UPPSC-2021

UTTAR PRADESH
PUBLIC SERVICE COMMISSION 2021

Assistant Engineer

Civil Engineering
PAPER-II
Exam held on 29-05-2022

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Q.1 Which of the following are the exclusive powers of the Lok Sabha ?
1. To introduce the Money Bill.
2. To ratify the declaration of emergency.
3. To pass a motion of no confidence against the Council of Ministers.
4. To impeach against the President.

Choose the correct answer from the code given below:

Codes:

(a) 1 and 3   (b) 1 and 4

(c) 3 and 4   (d) 2 and 3

Ans. (a)

Q.2 Which of the following sea is situated between Philippines and Vietnam ?
(a) Philippines Sea
(b) Celebes Sea
(c) South China Sea
(d) East China Sea

Ans. (c)

Q.3 The provision for Anti Defection Act is mentioned in which of the following Schedules of the Constitution of India ?
(a) 9th (b) 12th
(c) 11th (d) 10th

Ans. (d)

Q.4 With reference to the Vikramshila University which of the following statements is/are correct?
1. Vikramshila was one of the most important centre of learning in India during the Pala period.
2. Rakshit, Virochan, Ateesh, Deepankar and Ratnakar Shanti were very important Acharya of Vikramshila University.

Select the correct answer using the code given below:

Code :

(a) Only 1   (b) Neither 1 nor 2
(c) Both 1 and 2   (d) Only 2

Ans. (c)

Q.5 What was the theme of the 40th Indian International Trade Fair held in November, 2021?
(a) Atmanirbhar Bharat
(b) Vocal for Local
(c) Is of Doing Business
(d) None of the above

Ans. (a)

Q.6 With reference to National Ayurveda Day 2021, which of the following statement is/are correct?
1. It was celebrated on 23rd October, 2021.
2. It's theme was 'Ayurveda for Poshan'.

Select the correct answer from the code given below:

(a) 1 only   (b) Neither 1 nor 2
(c) both 1 and 2   (d) 2 only

Ans. (d)

Q.7 In which of the following Puranas, the five characteristics of the Puranas are mentioned ?
(a) Vaman   (b) Matsya
(c) Vayu   (d) Vishnu

Ans. (b)

Q.8 By which Constitutional Amendment 'Part IX B' was added in the Indian Constitution ?
(a) 52nd Constitutional Amendment
(b) 97th Constitutional Amendment
(c) 93rd Constitutional Amendment
(d) 73rd Constitutional Amendment

Ans. (b)

Q.9 Which one of the following States is a leading producer of diamonds in India?
(a) Telangana
(b) Karnataka
(c) Madhya Pradesh
(d) Odisha

Ans. (c)

Q.10. In India, the voting age was lowered from 21 to 18 years by which of the following Constitutional Amendment ?
(a) 56th   (b) 88th
(c) 72nd   (d) 61st

Ans. (d)

Q.11 Knock-Knee syndrome results due to Pollution of
(a) Heavy metal   (b) Phosphate
(c) Fluorides   (d) Nitrate

Ans. (c)

Q.12 Baltic Republics do NOT include which of the following ?
1. Denmark   2. Estonia
3. Finland   4. Latvia

Select the correct answer using the code given below.
Code:
(a) 1 and 2   (b) 2 and 4
(c) 2 and 3   (d) 1 and 3

Ans. (d)

Q.13 Which French traveller called Kashi as 'Athens of India'.
(a) Thevenot   (b) Manucci
(c) Tavernier   (d) Bernier

Ans. (d)

Q.14 Which of the following App is introduced by the Election Commission of India in October, 2021 for digital mapping of all polling stations?
(a) Arjun App   (b) Chatbot App
(c) Trishul App   (d) Garuda App

Ans. (d)

Q.15 Match **List-I (Blue Flag Certified Beach)** with **List-II (Location)** and select the correct answer using the code given below.

List-I	List-II
A. Ghoghla	1. Andhra Pradesh
B. Kasarkod	2. Kerala
C. Kappad	3. Karnataka
D. Rushikonda	4. Diu

Code:

	A	B	C	D
(a)	4	3	1	2
(b)	3	4	2	1
(c)	3	4	2	1
(d)	3	4	1	2

Ans. (b)

Q.16 Match **List-I (Code)** with **List-II (Year of Introduction)** and select the correct answer using the code given below.

List-I	List-II
A. Code of Civil Procedure	1. 1862
B. Indian Penal Code	2. 1859
C. Criminal Procedure Code	3. 1861
D. Police Act	4. 1860

Code:

	A	B	C	D
(a)	2	4	1	3
(b)	3	4	2	1
(c)	2	3	4	1
(d)	4	1	2	3

Ans. (a)

Q.17 Which of the following pairs represent units of the same physical quantity.
(a) Kelvin and Joule
(b) Newton and Calorie
(c) Kelvin and Calorie
(d) Joule and Calorie

Ans. (d)

Q.18 Which of the following Article makes provision that "the law declared by the Supreme Court shall be binding on all the Courts within the territory of India"?
(a) Article 140   (b) Article 143
(c) Article 142   (d) Article 141

Ans. (d)

Q.19 With reference to Delhi Sultanate consider the following statements.
1. Sultangarhi was built by Sultan Iltutmish.
2. Located in Delhi, it is the first tomb built by Turks.

Select the correct answer using the code given below :

Code:
(a) Only 1
(b) Neither 1 nor 2
(c) Both 1 and 2
(d) Only 2

Ans. (c)

Q.20 In which of the following States of India 'Chitrakote waterfall' is located?
(a) Uttar Pradesh   (b) Jharkhand
(c) Chhattisgarh   (d) Madhya Pradesh

Ans. (c)

Q.21 Who among the following is the Chairperson of GST Council?
(a) President
(b) Deputy Chairman of NITI Ayog
(c) Union Finance Minister
(d) Prime Minister

Ans. (c)

Q.22 What is the rank of India in 'Global Food Security Index, 2021'?
(a) 54   (b) 83
(c) 71   (d) 62

Ans. (c)

Q.23 In the battle of Chandawar (1194 CE) King Jaichand was defeated by Muhammad Gori. Present geographical location of Chandawar is
(a) Etawah district in U.P. at the bank of river Yamuna
(b) Varanasi, U.P. at the bank of river Ganga
(c) Kannauj, U.P. at the bank of river Yamuna
(d) Prayagraj district in U.P. at the bank of river Yamuna

Ans. (a)

Q.24 Match **List-I** with **List-II** and select the correct answer using the code given below.

List-I	List-II
A. Acetic acid	1. Ant's sting
B. Lactic acid	2. Spinach
C. Formic acid	3. Vinegar
D. Oxalic acid	4. Curd

Code:

	A	B	C	D
(a)	1	2	3	4
(b)	3	4	1	2
(c)	4	3	2	1
(d)	2	4	1	3

Ans. (b)

Q.25 Which one of the following is NOT correctly matched?
(a) Shaukat Usmani – Kanpur Conspiracy Case
(b) Khudiram Bose – Assembly Bomb case
(c) Ashfaqullah Khan – Kakori Train Robbery Case
(d) Surya Sen – Chatgaon Revolt Case

Ans. (b)

Q.26 Calculate the capacity (vehicle per hour) of the road when reaction time of the driver is 2 seconds. The design speed is 80 kmph and average length of the vehicle is 6 m. Take coefficient of faction is 0.35.
(a) 600   (b) 724
(c) 700   (d) 653

Ans. (d)

Q.27 If the intensity of rainfall is more than the infiltration capacity of soil, then the infiltration rate will be
(a) equal to rate of rainfall
(b) more than infiltration capacity
(c) more than the rate of rainfall
(d) equal to infiltration capacity

Ans. (d)

Q.28 An approximate value of the drag coefficient of a hemispherical parachute is
(a) 2.35   (b) 0.07
(c) 0.30   (d) 1.33

Ans. (d)

Q.29 The natural process under which the flowing river water gets cleaned, is known as
(a) Self-purification
(b) Oxidation
(c) Photo-synthesis
(d) None of these

Ans. (a)

Q.30 If in a gradually varied flow dy/dx is positive, then dE/dx
(a) is negative, if Y > Ye
(b) is always negative
(c) is always positive
(d) is positive if Y/Ye > 1

Ans. (d)

Q.31 The field capacity of a soil is 25%, its permanent wilting point is 15% and specific dry unit weight is 1.5. If the depth of root zone of a crop is 80 cm, the storage capacity of the soil is
(a) 8 cm   (b) 14 cm
(c) 12 cm   (d) 10 cm

Ans. (c)

Q.32 In GIS, interpolation is made possible by a principle called,
(a) spatial auto correlation
(b) Thematic auto-correct ion
(c) Thematic auto correlation
(d) spatial auto-correction

Ans. (d)

Q.33 A 4 hr. storm with a uniform intensity of 1.5 cm/hr produced a runoff depth of 40 mm. The average infiltration rate during this storm is
(a) 4 mm / hr   (b) 7 mm/ hr
(c) 6 mm/ hr   (d) 5 mm / hr

Ans. (d)

Q.34 In a rectangular channel, if the critical depth is 2.0 m, the specific energy at critical depth is
(a) 3.0 m   (b) 2.6 m
(c) 2.0 m   (d) 1.5 m

Ans. (a)

Q.35 The alum added as a coagulant in water treatment functions when the raw water is
(a) Acidic with high turbidity
(b) Neutral with low turbidity
(c) Alkaline with high turbidity
(d) Acidic with low turbidity

Ans. (c)

Q.36 Salinity of water
(a) Increase evaporation
(b) Does not affect evaporation
(c) Reduces evaporation
(d) None of the above

Ans. (c)

Q.37 Which of the following methods of designation of crossing is mostly used in India ?
(a) Centre line method
(b) Isosceles angle method
(c) Right angle method
(d) None of the above

Ans. (c)

Q.38 The time scale ratio for a model based on Froude law criterion in terms of length scale ratio Lr is
(a) L_r (b) $L_r^{1.5}$
(c) $1/\sqrt{L_r}$ (d) $\sqrt{L_r}$

Ans. (d)

Q.39 According to Lacey, depth of scour in a river depends upon the straightness of the reach. If 'D' is the depth of scour in regime flow in a right angled bend, then it is equal to
(a) 1.25D   (b) 2.00D
(c) 1.75D   (d) 1.50D

Ans. (b)

Q.40 If a turbine develops 2515 kW at 240 rpm, the torque in the shaft is
(a) 400 kN-m   (b) 100 kN-m
(c) 1000 kN-m   (d) 3335 kN-m

Ans. (b)

Q.41 A liquid flows in a 30 cm diameter pipe at a Reynolds number of 10^6. If the friction factor is 0.025, the thickness of laminar sublayer, in mm is

(a) 0.025　　　(b) 0.0031
(c) 0.062　　　(d) 1.00

Ans. (c)

Q.42 The following surveys are conducted before the alignment of a railway track.
1. Reconnaissance survey.
2. Preliminary survey.
3. Traffic survey.
4. Location survey.
The correct sequence in which these surveys are conducted is
(a) 1, 3, 2, 4　　　(b) 3, 1, 2, 4
(c) 3, 1, 4, 2　　　(d) 1, 3, 4, 2

Ans. (b)

Q.43 The velocity distribution over one half of a cross section is uniform and is zero over the remaining half. The momentum correction factor for this cross section is
(a) 2.0　　　(b) 3.0
(c) 1.0　　　(d) 4.0

Ans. (a)

Q.44 Which of the following is NOT a method used for plane table surveying?
(a) Back scattering method
(b) Radiation method
(c) Traversing method
(d) Intersection method

Ans. (a)

Q.45 Rheology is the study of
(a) Newtonian fluids
(b) Non-Newtonian fluids
(c) Ideal fluids
(d) None of these

Ans. (b)

Q.46 The flow velocity in a sewer does NOT depend on
(a) its grade
(b) its roughness
(c) its hydraulic mean depth
(d) its length

Ans. (d)

Q.47 Errors arising from carelessness of the observer are known as
(a) mistakes
(b) systematic errors
(c) compensating errors
(d) discrepancy

Ans. (a)

Q.48 Which amongst the BOD and COD of glucose water is greater ?
(a) BOD　　　(b) COD
(c) Both are equal　(d) None of the above

Ans. (c)

Q.49 As per IS 10500 : 2012, the maximum desirable limits of iron and fluorides for drinking water are
(a) 0.3 and 0.5 Mg/L, respectively
(b) 0.5 and 1.8 Mg/L, respectively
(c) 0.3 and 1.5 Mg/L, respectively
(d) 0.3 and 1.0 Mg/L, respectively

Ans. (d)

Q.50 If the base period is 100 days and the duty of the canal is 1000 hectares per cumec, the depth of water will be,
(a) 0.864 cm　　　(b) 864 cm
(c) 86.4 cm　　　(d) 8.64 cm

Ans. (c)

Q.51 Zero hardness of water is achieved by
(a) Using lime soda process
(b) Using excess alum dosage
(c) Ion exchange method
(d) Excess lime treatment

Ans. (c)

Q.52 Switch angle depends upon
i. Heel divergence
ii. Length of tongue rail
iii. Flange way clearance
iv. Throw of switch
The correct answer is
(a) i and ii　　　(b) i and iv
(c) iii and iv　　　(d) ii and iii

Ans. (a)

Q.53 On a hydrograph, isolated storm is represented as
(a) s-curve   (b) complex peak
(c) multi peaks   (d) single peak

Ans. (d)

Q.54 When the recirculation ratio in a high rate trickling filter is unity, then the recirculation factor is
(a) 1   (b) zero
(c) less than 1   (d) more than 1

Ans. (d)

Q.55 The camber provided on a sloping road is 1 in 48. Which one of the following is the ruling gradient?
(a) 1 in 15   (b) 1 in 30
(c) 1 in 24   (d) 1 in 20

Ans. (c)

Q.56 Which one of the following methods can be employed for plastic and rubber waste disposal?
(a) Sanitary landfill   (b) Incineration
(c) Pyrolysis   (d) Compositing

Ans. (c)

Q.57 The product of traffic density and traffic speed is termed as
(a) Traffic volume   (b) Basic capacity
(c) Traffic capacity (d) None of the above

Ans. (b)

Q.58 A camera equipped with a 152 mm focal length lens, is used to take a vertical photograph from a flying height of 2780 m above mean sea level. If the terrain is flat with an elevation of 500 m, the scale of the photograph will be
(a) 1 : 15,000   (b) 1 : 24, 500
(c) 1 : 22, 000   (d) 1 : 20,000

Ans. (a)

Q.59 Due to which property of mercury, it does NOT stick to glass?
(a) Viscosity   (b) Adhesion
(c) Cohesion   (d) Surface tension

Ans. (d)

Q.60 If the sequent depth ratio of a hydraulic jump in a rectangular channel is 16-48, the Froude number at the beginning of the jump is
(a) 5.0   (b) 12.0
(c) 10.0   (d) 8.0

Ans. (b)

Q.61 If the impeller of a pump receives liquid on both of its sides the pump is known as
(a) Single stage pump
(b) Double suction pump
(c) Single suction pump
(d) Double stage pump

Ans. (b)

Q.62 The minimum size of grit particles that can be removed in grit chamber is
(a) 0.05 mm   (b) 0.50 mm
(c) 0.20 mm   (d) 0.10 mm

Ans. (c)

Q.63 What is the relationship between the flying height (H), the focal length (f), the air base (B) and the photo base (b) ?
(a) $B = \dfrac{r}{b.H}$ (b) $B = \dfrac{H}{b.f}$

(c) $B = \dfrac{b}{f.H}$ (d) $B = \dfrac{b.H}{f}$

Ans. (d)

Q.64 The lost time due to starting delay on a traffic signal approach is noted to be 3 seconds. The actual green time is 25 seconds and amber time is 3 seconds. How much will be the effective green time ?
(a) 19 sec.   (b) 35 sec.
(c) 29 sec.   (d) 22 sec.

Ans. (d)

Q.65 An angle measured with theodolite is α with weight 2. The weight of $\dfrac{\alpha}{4}$ will be
(a) $\dfrac{2}{4}$ (b) $\dfrac{4}{2}$

(c) 2×4^2 (d) 2×4

Ans. (c)

Q.66 According to recommendations of the Nagpur Conference, the formation width of an Ideal National Highway is
(a) 12 m   (b) 07.50 m
(c) 09 m   (d) 13 m

Ans. (a)

Q.67 What will be the theoretical maximum capacity for a single lane of highway if the speed of the traffic stream is 40 kmph?
(a) 3000 vehicles/hr.
(b) 2010 vehicles/hr.
(c) 2510 vehicles/hr.
(d) 2860 vehicles/hr.

Ans. (d)

Q.68 Benkelman beam deflection method is used for design of
(a) Rigid overlays on rigid pavements
(b) Flexible overlays on rigid pavements
(c) Flexible overlays on flexible pavements
(d) Rigid overlays on flexible pavements

Ans. (c)

Q.69 The discharge through a V-notch varies as (where, H is the head)
(a) $H^{1/2}$ (b) $H^{5/4}$
(c) $H^{5/2}$ (d) $H^{3/2}$

Ans. (c)

Q.70 If the reduced bearing of a line AB is N60° W and length is 100 m, then the latitude and departure of the line AB will be,
(a) + 50 m, + 86.6 m
(b) + 70.7 m, – 50.0 m
(c) + 50 m, – 86.6 m
(d) + 86.6 m, – 50.0 m

Ans. (c)

Q.71 If 'V_0' is the critical velocity of flow in a channel, then according to Kennedy, its silt transporting power is proportional to
(a) $V_0^{1/2}$ (b) $V_0^{7/2}$
(c) $V_0^{5/2}$ (d) $V_0^{3/2}$

Ans. (c)

Q.72 The similarity between the forces of model and prototype is
(a) Dynamic similarity
(b) Design similarity
(c) Kinematic similarity
(d) Potential similarity

Ans. (a)

Q.73 If the base period of a 6 hr. unit hydrograph of a basin is 84 hr. then, the base period of a 12 hr. unit hydrograph of the same basin will be
(a) 90 hr.   (b) 168 hr.
(c) 72 hr.   (d) 84 hr.

Ans. (a)

Q.74 The pressure in "Pascals" at a depth of 1 m below the free surface of a body of water will be equal to
(a) 1 Pascal   (b) 9810 Pascal
(c) 981 Pascal   (d) 98.1 Pascal

Ans. (b)

Q.75 With reference to lining of a canal which of the following statement is/are correct?
i. It is necessary to minimise the seepage loss in canal.
ii. It increases the discharge in canal section by increasing the velocity.
Select the correct answer using the codes given below:
(a) Only i   (b) Neither i nor ii
(c) Both 1 and ii   (d) Only ii

Ans. (c)

Q.76 In a sudden contraction, the velocity head changes from 0.5 m to 1.25 m. If the coefficient of contraction is 0.66, the head loss in this contraction is
(a) 0.133 m   (b) 0.648 m
(c) 0.644 m   (d) 0.332 m

Ans. (d)

Q.77 A manhole is generally classified as a deep manhole, if its depth is more than
(a) 0.6 m   (b) 3.0 m
(c) 1.5 m   (d) 1.2 m

Ans. (c)

Q.78 Bourdon gauge measures
  (a) absolute pressure
  (b) standard atmospheric pressure
  (c) local atmospheric pressure
  (d) gauge pressure

Ans. (d)

Q.79 Winch of the following is dimensionless?
  (a) Specific weight
  (b) Specific gravity
  (c) Specific viscosity
  (d) Specific volume

Ans. (b)

Q.80 Geostationary satellites have,
  (a) same distance from earth's centre
  (b) same angle with geodetic stations
  (c) same mass as global weight
  (d) same speed as earth's rotation

Ans. (c)

Q.81 Various water treatment processes are listed below :
  1. Filtration
  2. Chlorination
  3. Sedimentation
  4. Coagulation
  5. Flocculation

  The correct sequence of these processes in a conventional water treatment scheme is
  (a) 5, 1, 2, 3, 4   (b) 1, 3, 4, 2, 5
  (c) 3, 4, 5, 1, 2   (d) 4, 5, 3, 1, 2

Ans. (d)

Q.82 According to Indian standard, the number of rain gauge stations for an area of 5200 km^2 in plains should be
  (a) 10   (b) 36
  (c) 20   (d) 15

Ans. (a)

Q.83 While testing for COD of sewage, organic matter is oxidised by $K_2Cr_2O_4$ in the presence of
  (a) 5 kN   (b) 20 kN
  (c) 15 kN   (d) 10 kN

Ans. (c)

Q.84 A rectangular block 2 m long, 1 m wide and 1 m deep floats in water. The depth of immersion is 0.5 m. If water weighs 10 kN/m^3. Then the weight of the block is
  (a) 5 kN   (b) 20 kN
  (c) 15 kN   (d) 10 kN

Ans. (d)

Q.85 The 'track modulus' is an index of measure of which of the following?
  (a) Resistance due to friction
  (b) Resistance due to rolling
  (c) Resistance due to deformation
  (d) Resistance due to shear

Ans. (c)

Q.86 Exit gradient is directly proportional to
  (a) Seepage load   (b) Creep length
  (c) Depth of cutoff (d) None of the above

Ans. (a)

Q.87 The Bernoulli's equation is applicable only for
  (a) Irrotational flow
  (b) Compressible flow
  (c) Inviscid, incompressible flow
  (d) Viscous flow

Ans. (c)

Q.88 The Buckingham-Pi theorem is widely used in the dimensional analysis and expresses the resulting equation in terms of
  (a) the repeating variables
  (b) n dimensionless parameters
  (c) (n-m) dimensionless parameters
  (d) geometric, kinematic and dynamic variables

Ans. (c)

Q.89 Creep is the
  (a) longitudinal movement of rail
  (b) difference in level of two rails
  (C) lateral movement of rail
  (0) vertical movement of rail

Ans. (a)

Q.90 For non-passing sight distance, the height of stationary object considered is

(a) 10 cm　　　　(b) 65 cm
(c) 50 cm　　　　(d) 15 cm

Ans. (d)

Q.91 Muskingum method of routing satisfies the equation
(a) $C_0 + C_1 + C_2 = 0$
(b) $C_0 \cdot C_1 \cdot C_2 = 1$
(c) $C_0 + C_1 + C_2 = 1$
(d) None of the above

Ans. (c)

Q.92 If a 2% solution of sewage sample is incubated for 5 days at 20°C and the dissolved oxygen depletion is 10 mg/L, then the BOD of the sewage would be
(a) 50 mg/L　　　　(b) 2000 mg/L
(c) 500 mg/L　　　　(d) 200 mg/L

Ans. (c)

Q.93 The device, which can be used to control gaseous as well as particulate pollutants in the industrial emission is known as
(a) Spray tower
(b) Dynamic precipitator
(c) Fabric filter
(d) Cyclone

Ans. (a)

Q.94 Surface tension for an ideal fluid is
(a) dependent on temperature
(b) zero
(c) infinite
(d) one

Ans. (b)

Q.95 If the length of a chord/ arc is 20 m in a curve, then the relationship between R and D in the curve will be

(a) $R = \dfrac{573}{D}$　　　　(b) $R = \dfrac{1718.9}{D}$

(c) $R = 1146\, D$　　　　(d) $R = \dfrac{1146}{D}$

Ans. (d)

Q.96 A check dam is a
(a) flood control structure
(b) water storage structure
(c) river training structure
(d) soil conservation structure

Ans. (d)

Q.97 The unit power P_u of a turbine developing a power P under a head H is equal to

(a) $\dfrac{P}{H^{5/2}}$　　　　(b) $\dfrac{P}{H^{3/2}}$

(c) $PH^{3/2}$　　　　(d) $P\sqrt{H}$

Ans. (b)

Q.98 The critical condition for stability of slope of an earth dam at down stream will be
(a) Reservoir empty with max. seepage
(b) Reservoir full without pore water pressure
(c) Reservoir full with max. percolation rate
(d) None of these

Ans. (c)

Q.99 Recirculation in "Activated sludge process" is done to
(a) Dilute the incoming sewage
(b) Supply seed to the aeration tank
(c) Operate the plant continuously
(d) Dampen the effect of the flow variation

Ans. (b)

Q.100 Which one of the following specifications for the length of base line refers to "third order Triangulation" system?
(a) 0.5 to 3.0 km　　　(b) 10 to 20 km
(c) 5.0 to 15 km　　　(d) 1.5 to 5.0 km

Ans. (a)

Q.101 The tower's used in triangulation are known as
(a) Heliotropes
(b) Hunter
(c) Captain McCaw
(d) Bilby

Ans. (d)

Q.102 The water balance equation for a catchment area in terms of rainfall (P), runoff (R), evaporation (E) and storage (S) is written as
(a) $R = P - E \pm \Delta S$
(b) $P = E - R \pm \Delta S$
(c) $R = E - P \pm \Delta S$
(d) $R = P - E \pm \Delta S$

Ans. (a)

Q.103 If the width of the highway is 10 m and its outer edge is 40 cm higher, the super elevation is 1 in
(a) 50 (b) 20
(c) 25 (d) 40

Ans. (c)

Q.104 The observation of two photographs simultaneously is called
(a) orthography (b) stereoscopy
(c) spectomy (d) spectrometry

Ans. (b)

Q.105 Following errors are eliminated during reciprocal levelling
(a) errors due to curvature only
(b) errors due to line of collimation
(c) errors due to refraction only
(d) error due to all above

Ans. (d)

Q.106 In the centrifugal pumps, the Euler's, head is independent of the following
(a) Inlet radius of impeller
(b) Outer angular momentum
(c) Outlet velocity of triangle
(d) Outlet radius of impeller

Ans. (d)

Q.107 Aerosol is known as
(a) Carbon particles of microscopic size
(b) Finely divided particles of ash
(c) Diffused liquid particles
(d) Dispersion of solid or liquid particles in air

Ans. (d)

Q.108 Based on '30th' hourly volume, for how much percent time during the year can the designer willingly tolerate the unfavourable operating conditions ?
(a) 0.33 (b) 30
(c) 5.0 (d) 2.5

Ans. (a)

Q.109 The ratio of the quantity of water stored in the root zone of the crops to the quantity of water actually delivered in the field is known as
(a) water conveyance efficiency
(b) water use efficiency
(c) water application efficiency
(d) none of the above

Ans. (c)

Q.110 Which of the following is a secondary air pollutant ?
(a) Carbon monoxide
(b) Smog
(c) Fly ash
(d) Carbon dioxide

Ans. (b)

Q.111 If 5 day 20°C BOD of a waste water sample is 127 mg/L, then the 8 day 20°C BOD of the same sample is (if $K = 0.23d^{-1}$ (base e))
(a) 146.3 mg/L (b) 166.3 mg/L
(c) 162.6 mg/L (d) 156.3 mg/L

Ans. (d)

Q.112 The product of H* ions and OH⁻ ions in a stronger Alkali is
(a) 0 (b) 10^{-14}
(c) 10^{-1} (d) 1

Ans. (b)

Q.113 If 'f' is the focal length of camera and 't' is the tilt angle, distance of the photo nadir from the principal point will be
(a) $t \sin\theta$ (b) $t \cot\theta$
(c) $t \tan\theta$ (d) $t \cos\theta$

Ans. (c)

Q.114 For analysis of direct runoff from a hydrograph, the relation $N = 0.827A^{0.2}$ is used. In this, the value of area 'A' is taken in units as
(a) Cm^2 (b) ha^2
(c) Km^2 (d) m^2

Ans. (c)

Q.115 Sludge bulking can be controlled by
(a) Chlorination   (b) Denitrification
(c) Aeration   (d) Coagulation

Ans. (a)

Q.116 A hyetograph is a graphical representation of
(a) Rainfall intensity and time
(b) Commutative rainfall and time
(c) Discharge and time
(d) Rainfall depth and time

Ans. (a)

Q.117 The maximum value of centrifugal ratio on roads and railways, respectively are taken as
(a) $\dfrac{1}{4}$ and $\dfrac{1}{6}$ (b) $\dfrac{1}{4}$ and $\dfrac{1}{8}$

(c) $\dfrac{1}{6}$ and $\dfrac{1}{8}$ (d) None of the above

Ans. (b)

Q.118 An unconformity is
(a) A surface of erosion or non-deposition as detected in a sequence of rocks
(b) A type of joints especially associated with folded and faulted rocks
(c) A layer of clay or shale in an igneous mass
(d) A layer of boulders and pabbles in a sequence of rocks

Ans. (a)

Q.119 The zero graduation in a prismatic compass is marked in the,
(a) North end of the circle
(b) In the West end of the circle
(c) In the South end of the circle
(d) In the East end of the circle

Ans. (c)

Q.120 The mechanical extra widening required for 10.5 m wide pavement on a horizontal curve of radius R meter is given by
(a) $\dfrac{l^2}{2R}$ (b) $\dfrac{3l^2}{2R}$

(c) $\dfrac{l^2}{R}$ (d) $\dfrac{2l^2}{3R}$

Ans. (b)

Q.121 The permissible error in chaining for measurement with chain on hilly terrain is
(a) 1 in 100   (b) 1 in 1000
(c) 1 in 500   (d) 1 in 250

Ans. (d)

Q.122 Hypsometry is a method of
(a) surveying of water bodies
(b) determining elevation based on the boiling point of liquids
(c) finding temperature at different height
(d) measuring distance

Ans. (b)

Q.123 Which of the following is one of the factor influencing the provision of camber?
(a) Topography
(b) Drainage
(c) Sub-grade characteristics
(d) Amount of rainfall

Ans. (d)

Q.124 Calculate the super elevation to be provided on the horizontal curve of radius 100 m. Design speed is 50 km/h and the design coefficient of lateral friction of 0.15 is fully developed.
(a) 1.0   (b) 0.047
(c) 0.33   (d) 0.917

Ans. (b)

Q.125 Indian Road Congress was formed in the following year
(a) 1920   (b) 1943
(c) 1939   (d) 1934

Ans. (d)

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