis are

- (A)  $(1, 0, -\sqrt{2})$  (B)  $(1, 0, \sqrt{2})$   
(C)  $(-1, 0, \sqrt{2})$  (D)  $(-1, 0, -\sqrt{2})$

Ans. B

Question 3

Mathematics

The matrix  $M$  is defined as

$$M = \begin{bmatrix} 1 & 3 \\ 4 & 2 \end{bmatrix}$$

and has eigen value 5 and  $-2$ .

The matrix  $Q$  is formed as

$$Q = M^3 - 4M^2 - 2M$$

Which is/are the eigen value(s) of matrix  $Q$ ?

- (A)  $-20$  (B)  $25$   
(C)  $-30$  (D)  $15$





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**Ans. A, D****Question 4****Mathematics**

Consider the differential equation

$$\frac{dy}{dx} = 4(x+2) - y$$

For the initial condition  $y=3$  at  $x=1$ , the value of  $y$  at  $x=1.4$  obtained using Euler's method with a step-size of 0.2 is \_\_\_\_\_.**Ans. 6.4****Question 5****Mathematics**Let  $\max\{a, b\}$  denote the maximum of two real number  $a$  and  $b$ . Which of the following statement(s) is/are TRUE about the function  $f(x) = \max\{3-x, x-1\}$ ?

- (A) It is continuous on its domain                      (B) It has a local maximum at  $x=2$   
 (C) It is differentiable on its domain                      (D) It has a local minimum at  $x=2$

**Ans. A, D****Question 6****Mathematics**

The Fourier series of a function is given by,

$$f(x) = \sum_{n=0}^{\infty} f_n \cos nx$$

For  $f(x) = \cos^4 x$ ,  $(f_4 + f_5)$  is \_\_\_\_\_?**Ans. 0.125****Question 7****Mathematics**Consider the following recursive interaction scheme for different values of variable  $p$  with the initial guess  $x_1 = 1$ 

$$x_{n+1} = \frac{1}{2} \left( x_n + \frac{p}{x_n} \right), \quad n = 1, 2, 3, 4, 5$$

For  $p=2$ ,  $x_5$  is obtained to be 1.414.For  $p=3$ ,  $x_5$  is obtained to be 1.732.If  $p=10$ ,  $x_5$  is \_\_\_\_\_?**Ans. 3.162****Question 8****Mathematics**

Consider the following expression

$$z = \sin(y + it) + \cos(y - it)$$

 $z$ ,  $y$  and  $t$  are variable,  $i = \sqrt{-1}$ . The partial differential equation derived

(A)  $\frac{\partial^2 z}{\partial t^2} + \frac{\partial^2 z}{\partial y^2} = 0$

(B)  $\frac{\partial^2 z}{\partial t^2} - \frac{\partial^2 z}{\partial y^2} = 0$

(C)  $\frac{\partial z}{\partial t} - i \frac{\partial z}{\partial y} = 0$

(D)  $\frac{\partial z}{\partial t} + i \frac{\partial z}{\partial y} = 0$

**Ans. A****Question 9**

A raft foundation of 30 m × 25 m is proposed to be constructed at a depth of 8 m in a sand layer. A 25 m thick saturated clay layer exists 2 m below the base of the raft foundation below the clay layer, a dense sand layer exist at the site. A 25 mm thick undisturbed sample was collected from the mid depth of the clay layer and tested in laboratory oedometer under double drainage condition. It was found that the soil sample had undergone 50% consolidation settlement in 10 minutes. The time (in days) required for 25% consolidation settlement of the raft foundation will be.

**Ans. 1736.11****Question 10**

In the context of elastic theory of reinforced concrete, the modular ratio defined as the ratio of

- (A) Shear modulus of reinforcement material to the shear modulus of the concrete
- (B) Young's modulus of elasticity of reinforcement material to Young's modulus of elasticity of concrete
- (C) Young's modulus of elasticity of reinforcement material to the shear modulus of concrete
- (D) Young's modulus of elasticity of concrete to Young's modulus of elasticity of reinforcement material

**Ans. B****Question 11**

The total hardness in Row water is 500 mg/l as CaCO<sub>3</sub>, the total hardness of the raw water is, expressed in milligram equivalent per lit is \_\_\_\_\_.

(Consider atomic weight of Ca, C & O as 40 g/mol, 12 g/mol and 16 g/mol, respectively)

(A) 100

(B) 5

(C) 10

(D) 1

**Ans. C****Question 12**

For wastewater coming from a wood pulping industry, COD and 5 day BOD<sub>5</sub> were determined for this wastewater, which of the following statement is/are correct?

(A)  $COD < BOD_5$

(B)  $COD > BOD_5$

(C)  $COD \neq BOD_5$

(D)  $COD = BOD_5$

**Ans. B, C****Question 13**



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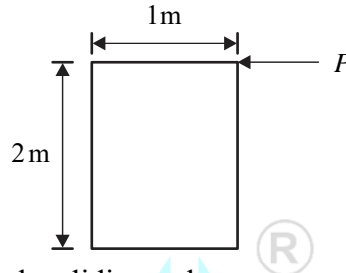
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A horizontal force mechanics of  $P$  kN is applied to a homogeneous body of weight 25 kN, as shown in the figure. The coefficient of friction between the body and the floor is 0.3. Which of the following statement is/are correct.



- (A) The motion of body will occur by sliding only.  
(B) No motion occurs for  $P \leq 6$  kN  
(C) The motion of the body will occur by overturning.  
(D) Sliding of the body never occurs

Ans. B, C, D

**Question 14**

A waste water sample contains two nitrogen species, namely ammonia and nitrate. Consider the atomic weight of N, H and O as 14 g/mol, 1 g/mol of 16 g/mol, respectively. In this waste water the concentration of ammonia is 34 mg  $\text{NH}_3$ /l and that of nitrate is 6.2 mg  $\text{NO}_3^-$ /l the total nitrogen concentration in this waste water is \_\_\_\_ (milligram nitrogen per liter)  
(Round off to one decimal place).

Ans. 29.4

**Question 15**

In a water sample, the concentration of  $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$  &  $\text{HCO}_3^-$  are 100 mg/l, 36 mg/l & 122 mg/l respectively. The atomic masses of various elements are:

$$\text{Ca} = 40, \text{Mg} = 24, \text{H} = 1, \text{C} = 12, \text{O} = 16$$

The total hardness and temporary hardness in the water simple (in mg/L as  $\text{CaCO}_3$ ) will be.

- (A) 500 & 100 respectively  
(B) 800 & 200 respectively  
(C) 400 & 300 respectively  
(D) 400 & 100 respectively

Ans. D

**Question 16**

The hoop stress at point on the surface of a thin cylinder pressure vessel is computed to be 30 MPa. The value of Max. shear stress at this point is

- (A) 15 MPa  
(B) 30 MPa  
(C) 7.5 MPa  
(D) 22.5 MPa

Ans. A

**Question 17**

An aerial photograph is taken from a flight at a height of 3.5 km above mean sea level, using a camera of total length 152 mm. If the average ground elevation is 460 m above mean sea level, then the scale of photograph is

- (A) 1 : 100000 (B) 1 : 20  
(C) 1 : 20,000 (D) 1 : 2800

**Ans. C****Question 18**

A line between stations  $P$  and  $Q$  laid on a slope of 1 in 5 was measured as 350 m using a 50 m tape. The tape is known to be short by 0.1 m.

The corrected horizontal length (in m) of the line  $PQ$  will be

- (A) 356.20 (B) 350.70  
(C) 349.3 (D) 342.52

**Ans. D****Question 19**

The bearing of a survey is  $N31^{\circ}17'W$ . It's a azimuth observed from north is \_\_\_\_\_ degree.

**Ans.  $328^{\circ}43'$** **Question 20**

In the context of cross-drainage structures, the correct statement regarding the relative position of a natural drain (stream/river) and an irrigation canal is/are

- (A) In a canal syphon, natural drain water goes through the irrigation canal  
(B) In an aqueduct, natural drain water goes under the irrigation canal, whereas in a super-passage, natural drain water goes over the irrigation canal.  
(C) In an aqueduct, natural drain water goes over the irrigation canal, whereas in a super-passage, natural drain water goes water the irrigation canal.  
(D) In a level crossing natural drain water goes through the irrigation canal.

**Ans. B, D****Question 21**

During a particular stage of the growth of a crop, the consumption use of water is 2.8 mm/day. The current of water available in the soil is 50% of the maximum depth of available water in the root zone. Consider the maximum root zone depth of the crop as 80 mm and the irrigation efficiency as 70%.

The interval between irrigation (in days) will be \_\_\_\_\_.

**Ans.  $14.28 \approx 14$** **Question 22**



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Henry law constant for transferring  $O_2$  from air into water at room temperature is  $1.3 \frac{\text{mmol}}{\text{lit-atm}}$ . Given that the partial measure of  $O_2$  in the atmosphere is 0.21 atm, the concentration of DO (mg/L) in water in equilibrium with the atmospheric at room temp is \_\_\_\_\_.

(Consider molecular weight of  $O_2$  as 32 g/mol)

**Ans. 8.736**

**Question 23**

The total hardness in raw water is 500 mg/l as  $CaCO_3$ . The total hardness of the raw water is, expressed on miligram equivalent per litre is \_\_\_\_\_ (Consider atomic weight of  $Ca$ ,  $C$  and  $O$  as 40 g/mol and 12 g/mol and 16 g/mol respectively)

- (A) 100 (B) 5  
(C) 10 (D) 1

**Ans. C**

**Question 24**

A 2% sewage sample (in distilled water) was incubated for 3 days at  $27^\circ C$  temp. After incubation a dissolved oxygen depletion of 10 mg/l was recorded. The BOD rate constant at  $27^\circ C$  was found to be  $0.23 d^{-1}$  (at base e). The ultimate BOD (in mg/L) of the sewage will be \_\_\_\_\_ (round off to nearest integer)

**Ans. 1003.16**

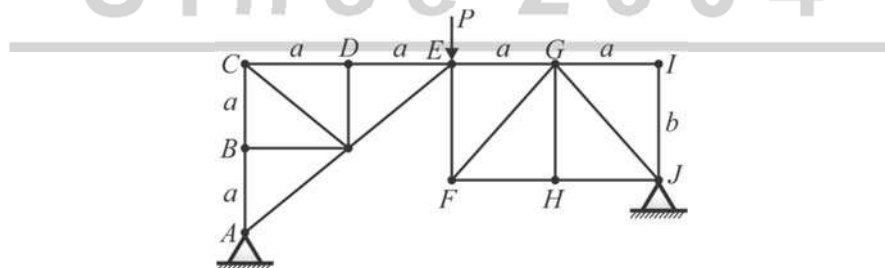
**Question 25**

A water treatment plant has a sedimentation basin of depth 3m, width 5 m and length 40 m. The water inflow having rate is  $500 m^3/h$ . The removal fraction of particles having a settling velocity of 1.0 m/h is (consider particle density as  $2650 kg/m^3$  and liquid density as  $991 kg/m^3$ ).

**Ans. 0.4**

**Question 26**

The plane truss shown in the figure is subjected to external force (P). It is given that  $P = 70$  kN,  $a = 2$  m and  $b = 3$  m.



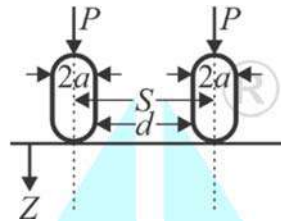
The magnitude (absolute value) of force (in kN) in the member EF is \_\_\_\_\_. (Round off to nearest integer).

**Ans. 30**

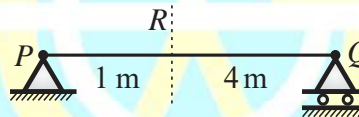


**Question 27**

For the dual wheel carrying assembly shown in the figure,  $P$  is load on each wheel  $a$  is radius of the contact area of then wheel,  $s$  is the spacing between the wheels and  $d$  is clear distance between the wheel so assuming that the ground is an elastic homogeneous and isotropic half space, the ratio of ESWL at depth  $z = \frac{d}{2}$  the ESWL at depth  $z = 2s$  is (upto one decimal) (Consider the influence angle to be  $45^\circ$  to the linear dispersion of stress with depth)

**Ans. 0.5****Question 28**

Consider a simply supported beam PQ as shown in the figure. A truck having 100 kN on the front axle and 200 kN on the rear axle moves from left to right. The spacing between the axis is 3 m. The maximum bending moment at point R is \_\_\_\_\_ kN/m (in integer)

**Ans. 180****Question 29**

A reinforced concrete beam with rectangular cross section (width = 300 mm, effective depth = 580 mm) is made of M30 grade concrete. It has 1 % longitudinal tension reinforcement of Fe 415 grade steel. The design shear strength for this beam is  $0.66 \text{ N/mm}^2$ . The beam has to resist a factored shear force of 440 kN. The spacing of two-legged, 10 mm diameter vertical stirrups of Fe415 grade steel is \_\_\_\_\_ (mm).

**Ans. 101.63****Question 30**

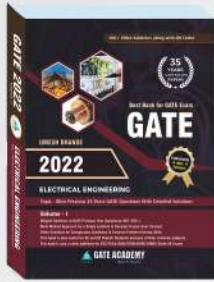
Let  $\sigma'_v$  and  $\sigma'_h$  denote the effective vertical stress and effective horizontal stress respectively. Which one of the following conditions must be satisfied for a soil element to reach the failure state under Rankine's passive earth pressure

- (A)  $\sigma'_v = \sigma'_h$                       (B)  $\sigma'_v < \sigma'_h$   
 (C)  $\sigma'_v > \sigma'_h$                       (D)  $\sigma'_v + \sigma'_h = 0$

**Ans. B****Question 31**

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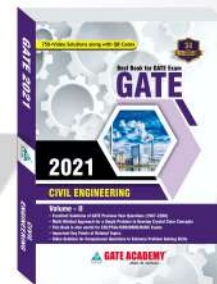
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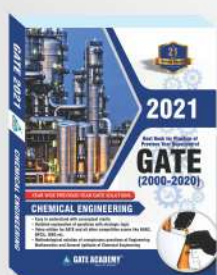
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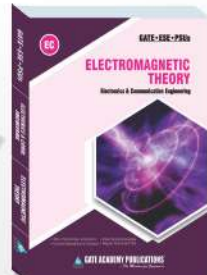
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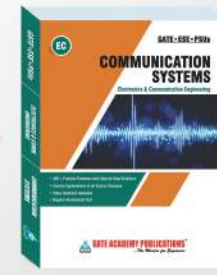
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11. Transform Theory
12. ESE Question [2017-2018]



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3. Verbal Ability
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5. ESE-Question [2017-to2020  
Common to All Branches]

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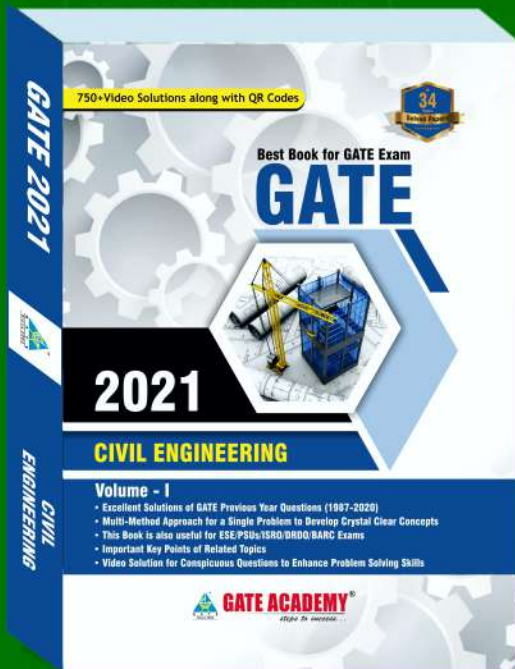
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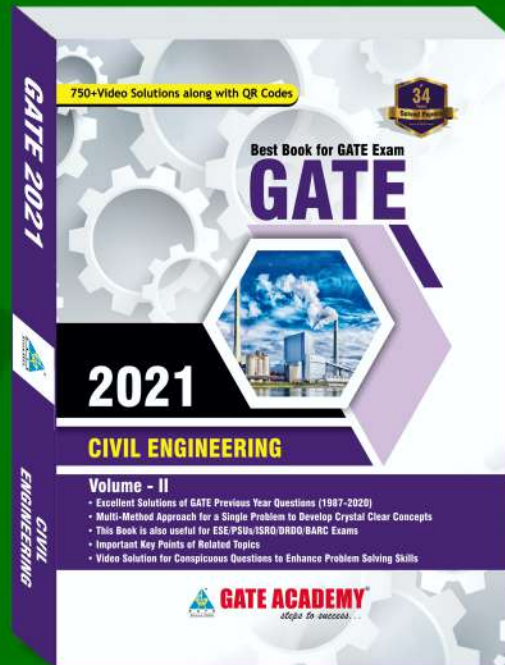
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# Civil Engineering



## Civil Engineering-I

1. Strength of Materials
2. Structural Analysis
3. RCC Structure & Pre-Stress Concrete
4. Design of Steel Structure
5. Engineering Mechanics
6. Construction Materials & Management
7. Geometric Engineering
8. Engineering Mathematics
9. General Aptitude



## Civil Engineering-II

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2. Environmental Engineering
3. Fluid Mechanics
4. Engineering Hydrology
5. Irrigation Engineering
6. Transportation Engineering

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As per Rankine's theory of earth pressure, the inclination of failure plane is  $\left(45 + \frac{\phi}{2}\right)$  with respect to the direction of the minor principle stress, the above statement is correct for which one of the following options –

- (A) Both active as well as passive state
- (B) Only the active state and not the passive state
- (C) Only the passive state and not the active state
- (D) Neither active or nor passive state

Ans. B

**Question 32**

Let  $\psi$  represents soil suction head and  $k$  represents hydraulic conductivity of the soil, if the moisture content  $\theta$  increases, which one of the following statement is true.

- (A) Both  $\psi$  and  $k$  increases
- (B)  $\psi$  increases and  $k$  decrease
- (C) Both  $\psi$  and  $k$  decrease
- (D)  $\psi$  decrease and  $k$  increase

**Question 33**

Four different soils are classified as CH, ML, SP and SW, as per the unified soil classification system which one of the following options correctly represents their arrangement in the decreasing order of hydraulic conductivity

- (A) ML, SP, CH, SW
- (B) CH, ML, SP, SW
- (C) SW, SP, ML, CH
- (D) SP, SW, CH, ML

Ans. C

**Question 34**

At a site, static cone penetration test was carried out. The measured point (tip) resistance  $q_c$  was 1000 kPa at a certain depth the friction ratio ( $f_r$ ) was estimated as 1% at the same depth the value of the steeve (side) friction in (kPa) at that depth was \_\_\_\_\_.

Ans. 10

**Question 35**

Match column X with column Y

- | Column X            | Column Y          |
|---------------------|-------------------|
| (P) Viscosity       | (I) Mach No.      |
| (Q) Gravity         | (II) Reynolds No. |
| (R) Compressibility | (III) Euler No.   |
| (D) Pressure        | (IV) Froude No.   |

**Question 36**

Two reservoirs are connected by two parallel pipes of equal length and of diameters 20 cm and 10 cm, as shown in figure. When the difference in water levels of the reservoirs is 5m, the ratio of discharge in the larger diameter pipe to smaller diameter pipe is \_\_\_\_\_.

(Consider only loss due to friction and neglect all other losses. Assume the friction factor to be the same for both the pipes)



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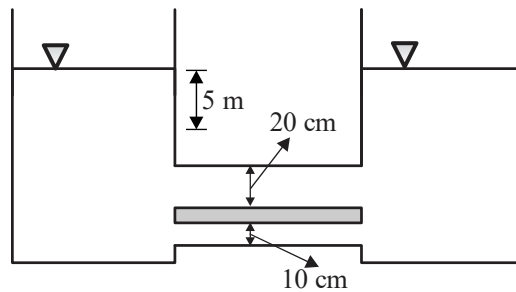


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**Ans. 5.65****Question 37**

An unconfined heap of soil has a volume of  $10000 \text{ m}^3$  and void ratio of 1. If the soil is compacted to a volume of  $7500 \text{ m}^3$ , then the corresponding void ratio of the compacted soil is \_\_\_\_\_.

**Ans. 0.5****Question 38**

A concentration vertical load of 3000 kN is applied on a horizontal ground surface. Point P and Q are at depths 1 m and 2 m below the ground, respectively, along the line of application of the load. Considering the ground to be linearly elastic, isotropic, semi-infinite medium, the ratio of the increase in vertical stress at P to the increase in vertical stress at Q is \_\_\_\_\_.

**Ans. 4****Question 39**

A square concrete pile of 10 m length is driven into a deep layer of uniform homogeneous clay. Average unconfined compressive strength of the clay, determined through laboratory test on undisturbed samples extracted from the clay layer is 100 kPa. If the ultimate compressive load capacity of the driven pile is 632 kN, the required width of the pile is \_\_\_\_\_ mm ( $N_c = 9, \alpha = 0.7$ )

**Ans. 400****Question 40**

The correct match between the physical states of the soils given in group (I) and the governing conditions given in group (II) is

Group I		Group II	
1	Normally consolidated soil	P	Sensitivity > 16
2	Quick clay	Q	Dilation angle = 0
3	Sand in critical state	R	Liquid limit > 50
4	Clay of high plasticity	S	Over consolidation ratio = 1

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

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

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

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

**Ans. D****Question 41**

The vehicle count obtained by every 10 minutes interval of a traffic volume survey done in peak one hour is given below



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Time interval (in minutes)	Vehicle count
0-10	10
10-20	11
20-30	12
30-40	15
40-50	13
50-60	11

The PHF for 10 minutes sub-interval is \_\_\_\_\_. (round off to one decimal place)

**Ans. 0.8**

**Question 42**

At a traffic intersection, cars and buses arrives according to independent position processes at an average rate of 4 veh/hr and 2 veh/hr respectively. The probability of observing at test 2 vehicles in 30 minutes is \_\_\_\_\_ (round off to Two decimal place)

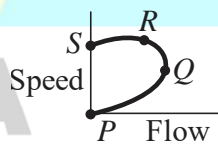
**Question 43**

A two phase signalized intersection is designed with a cycle of 100 s, the amber and red times for each phase are 4 second and 50 second. If the total lost time per phase due to startup and clearance is 2 second the effective green time of each phase is \_\_\_\_\_ (s).

**Ans. 48**

**Question 44**

Consider the four points  $P$ ,  $Q$ ,  $R$  and  $S$  shown in the Green shields fundamental speed flow diagram. Denote their corresponding traffic densities by  $k_P$ ,  $k_Q$ ,  $k_R$  and  $k_S$  respectively. The correct order of these densities is



(A)  $k_Q > k_R > k_P > k_S$

(B)  $k_S > k_R > k_Q > k_P$

(C)  $k_P > k_Q > k_R > k_S$

(D)  $k_Q > k_R > k_S > k_P$

**Ans. C**

**Question 45**

A two hour duration storm count with uniform excess rainfall of 3 cm occurred on a watershed. The ordinates of steam flow hydrograph resulting from this event are given in the table.

Time (hours)	0	1	2	3	4	5	6	7
Stream flow ( $m^3/s$ )	10	16	34	40	31	25	16	10



Considering a constant base then of  $10\text{ m}^3/\text{s}$ , the peak flow ordinate ( $\text{m}^3/\text{s}$ ) of one four unit hydrograph for the watershed is \_\_\_\_\_.

**Ans. 12**





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### GATE 2020

I am very grateful to whole GATE ACADEMY team for helping me to build my concepts in all the subjects. For my success of AIR-1 there is immense role of Gate Academy. It was great learning & experience with the top most faculties of India. A special thanks to respected Umesh Dhande sir for creating such a wonderful platform for all GATE aspirants and Gurupal Chawla sir for motivating me at the time of failure.

I also want to thank Sujay sir, Saket sir, Das sir and Saurabh Sir for guiding me to take success steps towards my career.

To all the future GATE aspirants I would like to say, never give up on your dreams. Because it is our dreams that keep us alive.



**Rajat Soni**  
**ELECTRONICS**

AIR

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### GATE 2019

Hello Everyone! I am Rajat Soni. I secured AIR 1 in GATE 2019 in Electronics & Communication Engineering. I have completed my B.Tech in 2018 from NIT Warangal. It was 2017 when I came to know about GATE ACADEMY's YouTube channel. It helped me a lot for my preparation for GATE. Umesh Dhande Sir's YouTube videos on Control Systems really helped me to get a deeper insights in the subjects. Jasuja sir's videos on Digital Electronics and Gurupal sir's videos on Engineering Mathematics were very helpful for the last minute preparation. Also I have enrolled in the GATE ACADEMY's Online Test Series which helped me in analysis of my mistakes before GATE Examination. I owe a lot to GATE ACADEMY for their quality content on YouTube channel and very well designed Online Test Series.



**Arnab Adhikary**  
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### GATE 2018

I thank Dhande sir for giving a kickstart to my GATE preparation. I was primarily focused on my research work and was not interested in the exam. Just before 4 months of Gate Examination, I came to know about Gate Academy's YouTube channel and in this way I started my preparation. Umesh Sir's video on Control Theory (especially the one on GM and PM) and Analog Circuits (especially Topology Concept and Gain Calculation Shortcuts) were insightful and conceptually sound. Also a lot of tricky questions were asked in the test series offered by Gate Academy and it gave me the necessary confidence for the exam. So I owe a lot to the Gate Academy's YouTube Channel and Gate Academy's test Series for my performance.



**Shivam Singh**  
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### GATE 2017

I am very thankful to Dhande sir, Vishal sir, Sujay sir, Gurupal sir, Das sir and entire Gate academy team which helped me in building concepts and getting the numerical approach for Gate exam when I started my preparation.

For my success (AIR-1), there are a lot of people who have immense role and Gate Academy is on of them. For the aspiring students, I want to say that like you only I used to think how a topper looks like and now I know that, meaning that everyone has a topper in them you just need to believe in yourself to understand the concept, try to solve new questions through test series and don't act ideal on examination day.

If I can, then YOU WILL!