

Catalog

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UPPCS AE 2020 Paper II WITH Answers____-Copy 2

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1- How many teachers from Uttar Pradesh were selected for ‘National Award’ on Teachers day 5th Sept., 2020 ? [UPPSC AE 2020 Paper II]

- (a) Six
- (b) Five
- (c) Four
- (d) Three**

2- ‘Leopold Matrix’ is associated with- [UPPSC AE 2020 Paper II]

- (a) Weather Forecasting
- (b) Disaster Management
- (c) Environmental Impact Assessment Method**
- (d) Environmental Law

3- Who won the US Open 2020, Mens Tennis Singles Title on 14th September, 2020? [UPPSC AE 2020 Paper II]

- (a) Alex Zverev
- (b) Dominic Thiem**
- (c) D.Medvedev
- (d) P.C. Busta

4- States get share of the revenue from- [Doubt UPPSC AE 2020 Paper II]

- (a) Income Tax**
- (b) Customs Revenue
- (c) Excise Tax**
- (d) Surcharge on Income Tax**

5- As per the results of ‘Swachh Sarvekshan 2020’, announced by Ministry of Housing and Urban Affairs on 20th August, 2020, which is the Cleanest City in Uttar Pradesh? [UPPSC AE 2020 Paper II]



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- (a) Agra
- (b) Ghaziabad
- (c) Lucknow**
- (d) Prayagraj

6- The Joint Sitting of the Indian Parliament for transacting a legislative business is presided over by- [UPPSC AE 2020 Paper II]

- (a) The President of India
- (b) The senior most Member of Parliament
- (c) The Chairman of the Rajya Sabha
- (d) The Speaker of the Lok Sabha**

7- Which of the following pairs is NOT correctly matched?

[UPPSC AE 2020 Paper II]

Ancient name of the cities

Modern name of the Cities

- | | | |
|---------------|---|----------|
| (a) Esipattan | - | Saranath |
| (b) Dashapur | - | Mandsor |
| (c) Banvasi | - | Talkad |
| (d) Mahoday | - | Kannauj |

8- Which Article of the Indian Constitution empowers Parliament to make law for implementing international agreements? [UPPSC AE 2020 Paper II]

- (a) Article 249
- (b) Article 250
- (c) Article 252
- (d) Article 253**

9- Match List-I with List-II and choose the correct answer using the code given below- [UPPSC AE 2020 Paper II]

List-I

List-II



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(Text)	(Writer)
A. Kiratarjunyam	1. Dandi
B. Dashakumar Charitam	2. Kalidas
C. Buddha Charitam	3. Bharavi
D. Vikramorvashiyam	4. Ashvaghosha

Code:

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

10- The term 'Office of Profit' has been defined by the-

[UPPSC AE 2020 Paper II]

- (a) **Constitution**
- (b) Parliament
- (c) Supreme Court
- (d) Union Council of Ministers

11- The early farming site located on the bank of lake is-

[UPPSC AE 2020 Paper II]

- (a) **Mehargarh**
- (b) Lahuradeva
- (c) Chirand
- (d) T.Narsipur

12- Who appoints the acting Chief Justice of India-

[UPPSC AE 2020 Paper II]

- (a) Chief Justice of India



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(b) Chief Justice of India with previous consent of the President

(c) President of India

(d) President in consultation with the Chief Justice of India

13- A large tank near Mahoba, temples at Ajaygarh and Mahoba and city of Rajavasini were built by a Chandella King- [UPPSC AE 2020 Paper II]

(a) Nannuk

(b) Vakpati

(c) Rahil

(d) Jayashakti

14- While deciding any question relating to the disqualification of a Member of Parliament, the President shall obtain the opinion of-

[UPPSC AE 2020 Paper II]

(a) Election Commission

(b) Chief Justice of India

(c) Attorney General

(d) Speaker of the Lok Sabha

15- Author of the 'Destine Mazahib' which discusses about the Din-i-llahi of Akbar, was- [UPPSC AE 2020 Paper II]

(a) Mohammad Rabbani

(b) Mohsin Faani

(c) Badauni

(d) Afif

16- The rotation intensity of Maize Mustard-Mung crop is-

[UPPSC AE 2020 Paper II]

(a) 100%

(b) 200%



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- (c) 300%
- (d) 400%

17- Which of the following Rights a cultivator enjoyed on his own land during the Mughal period? [Doubt-UPPSC AE 2020 Paper II]

- (a) Right to mortgage only
- (b) Right to sell and gift
- (c) Right to mortgage and gift**
- (d) All the above rights

18- Which of the following is NOT a kharif crop? [UPPSC AE 2020 Paper II]

- (a) Soyabean
- (b) Lentil**
- (c) Cotton
- (d) Pigeon pea

19- Who was appointed the Minister of 'Ministry of Rehabilitation' set up on 06 September, 1947? [UPPSC AE 2020 Paper II]

- (a) S.P. Mukherji
- (b) Sardar Vallabhabhai Patel
- (c) J.L. Nehru
- (d) K.C. Niyogi**

20- Soyabean seed contains- [UPPSC AE 2020 Paper II]

- (a) 20% protein and 40% oil
- (b) 40% protein and 10% oil
- (c) 40% protein and 20% oil**
- (d) 20% protein and 20% oil

21- Match List-I with List-II and choose the correct answer using the code given below- [UPPSC AE 2020 Paper II]

List-I

List-II



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- | | |
|------------------|----------------------|
| A. Nokrek | 1. Uttarakhand |
| B. Agasthyamalai | 2. Arunachal Pradesh |
| C. Nandadevi | 3. Kerala |
| D. Dehang Debang | 4. Meghalaya |

Code:

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

22- 'Poshan Maah' was celebrated by Government of India in the year 2020, in which of the following months? [UPPSC AE 2020 Paper II]

- (a) September
(b) August
(c) July
(d) June

23-Match List-I with List-II and choose the correct answer using the code given below- [UPPSC AE 2020 Paper II]

List-I (States)	List-II (Highest Peaks)
A. Tamil Nadu	1. Dhoopgarh
B. Rajasthan	2. Saramati
C. Nagaland	3. Guru Shikhar
D. Madhya Pradesh	4. Doda Betta

Code:

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

24- 'Five Star Village Scheme' started by Government of India in September 2020 relates to which one of the following? [UPPSC AE 2020 Paper II]

- (a) Electricity Supply
- (b) Postal Service Schemes**
- (c) Health Services
- (d) Primary Education

25-Match List-I with List-II and choose the correct answer using the code given below- [UPPSC AE 2020 Paper II]

List-I (Tribes)	List-II (States)
A. Tharus	1. Madhya Pradesh
B. Todas	2. Jharkhand
C. Santhal	3. Uttarakhand
D. Gond	4. Tamil Nadu

Code:

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

26- On doubling the screen diameter for a well in an unconfined aquifer, the discharge increases by about- [UPPSC AE 2020 Paper II]

- (a) 2%
- (b) 10%
- (c) 20%
- (d) 100%

Confined	11 %
Unconfined	2 %

27- A well in which water reaches the ground level under the natural pressure of the aquifer is known as- [UPPSC AE 2020 Paper II]

- (a) Shallow well
- (b) Deep well
- (c) **Artesian well**
- (d) Tube well

28- This equation is applicable to only- [UPPSC AE 2020 Paper II]

- (a) **Homogeneous aquifers**
- (b) Non-homogeneous aquifers
- (c) Non-isotropic aquifers
- (d) Irregular aquifers

This equation is applicable to **Homogeneous and isotropic aquifers**

29- Service life of a well depends on- [UPPSC AE 2020 Paper II]

- (a) Well development
- (b) Well construction
- (c) Well design



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(d) All the above

30- Gravel size used for gravel packing in well development is-

[UPPSC AE 2020 Paper II]

- (a) More than 10.5 mm
- (b) 8.4 mm to 10.5 mm
- (c) 6.4 mm to 8.4 mm
- (d) **3.0 mm to 6.4 mm**

Gravel max size 6.4mm as per ASAE

Gravel pack 10-20 cm

31- To determine proper filter thickness in a sub-surface drainage through model study, appropriate option would be-

[UPPSC AE 2020 Paper II]

- (a) Numerical model
- (b) **Analytical model**
- (c) Analog model
- (d) Physical model

32- For the most economical rectangular channel, the depth (d) and breadth (b) are related as-

[UPPSC AE 2020 Paper II]

- (a) $d = \frac{b}{2}$
- (b) $b = \frac{d}{2}$
- (c) $b = 2d \tan\theta$
- (d) $d = 2b \tan\theta$

33- Bernoulli's equation is an equation of-

[UPPSC AE 2020 Paper II]

- (a) Conservation of mass
- (b) **Conservation of energy**

- (c) Conservation of linear momentum
- (d) Conservation of angular momentum

34- Poise is the unit of-

[UPPSC AE 2020 Paper II]

- (a) Surface tension
- (b) Viscosity**
- (c) Suction
- (d) All the above

Poise is the unit of dynamic Viscosity and 0.1 Pascal-second

35-What is the hydraulic radius of an open channel for fluid flow having a width of 40 cm and height of 30 cm?

[UPPSC AE 2020 Paper II]

- (a) 8.5 cm
- (b) 12.0 cm**
- (c) 15.0 cm
- (d) 34.5 cm

A will be $40 \times 30 = 1200$

P will be $40 + 2 \times 30 = 100$, $R = A/P = 1200/100 = 12 \text{ cm}$

36- The equation of motion for laminar flow of a real fluid is known as-

[UPPSC AE 2020 Paper II]

- (a) Euler equation
- (b) Navier Stoke's equation**
- (c) Bernoulli equation
- (d) Hagen-Poiseuille equation

37- Dimensions of Mannings roughness coefficient are-

[UPPSC AE 2020 Paper II]

- (a) $L^{-1/3} T$**

- (b) $L^{-1/6} T$
- (c) $L^{-1/16} T$
- (d) None of the above

$$V = [R^{(2/3)} * S^{(1/2)}] / n$$

38- For laminar flow in a pipe, the value of Reynolds number is-

[UPPSC AE 2020 Paper II]

- (a) < 2100
- (b) > 2100
- (c) > 4000
- (d) < 4000

Laminar	< 2000
Transient	2000-4000
Turbulent	>4000

39- A venturi flume works on the principle of-

[UPPSC AE 2020 Paper II]

- (a) Accelerated flow
- (b) Channel flow
- (c) Pipe flow
- (d) **Pressure flow**

40- The weight of a hollow sphere is 138.74 N. If it floats in water just fully submerged, the external diameter of the sphere is- [UPPSC AE 2020 Paper II]

- (a) 200 mm
- (b) **300 mm**
- (c) 350 mm



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(d) 410 mm

41- A map measuring $3.5 \text{ cm} \times 2.5 \text{ cm}$ represents an area of $1,26,000 \text{ m}^2$. Find the scale at which the map has been drawn- [UPPSC AE 2020 Paper II]

- (a) 1 cm : 80 m
- (b) 1 cm : 100 m
- (c) **1 cm : 120 m**
- (d) 1 cm : 140 m

$$\text{Scale}^2 = 126000/(3.5*2.5)$$

42- Angle subtended at the centre of a circle by an arc equal to the radius of the circle in length is equal to- [UPPSC AE 2020 Paper II]

- (a) **1.00 radian**
- (b) 0.50 radian
- (c) 0.33 radian
- (d) 0.25 radian

Arc Length = $r * \theta$

$R = R * \theta$, θ will be one radian

43- What is the correct length of a line which is measured as 350 m with a 20 m tape, 10 cm too long? [UPPSC AE 2020 Paper II]

- (a) 348.25 m
- (b) 349.90 m
- (c) 352.25 m
- (d) **351.75 m**

$$350 * 20.10 / 20 = 351.75$$

44- Which of the following chains is also known as surveyor's chain?

[UPPSC AE 2020 Paper II]



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- (a) **Gunter's chain**
- (b) Engineer's chain
- (c) Metric chain
- (d) All of the above

Gunter's chain	66 feet	surveyor's chain
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45- Multiplying power of the telescope of a theodolite ranges from-
[UPPSC AE 2020 Paper II]

- (a) 5 to 8 times its diameter
- (b) **18 to 30 times its diameter**
- (c) 8 to 16 times its diameter
- (d) 6 to 12 times its diameter

46- Least count of a 30 m chain is- [UPPSC AE 2020 Paper II]

- (a) 30 cm
- (b) **20 cm**
- (c) 25 cm
- (d) 35 cm

Least count is 0.2 m for 20/30 m metric chain

Link = 150, length = $30/150 = 0.2$ m

47-The adjacent angle between the two lines AB and BC whose respective bearings are 35° and 145° is- [UPPSC AE 2020 Paper II]

- (a) **70°**
- (b) 115°
- (c) 175°
- (d) 180°

48- Line joining the points of equal time of concentration is called as-
[UPPSC AE 2020 Paper II]

(a) **Isochrone**

(b) Isocells

(c) Isobar

(d) Isohyet

49- Isohyets are- [UPPSC AE 2020 Paper II]

(a) Lines of equal temperature on maps

(b) Lines of equal pressure on maps

(c) **Lines of equal precipitation on maps**

(d) None of the above

50- Hydrograph is a plot of- [UPPSC AE 2020 Paper II]

(a) **Discharge and time in chronological order**

(b) Rainfall depth and time in chronological order

(c) Run off and rainfall depth

(d) Intensity and duration of rainfall

51- Accelerated erosion is- [UPPSC AE 2020 Paper II]

(a) **More than geological erosion**

(b) Lesser than geological erosion

(c) Equal to geological erosion

(d) None of the above

52- A watershed area of 1850 ha has the maximum distance of 7.08 km from the outlet to the farthest point on the divide line. Form factor -

[UPPSC AE 2020 Paper II]

(a) 3.7

(b) **0.37**

- (c) 0.45
- (d) 1.95

$$\text{Form factor} = A/L^2 = 1850 \times 10^4 / (7080 \times 7080) = 0.369$$

53- Horton's method is used for determination of- [UPPSC AE 2020 Paper II]

- (a) Run off capacity
- (b) Infiltration capacity**
- (c) Water holding capacity
- (d) Drainage capacity

$$f(t) = f_0 + (f_0 - f_c)e^{-kt}$$

54- Black soil comes under the hydrologic soil group-

[Doubt-UPPSC AE 2020 Paper II]

- (a) A**
- (b) B**
- (c) C**
- (d) D**

55- Ramser formula for vertical interval of contour bunds is-

[UPPSC AE 2020 Paper II]

- (a) $VI = 0.3\left(\frac{S}{2} + 3\right)$
- (b) $VI = 0.4\left(\frac{S}{3} + 2\right)$
- (c) $VI = 0.3\left(\frac{S}{3} + 2\right)$**
- (d) $VI = 0.3\left(\frac{S^2}{3} + 2\right)$

$$VI = 0.3\left(\frac{S}{3} + 2\right), VI = m, S = \%$$

56- In reciprocating pumps, the difference between the swept volume and output per stroke is called- [UPPSC AE 2020 Paper II]

- (a) Coefficient of discharge
- (b) Volumetric efficiency
- (c) **Slippage**
- (d) Discharge per stroke

$$\text{Slip} = (1 - Q_{\text{act}}/Q_{\text{th}}) * 100$$

57- Changing the impeller diameter has the same effect on pump performance as changing the- [UPPSC AE 2020 Paper II]

- (a) **Speed**
- (b) Head
- (c) Power
- (d) Specific speed

$$Q \propto N \propto D$$

58- In a laminar flow region, value of friction factor for pipe flow is related to the Reynolds number as follows- [UPPSC AE 2020 Paper II]

- (a) Directly proportional
- (b) **Inversely proportional**
- (c) Constant
- (d) Inversely proportional to the square root of Reynolds number

$$4f = \text{friction factor} = 64/Re$$

59- Formula for Curve Number is given by- [UPPSC AE 2020 Paper II]



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(a) $CN = \frac{25400}{254+S}$

(b) $CN = \frac{254}{25400+S}$

(c) $CN = \frac{254}{2500+S}$

(d) $CN = \frac{2500}{254+S}$

$S = 25400 / CN - 254$, $S = \text{mm}$

60- Gully erosion is the-

[UPPSC AE 2020 Paper II]

- (a) Initial stage of rill erosion
- (b) Last stage of sheet erosion
- (c) **Advance stage of rill formation**
- (d) None of the above

61- Flood routing is used for-

[UPPSC AE 2020 Paper II]

- (a) Flood forecasting
- (b) Flood protection
- (c) Design of reservoirs
- (d) **All the above**

Used for flood forecasting, design of spillways, reservoirs & flood protection works etc.

62- If land slope is doubled, the particle transportation capacity will increase-

[UPPSC AE 2020 Paper II]

- (a) 4 times
- (b) 8 times
- (c) **$2^{5/2}$ times**
- (d) 5 times

Transportation capacity $\propto V^5$



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Velocity $\propto S^{1/2}$

Transportation capacity $\propto S^{5/2}$

63- Purpose of longitudinal sills of drop structures is-[UPPSC AE 2020 Paper II]

- (a) To spill water smoothly
- (b) To make apron stable**
- (c) To dissipate the kinetic energy of flow
- (d) None of the above

64- The most suitable equipment for well drilling in hard rock areas is-

[UPPSC AE 2020 Paper II]

- (a) Cable tool drilling
- (b) Direct rotary drilling
- (c) Down-the-hole air rotary drilling**
- (d) Reverse rotary drilling

65- The minimum slope required for the land irrigated with surface method of water application is- [UPPSC AE 2020 Paper II]

- (a) 0.01%
- (b) 0.05%**
- (c) 0.10%
- (d) 0.15%

66- A hand pump is classified as-

[UPPSC AE 2020 Paper II]

- (a) Centrifugal pump
- (b) Propeller pump
- (c) Positive displacement pump**
- (d) Siphon pump



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67- Water level in a tube well is 100 m below ground level. What would be the minimum power required to lift the water at the rate of 5 litre per second?

[UPPSC AE 2020 Paper II]

- (a) 2.0 kW
- (b) 3.0 kW
- (c) 4.0 kW
- (d) **5.0 kW**

Minimum power required = $(5 * 10^{-3} * 1000 * 9.8 * 100) / 1000 = 4.9 \text{ kW}$

68- Liquid enters into a centrifugal pump through the pump's-

[UPPSC AE 2020 Paper II]

- (a) **Eye**
- (b) Nose
- (c) Ear
- (d) Mouth

69- Axial flow pump is often known as-

[UPPSC AE 2020 Paper II]

- (a) **Propeller pump**
- (b) Spiral pump
- (c) Centrifugal pump
- (d) None of the above

70- Hydraulic ram is used for-

[UPPSC AE 2020 Paper II]

- (a) Lifting water from low level to high level
- (b) Lifting water in hilly areas
- (c) Oil filling in tankers
- (d) **Both (a) and (b) above**

71- An impulse turbine pump is used for-

[UPPSC AE 2020 Paper II]

- (a) Low head of water

- (b) **High head of water**
- (c) Medium head of water
- (d) High discharge

72- Major area of salt affected soils is found in soil category of-

[UPPSC AE 2020 Paper II]

- (a) **Arid and semi-arid areas**
- (b) Indo-gangetic plains
- (c) Medium and deep black soil regions
- (d) Coastal region

73- Contour borders are laid-

[UPPSC AE 2020 Paper II]

- (a) Along the land slope
- (b) **Across the land slope**
- (c) Parallel to the field channel
- (d) None of the above

74- If the discharge of drainage canal is 1000 litres per second and drainage area is 360 ha, the drainage coefficient will be equal to-

[UPPSC AE 2020 Paper II]

- (a) 0.24 cm
- (b) **2.4 cm**
- (c) 3.0 cm
- (d) 24.0 cm

Drainage coefficient (m) = $1000 * 10^{-3} * 24 * 3600 / (360 * 10^4) = 0.024 \text{ m} = 2.4 \text{ cm}$

75- What are the dimensions of the constant of proportionality in Darcy's law?

[UPPSC AE 2020 Paper II]

- (a) **LT⁻¹**

- (b) L^2T^{-1}
- (c) LT^{-2}
- (d) $ML^{-1}LT^{-1}$

$V = ki, k = m/sec$

76- Reciprocating pump can build a pressure upto- [Doubt- UPPSC AE 2020 Paper II]

- (a) **700 kg/cm²**
- (b) 700 kg/m²
- (c) 7000 kg/cm²
- (d) 7000 kg/m²

77- The highest specific speed is of- [UPPSC AE 2020 Paper II]

- (a) Single suction pump
- (b) Radial flow pump
- (c) **Axial flow pump**
- (d) Mixed flow pump

78- Removal of air by filling the pump with water is known a-

[UPPSC AE 2020 Paper II]

- (a) Deaerating
- (b) Sterilizing
- (c) **Priming**
- (d) None of the above

79-Specific speed of a pump is given by -

[UPPSC AE 2020 Paper II]

- (a) $N_S = \frac{\sqrt{Q}}{H^{3/4}}$
- (b) $N_S = \frac{\eta\sqrt{Q}}{H^{3/4}}$



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(c) $N_S = \frac{N_3 \sqrt{Q}}{H^{3/4}}$

(d) $N_S = \frac{N \sqrt{Q}}{H^{3/4}}$

80-What is the minimum recommended size (diameter) of tile drain in mm?

[UPPSC AE 2020 Paper II]

- (a) 75
- (b) **100**
- (c) 150
- (d) 200

81-What can be the best irrigation water measuring method for border irrigation?

[UPPSC AE 2020 Paper II]

- (a) Current meter
- (b) Drop spillway
- (c) Ventury flume
- (d) **Parshall flume**

82-Kostiakove equation estimates-

[UPPSC AE 2020 Paper II]

- (a) Infiltration rate
- (b) **Infiltration capacity and cumulative infiltration**
- (c) Deep percolation rate
- (d) Seepage rate

83-Which of the following instruments does NOT measure fluid flow rate?

[UPPSC AE 2020 Paper II]

- (a) Weir
- (b) **Piezometer**
- (c) Notch
- (d) Flume

84-What is the annual precipitation received in India?

[UPPSC AE 2020 Paper II]

- (a) 1000 billion cubic meter
- (b) 2000 billion cubic meter
- (c) 3000 billion cubic meter
- (d) **4000 billion cubic meter**

$$329 \text{ million ha} \times 1194 \text{ mm} = 329 * 10^6 * 10^4 * 1.194 / (10^9)$$

85-Field capacity generally ranges between-

[UPPSC AE 2020 Paper II]

- (a) $\frac{1}{10}$ to $\frac{1}{3}$ atmospheric pressure
- (b) $\frac{1}{100}$ to $\frac{1}{30}$ atmospheric pressure
- (c) $\frac{1}{10}$ to $\frac{1}{30}$ atmospheric pressure
- (d) $\frac{1}{100}$ to $\frac{1}{3}$ atmospheric pressure

$$FC = 0.1-0.33 \text{ ATM, WP} = 15 \text{ ATM (7-32), PWP} = 32 \text{ ATM, UWP} = 60 \text{ ATM}$$

SAURATION- 0 ATM

86-Length of borders for irrigation in medium loam soil should be-

[UPPSC AE 2020 Paper II]

- (a) 60 – 100 m
- (b) 40 – 60 m
- (c) **100 – 180 m**
- (d) 180 – 240 m

87-Which of the following is NOT an appropriate greenhouse covering material-

[UPPSC AE 2020 Paper II]

- (a) Polyethylene film
- (b) Poly carbonate sheet

- (c) PVC film
(d) Asphalt sheet

88-For plastering an exposed brick wall, the cement: sand ratio should be-

[UPPSC AE 2020 Paper II]

- (a) 1 : 2
(b) 1 : 3
(c) 1 : 4
(d) 1 : 6

89-Thickness of Damp Proof Course (DPC) above ground level should be-

[UPPSC AE 2020 Paper II]

- (a) 1 – 2 cm
(b) 4 – 5 cm
(c) 10 – 20 cm
(d) 20 – 40 cm

90-The basic purpose of a greenhouse is to control- [UPPSC AE 2020 Paper II]

- (a) Temperature
(b) Humidity
(c) Light
(d) All the above

91-In rural water supply system which type of pipe networking system should invariably be provided? [Doubt-UPPSC AE 2020 Paper II]

- (a) Safeguard leakage
(b) Water should remain in pipe network for long time use
(c) Provide circulatory network making loop
(d) Let there be point supply, end at house with stop



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92-Reynolds number for ground water flow varies from-

[UPPSC AE 2020 Paper II]

- (a) Below 1
- (b) 1 to 10
- (c) 10 to 15
- (d) 15 to 20

93-Laplace equation, used for seepage analysis, is valid for-

[UPPSC AE 2020 Paper II]

- (a) Isotropic soil
- (b) Anisotropic soil
- (c) Sandy soil
- (d) Clay soil

94-Bulk density of an aggregate is 1000 kg/n^3 and particle density is 1500 kg/m^3 .

The porosity of the aggregate is-

[UPPSC AE 2020 Paper II]

- (a) $\frac{1}{4}$
- (b) $\frac{1}{3}$
- (c) $\frac{1}{2}$
- (d) $\frac{2}{3}$

95-An aquitard is any geological formulation within the earth of a-

[UPPSC AE 2020 Paper II]

- (a) Less permeable bed for ground water flow bed for ground water flow
- (b) Highly permeable bed for ground water flow
- (c) Impermeable bed for ground water flow
- (d) None of the above

96-Dimensions of transmissibility of aquifer is -

[UPPSC AE 2020 Paper II]



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- (a) LT^{-1} .
- (b) $L^2 T^{-1}$.
- (c) LT^{-2}
- (d) $L^2 T^{-2}$

97-Thickness of gravel pack in tube wells usually varies from-

[UPPSC AE 2020 Paper II]

- (a) 20 to 25 cm
- (b) 5 to 8 cm
- (c) **8 to 15 cm**
- (d) 15 to 20 cm

98-Keeping the hydraulic properties of the aquifer constant, how much will the increase in tube well yield by doubling the tube well diameter?

[UPPSC AE 2020 Paper II]

- (a) 7%
- (b) 41%
- (c) **11%**
- (d) 15%

99-This equation for determining optimum spacing of wells is-

[Doubt-UPPSC AE 2020 Paper II]

(a) $r_s = \frac{2.4 \times 10^5 C_P Q^{5/2}}{K.T.}$

(b) $r_s = \frac{2.4 \times 10^6 C_P Q^1}{K.T.}$

(c) $r_s = \frac{2.4 \times 10^5 C_P Q^2}{K.T.}$

(d) $r_s = \frac{2.8 \times 10^5 C_P Q^2}{K.T.}$



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100-Average flow velocity in rivers and canals occurs at the depth of-

[UPPSC AE 2020 Paper II]

- (a) 0.4d from the free surface
- (b) 0.6d from the free surface**
- (c) 0.4d to 0.8d from the free surface
- (d) None of the above

101-A dimensionless number obtained by combining a characteristic length, fluid velocity and acceleration due to gravity is known as-

[UPPSC AE 2020 Paper II]

- (a) Reynolds number
- (b) Weber number
- (c) Froude number**
- (d) Euler number

102-Which fluid property relates dynamic and kinematic viscosities of a given fluid?

[UPPSC AE 2020 Paper II]

- (a) Density**
- (b) Specific heat
- (c) Acceleration due to gravity
- (d) Molecular weight

103-Blasius equation for friction factor 'f' for turbulent flow in a pipe is given by

[UPPSC AE 2020 Paper II]

- (a) $\frac{0.316}{Re^{1/3}}$
- (b) $\frac{0.316}{Re^{1/4}}$**
- (c) $\frac{64}{Re}$
- (d) $\frac{3.75}{\sqrt{Re}}$

104-The difference between the flow depths after and before the hydraulic jump is called as- [UPPSC AE 2020 Paper II]

- (a) **Height of the jump**
- (b) Relative head gain
- (c) Relative energy loss
- (d) None of the above

105-The Dimensions of Chezy's constant are- [UPPSC AE 2020 Paper II]

- (a) $M^1 L^{1/2} T^{-1}$
- (b) $M^0 L^{3/2} T^{-1/2}$
- (c) $M^1 L^1 T^{-1}$
- (d) $M^0 L^{1/2} T^{-1}$

106-Hydraulic radius of a circular pipe is [UPPSC AE 2020 Paper II]

- (a) $\frac{d}{2}$
- (b) $\frac{d}{4}$
- (c) $\frac{d}{3}$
- (d) $\frac{d}{8}$

107-Angle of a hill slope could be measured by- [UPPSC AE 2020 Paper II]

- (a) Pedometer
- (b) Hypsometer
- (c) **Clinometer**
- (d) Manometer

108-Which of the following characteristics is NOT attributable to contour lines for a hill? [UPPSC AE 2020 Paper II]

- (a) Contour lines cannot merge or cross one another
- (b) Contour lines cannot and anywhere

(c) A series of closed contour lines on a map

(d) Closed contour lines on a map with the lowest value in the middle.

109-What will be the back bearing of the forebearing $220^{\circ}30'$?

[UPPSC AE 2020 Paper II]

(a) $40^{\circ}30'$

(b) $140^{\circ}30'$

(c) $310^{\circ}30'$

(d) $339^{\circ}30'$

110-Which of the following statements is NOT correct for contour lines?

[UPPSC AE 2020 Paper II]

(a) **Contour lines never meet**

(b) Higher values of contour lines inside a loop indicate a hill

(c) Closely spaced contour lines indicate steep slope

(d) Equally spaced contour lines indicate a uniform slope

111-The most efficient and widely used method of land grading is-

[UPPSC AE 2020 Paper II]

(a) **Least square method**

(b) End point method

(c) Grid method

(d) All the above methods

112-Recommended contour intervals for land slopes ranging from 1 to 2% are-

[UPPSC AE 2020 Paper II]

(a) 45 to 60 cm

(b) 35 to 50 cm

(c) 15 to 30 cm

(d) 30 to 45 cm



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113-Fixed reference point of known elevation- [UPPSC AE 2020 Paper II]

- (a) Reduced level
- (b) Back point
- (c) Bench mark**
- (d) Change point

114-Line of sight through a levelling instrument is called as-

[UPPSC AE 2020 Paper II]

- (a) Back sight
- (b) Foresight
- (c) Line of collimation**
- (d) Sight of collimation

115- In saltation process of soil management, the movement takes place in the form of- [UPPSC AE 2020 Paper II]

- (a) Suspension in wind
- (b) Surface creep
- (c) Low bounces over the land surface**
- (d) None of the above

116-Hydrological cycle is-

[UPPSC AE 2020 Paper II]

- (a) A continuous unending water transformation in the atmosphere**
- (b) That it starts in monsoon and ends in winter season
- (c) That is an unending water cycle
- (d) The period starting from 1st April to 31st March

117-Which is NOT a kind of soil water-

[UPPSC AE 2020 Paper II]

- (a) Hygroscopic water
- (b) Hydrologic water**
- (c) Capillary water

(d) Gravitational water

118-What is reduced in sprinkler irrigation? [UPPSC AE 2020 Paper II]

- (a) Compaction of soil
- (b) Generation of run off
- (c) Water logging
- (d) **All the above**

119-Tensiometer is best suited for- [UPPSC AE 2020 Paper II]

- (a) **Sandy soils**
- (b) Clay soils
- (c) Loamy soils
- (d) Clay loam soil

0.85 bar limit

120-Ventilation rate for a dairy barn is designed for- [UPPSC AE 2020 Paper II]

- (a) Temperature control
- (b) Humidity control
- (c) Reduction of CO₂ and other obnoxious gases
- (d) **All of the above**

121-A retaining wall retains- [UPPSC AE 2020 Paper II]

- (a) Water
- (b) **Earth**
- (c) Road
- (d) Bridge

122-Strength of cement concrete depends primarily on-

[UPPSC AE 2020 Paper II]

- (a) Quantity of cement
- (b) Quantity of concrete

(c) **Water cement ratio**

(d) Quality of water

123- Rapid hardening cement contains-

[UPPSC AE 2020 Paper II]

(a) Tri-calcium aluminate

(b) **Tri-calcium silicate**

(c) Tetra-calcium ferrite

(d) Di-calcium silicate

124-An area of 400 ha is draining at the rate of 4 cumec. What is the drainage coefficient of the area?-

[UPPSC AE 2020 Paper II]

(a) 4.32 cm

(b) 6.64 cm

(c) 7.24 cm

(d) **8.64 cm**

Coefficient of the area = $4 \times 24 \times 3600 / (400 \times 10^4) = 0.084 = 8.64 \text{ cm}$

125-The volume of water that can be released by gravitational effects from a unit volume of an aquifer is its-

[UPPSC AE 2020 Paper II]

(a) Specific storage

(b) **Specific yield**

(c) Specific capacity

(d) Specific porosity