

Q. As per IS:456 – 2000, in design of shear reinforcement of single bar or single group of parallel bars, all bent up at the same cross section, the strength of shear reinforcement V_{us} is calculated as _____, where f_y = characteristic strength of bent up reinforcement ($\leq 415 \text{ N/mm}^2$), a_{sv} = area of shear reinforcement provided, α = angle between bent up bar and axis of member. [UPRUNL JE 2019]

A. $V_{us} = 0.85 f_y a_{sv} \sin \alpha$

B. $V_{us} = 0.87 f_y a_{sv} \sin \alpha$

C. $V_{us} = 0.85 f_y a_{sv} (\sin^2) \alpha$

D. $V_{us} = 0.87 f_y a_{sv} (\sin^2) \alpha$

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Q. In estimating the cost for earthwork excavation normally an extra rate is provided for every lead of _____ and lift of _____.

[UPRUNL JE 2019]

- A. 30 m, 1.5 m
- B. 30 m, 3 m
- C. 45 m, 2 m
- D. 30 cm, 1.5 cm

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Q. For laminar flow a circular pipe, the ratio of maximum velocity of the average velocity is _____. [UPPCL AE 2018]

- A. 2.0
- B. 2.5
- C. 1.5
- D. 1.25



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Q. The primary mode of force transmission in HSFG bolts is _____:

[UPPCL AE 2018]

- A. Friction
- B. Shearing
- C. Bearing
- D. Tension



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Q. A block of weight 60 kg is resting on horizontal surface as shown in figure, calculate the maximum frictional force that develops between surfaces of contact, take coefficient of static friction as 0.3

[UPPCL AE 2019]



A. 176.58 N

B. 180.00 N

C. 18.00 N

D. 155.64 N

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Q. It is notes casting a 'column starter' takes not less than 6 minutes and takes sometimes as long as 45 minutes, But 15 minutes is more frequent. If casting period is considered an activity in a PERT network, what will be the expected time? [UPPCL AE 2019]

- A. 15 Minutes
- B. 11.0 Minutes
- C. 20.25 Minutes
- D. 18.5 Minutes

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Q. A steel rod c/s area 100 mm^2 and 1 m long is subjected to a tensile force of 40 kN. What is the total elongation of the rod? If modulus of elasticity of steel is 200 GPa. [MPSC AE 2017]

- A. 0.5 mm
- B. 0.7 mm
- C. 1.2 mm
- D. 2.0 mm



Q. A simply supported beam carries couple at a point on its span, the shear force: [MPSC AE 2017]

- A. Varies cubic law
- B. Varies by parabolic law
- C. Varies linearly
- D. Is uniform throughout



Q. The dimensions of dynamic viscosity are [MPSC AE 2017]

A. L^2 / T

B. M/LT

C. MT/L

D. T/L^2



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Q. If the velocity potential function $\phi = 5(x^2 - y^2)$, the velocity components at the points (4,5) will be [MPSC AE 2017]

A. $u = -35, v = 40$

B. $u = -40, v = 55$

C. $u = -40, v = 50$

D. $u = 40, v = -50$



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Q. What is the unit of measurement for the honeycomb brick work?

[DMRC AE 2020]

- A. m^3
- B. Ampere
- C. m^2
- D. Per metre



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Q. When the shear force changes its sign within in a shear force diagram, then then the bending moment in the bending moment diagram is: [DMRC AE 2020]

- A. Maximum
- B. Zero
- C. Constant
- D. Minimum



Q. Which of the following is not a direct method of discharge measurement in a stream? [GPSC AE 2020]

A. Velocity area method using current metre.

B. Velocity area methods using floats

C. Dilution method

D. Slope area method

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Q. Rivers which flow only for a short time after a rainstorm and for rest of the time (usually most of the time) their beds are dry are called.

[GPSC AE 2020]

- A. Intermittent Rivers**
- B. Ephemeral Rivers**
- C. Gaining Rivers**
- D. Losing Rivers**



Q. Which of the following statements is/are INCORRECT about the most efficient triangular section open channel? [LMRC JE 2020]

I. Top width of flow of water is twice of the depth of water.

II. Sides of a channel make 45° with the vertical

III. Hydraulic depth is 75% of the depth of water.

A. I and II both are incorrect

B. II is Incorrect

C. III is incorrect

D. I is incorrect

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Q. A rectangular weir 10 v10 m wide has a constant head of 1m. If the coefficient of discharge is 0.6 and $g = 9.8 \text{ m/s}^2$, the discharge over notch will be: [LMRC JE 2020]

- A. 56000 litres per sec
- B. 71096 litres per sec
- C. 28000 litres per sec
- D. 63600 litres per sec

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Q. The distance along the bed of channel between the section, where water starts rising to the section and where water has maximum depth is known as _____. [LMRC AE 2020]

- A. hydraulic jump
- B. Specific energy curve
- C. Length of back water curve
- D. Aiffux

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Q. The maximum value of span to effective ratio for cantilever beams of span up to 10 m is _____ . [LMRC AE 2020]

- A. 7
- B. 20
- C. 17
- D. 26



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Q. Gantt charts indicate [JPSC AE 2020]

A. Comparison of actual progress with the scheduled progress

B. Balance of work to be done

C. Progress cost of the project

D. Inventory cost



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Q. A serious limitation of interdependencies between various activities is generally observed in. [JPSC AE 2020]

- A. Milestones chart
- B. Bar charts
- C. Job layouts
- D. Network analysis



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